IV Konferencja „Rak tarczycy”
Zakopane, 20–22 maja 2010 roku

PROGRAM SZCZEGÓŁOWY ZJAZDU

Czwartek, 20 maja 2010 roku

15.00–16.00 **PREZENTACJA PLAKATÓW przy kawie** *(prosimy Autorów o obecność przed plakatami)*
Sale: Tatry, Rysy, Zawrat, Giewont, Morskie Oko

16.00–16.15 **UROCZYSTE OTWARCIE KONFERENCJI (Sala Tatry)**

16.15–19.45 **SESJA 1. Postępowanie w wolu guzkowym (Sala Tatry)**
Przewodniczący: A. Milewicz, J. Nauman

16.15–16.40 **Update on European guidelines in thyroid nodules (WYKŁAD NA ZAPROSZENIE)**
Ralf Paschke (Lipsk, Niemcy)

16.45–17.00 **Kryteria i standardy w BACC raka tarczycy stanowisko Polskiego Towarzystwa Ultrasonograficznego**
W. Jakubowski (Warszawa)

17.05–17.15 **Elastografia — nowa technika ultrasonograficzna w diagnostyce guzów tarczycy**
M. Gietka-Czernel, M. Kochman, K. Bujalska, E.Stachlewska-Nasfeter, W. Zgliczyński (Warszawa)

17.20–17.30 **Ocena wartości ultrasonografii wysokiej rozdzielczości do oceny fałdów głosowych u pacjentów przed i po tyroidektomii — prospektywne badanie pilotażowe**
M. Dedecjus, Z. Adamczewski, J. Brzeziński, A. Lewiński (Łódź)

17.35–17.45 **Czy powtórna ocena preparatów cytologicznych biopsji aspiracyjnej cienkoigłowej (BAC) tarczycy ma wpływ na wybór metody leczenia chorych z guzami tarczycy?**
D. Lange, E. Stobiecka, A. Stanek-Widera, D. Banaś, M. Wesołowski (Gliwice)

17.50–18.00 **Retrospektywna kategoryzacja rozpoznań z BAC/USG tarczycy**
J. Sygut, A. Kowalska, J. Kopczyński, D. Gąsior-Perczak, R. Mężyk, K. Niemyska (Kielce)

18.05–18.15 **Trudności diagnostyczne w ocenie histologicznej nowotworów tarczycy. Podobieństwa i różnice w ocenie preparatów parafinowych w oparciu o konsultacje Polskiej Grupy ds. Nowotworów Endokrynnych**
A. Konturek, M. Barczyński, M. Stopa, P. Richter, W. Nowak (Kraków)

18.20–18.35 **Nowe możliwości diagnostyczne w ultrasonografii**
Prezentacja sponsorowana SIEMENS

18.35–18.50 *Przerwa na kawę*

KONFERENCJA OKRĄGŁEGO STOŁU — Postępowanie diagnostyczne i terapeutyczne w wolu guzkowym
POLSKA GRUPA ds. NOWOTWORÓW ENDOKRYNNYCH
Moderatorzy: A. Lewiński, J. Nauman

18.50–19.05 **Polskie Rekomendacje Raka Tarczycy: prezentacja części dotyczącej diagnostyki cytologicznej guzków tarczycy i rozpoznania histopatologicznego raka tarczycy**
S. Sporny (Łódź)

19.05–19.45 **Dyskusja**
W. Jakubowski, A. Kulig, D. Lange, W. Olszewski, L. Pomorski, D. Słowińska-Klencka, J. Sowiński

20.00–21.00 **Koktail powitalny i dyskusja przed plakatami** *(prosimy Autorów o obecność przed plakatami)*

21.00–22.05 **SESJA 2. Omówienie doniesień plakatowych „Ciekawe przypadki raka tarczycy" Dyskusja (Sala Tatry) Postery (Sala Tatry)**

Przewodniczący: Z. Szybiński, R. Junik

21.00–21.03 **Analiza genu PDS w rodzinie z zespołem Pendreda i współwystępującym rakiem brodawkowatym tarczycy**

K. Łącka, A. Paradowska, E. Korman, J. Rajewska, B. Stawny, J.K. Łącki (Poznań)

21.05–21.08 **Trudności w diagnostyce i leczeniu pacjenta z przewlekłym autoimmunologicznym zapaleniem tarczycy i współistniejącym guzkiem tarczycy**

M. Niedziela, D. Bręborowicz, B. Rabska-Pietrzak, E. Trejster, J. Harasymczuk (Poznań)

21.10–21.13 **Rodzinne występowanie nowotworu oksyfilnego tarczycy, analiza genu GRIM 19**

J. Maceluch, B. Rabska-Pietrzak, A. Rojek, J. Harasymczuk, E. Trejster, M. Warzywoda, D. Bręborowicz, J. Bręborowicz, M. Niedziela (Poznań)

21.15–21.18 **Guz tarczycy jako pierwsza manifestacja ziarnicy złośliwej**

M. Ruchała, E. Szczepanek, P. Majewski, J. Sowiński (Poznań)

21.20–21.23 **Opis przypadku chłoniaka Hodgkina wywodzącego się z grasicy imitującego wole zamostkowe**

M. Dedecjus, A. Kędzierska, J. Kozak, G. Stróżyk, R. Kordek, J. Brzeziński (Łódź)

21.25–21.28 **Zróżnicowany rak tarczycy u kobiet w ciąży — dylematy kliniczne**

M. Koziołek, E. Wentland-Kotwicka, A. Syrenicz (Szczecin)

21.30–21.33 **Wariant kolumnowokomórkowy raka brodawkowatego tarczycy w wolu jajnika — opis przypadku**

B. Szcześniak-Kłusek, E. Stobiecka, A. Smok-Ragankiewicz, J. Krajewska, A. Czarniecka, D. Lange (Gliwice)

21.35–21.38 **Leczenie sorafenibem w zaawansowanym raku tarczycy — opis przypadku**

J. Krajewska, T. Olczyk, J. Roskosz, A. Śmietana, B. Kaczmarek-Borowska, E. Paliczka-Cieślik, S. Szpak-Ulczok, B. Jarząb (Gliwice)

21.40–21.43 **Przypadek pacjenta z akromegalią i rozsianym rakiem pęcherzykowym tarczycy**

A. Bałdys-Waligórska, F. Gołkowski, A. Krzentowska, A. Stefańska, O. Halytskyy, A. Hubalewska-Dydejczyk (Kraków)

21.45–21.48 **Izolowany przerzut raka jasnokomórkowego nerki do tarczycy — opis przypadku**

M. Bilski, G. Kamiński (Warszawa)

21.50–21.53 **Przerzut raka piersi do tarczycy — prezentacja dwóch przypadków**

E. Skowrońska-Jóźwiak, Z. Adamczewski, K. Krawczyk-Rusiecka, A. Gumińska, S. Sporny, A Kulig, M. Dedecjus, J. Brzeziński, A. Lewiński (Łódź)

21.55–21.58 **Współistnienie gruczolaków przytarczyc u pacjentki hemodializowanej z rakiem tarczycy — opis przypadku**

J. Skrobisz, R. Wieczorek (Poznań)

22.00–22.03 **Współwystępowanie raka jasnokomórkowego nerki i pęcherzykowego tarczycy — opis przypadku**

M. Bilski, G. Kamiński (Warszawa)

Piątek, 21 maja 2010 roku

8.30–10.30 **SESJA 3. Leczenie operacyjne raka tarczycy Sesja im. Prof. Jana Skrzypka (Sala Tatry)**

Przewodniczący: J. Brzeziński, J. Włoch

8.30–8.45 **Molekularne i kliniczne czynniki rokownicze i ich miejsce w strategii chirurgicznej raka tarczycy**

A. Czarniecka, J. Włoch (Gliwice)

8.48–9.03 **Przed-, śród- i pooperacyjny monitoring funkcji nerwów krtaniowych wstecznych w chirurgicznym leczeniu raka tarczycy**

M. Dedecjus, J. Brzeziński (Łódź)

9.06–9.15 **Ocena wartości klinicznej śródoperacyjnego neuromonitoringu wyników leczenia operacyjnego raka tarczycy**

M. Barczyński, A. Konturek, S. Cichoń, W. Nowak (Kraków)

9.18–9.27 **Ryzyko niezamierzonego wycięcia przytarczycy w czasie operacji raka tarczycy**

L. Pomorski, K. Paduszyńska, S. Mikosiński, E. Rogowska, K. Kaczka (Łódź)

9.30–9.39 **Skojarzone leczenie zróżnicowanego raka tarczycy (ZRT) u dzieci: ocena powikłań**

A. Kropińska, J. Roskosz, J. Włoch, J. Krajewska, A. Krawczyk, T. Olczyk, E. Paliczka-Cieślik, J. Kozielski, A. Krzywiecki, J. Szczasny, K. Steinhof-Radwańska, W. Przeorek, D. Handkiewicz-Junak (Gliwice)

9.42–9.51 **Odcinkowa rekonstrukcja tchawicy przy zastosowaniu wolnego płata promieniowego i podporowego stelaża pierścieni biodegradowalnych na przykładzie 3 przypadków**

A. Maciejewski, C. Szymczyk, J. Wierzgoń, M. Grajek, M. Dobrut, R. Szumniak, S. Półtorak, Ł. Krakowczyk, P. Jędrzejewski (Gliwice)

9.54–10.20 **Advances in thyroid cancer surgery (WYKŁAD NA ZAPROSZENIE)**

Michele Minuto (Piza, Włochy)

10.30–10.45 *Przerwa na kawę*

10.45–12.45 **SESJA 4. Badania molekularne raka tarczycy i udziału hormonów tarczycy w kancerogenezie**

Sesja im. Prof. Jana Steffena (Sala Tatry)

Przewodniczący: A. Nauman, K. Łącka

10.45–11.10 **Molecular biology of thyroid cancer (WYKŁAD NA ZAPROSZENIE)**

Clara Alvarez (Santiago de Compostela, Hiszpania)

11.15–11.24 **Kariometryczna charakterystyka raka brodawkowatego tarczycy i jej związek ze zmianami w profilu ekspresji genów**

M. Chekan, M. Świerniak, M. Jarząb, M. Oczko-Wojciechowska, D. Rusinek, M. Śnietura, B. Jarząb (Gliwice)

11.27–11.36 **Charakterystyka transkryptomu mikrodyssekowanych tyreocytów raka brodawkowatego tarczycy**

M. Oczko-Wojciechowska, A. Rusin, D. Rusinek, M. Kowalska, M. Kowal, T. Tyszkiewicz, M. Chekan, A. Czarniecka, E. Gubała, B. Jarząb (Gliwice)

11.39–11.48 **Przewidywanie ryzyka przerzutów odległych w raku brodawkowatym tarczycy za pomocą profilu ekspresji genów**

S. Szpak-Ulczok, M. Jarząb, M. Oczko-Wojciechowska, M. Kowalska, M. Kowal, T. Tyszkiewicz, A. Pfeifer, A. Czarniecka, J. Włoch, B. Jarząb (Gliwice)

11.51–12.00 **Ekspresja genów związanych z wiekiem chorego w tarczycy i nowotworach gruczołu tarczowego na podstawie badania ich profilu metodą mikromacierzy oligonukleotydowych**

M. Jarząb, M. Oczko-Wojciechowska, M. Świerniak, S. Szpak-Ulczok, D. Handkiewicz-Junak, M. Kowal, T. Tyszkiewicz, D. Lange, M. Chekan, A. Pfeifer, T. Tyszkiewicz, A. Czarniecka, B. Jarząb, Z. Krawczyk (Gliwice)

12.03–12.12 **Rola mikroRNA w zaburzeniach ekspresji jodotyroninowej dejodynazy typu I w raku nerki typu jasnokomórkowego (ccRCC)**

J. Bogusławska, A. Master, A. Piekiełko-Witkowska, A. Wójcicka, P. Popławski, Z. Tański, A. Nauman (Warszawa)

12.15–12.24 **Zaburzenia ekspresji receptora hormonu tarczycy TR1 w raku nerki człowieka**

A. Piekiełko-Witkowska, A. Master, A. Wójcicka, J. Bogusławska, P. Popławski, H. Wiszomirska, Z. Tański, V.M. Darras, G.R. Williams, A. Nauman (Londyn)

12.27–12.36 **Wpływ reakcji Fentona na oksydacyjne uszkodzenia lipidów błon komórkowych i jądrowego DNA w tarczycy wieprzowej — potencjalny udział w inicjacji kancerogenezy**

J. Stępniak, A. Kokoszko, K. Zasada, J. Szosland, M. Milczarek, A. Gesing, A. Lewiński, M. Karbownik-Lewińska (Łódź)

12.45–14.15 *Przerwa obiadowa*

14.15–15.15 **SESJA 5. Leczenie uzupełniające raka tarczycy (Sala Tatry)**

Przewodniczący I. Kozłowicz-Gudzińska, M. Gryczyńska

14.15–14.24 **Ocena skuteczności uzupełniającego leczenia jodem promieniotwórczym po radykalnym leczeniu operacyjnym u chorych na zróżnicowane raki tarczycy (ZRT)**

J. Krajewska, M. Jarząb, A. Czarniecka, J. Roskosz, A. Kukulska, E. Paliczka-Cieślik, Z. Puch, D. Handkiewicz-Junak, B. Jarząb (Gliwice)

14.27–14.36 **Leczenie uzupełniające jodem promieniotwórczym chorych na zróżnicowanego raka tarczycy: porównanie efektów leczenia uzupełniającego 131-I przy zastosowaniu aktywności 30, 60 i 100 mCi — ocena późna**

A. Kukulska, J. Krajewska, Z. Puch, M. Gawkowska-Suwińska, E. Paliczka-Cieślik, J. Roskosz, D. Handkiewicz-Junak, M. Jarząb, E. Gubała, B. Jarząb (Gliwice)

14.39–14.48 **Porównanie dwóch grup pacjentów ze zróżnicowanym rakiem tarczycy leczonych radiojodem 131-I po stymulacji endogennej i egzogennej TSH**

A. Bałdys-Waligórska, F. Gołkowski, A. Krzentowska, A. Hubalewska-Dydejczyk (Kraków)

14.51–15.00 **Analiza kliniczna wydalania jodu z moczem u chorych na zróżnicowane raki tarczycy (ZRT)**

B. Michalik, J. Roskosz, A. Stanjek-Cichoracka, A. Kochańska-Dziurowicz, B. Jarząb (Gliwice)

15.03–15.12 **Stężenie TSH u chorych na zróżnicowanego raka tarczycy (ZRT) podczas leczenia supresyjnego L-tyroksyną: ocena dotychczasowej praktyki klinicznej**

A. Kropińska, J. Roskosz, Z. Puch, J. Krajewska, A. Krawczyk, T. Olczyk, H. Lewandowska, A. Antosz, M. Dobrakowski, E. Gubała, B. Jarząb (Gliwice)

15.15–15.45 *Przerwa na kawę*

15.45–16.45 **SESJE 6A–6D. OMÓWIENIE DONIESIEŃ PLAKATOWYCH**

Sesja 6A. Biologia molekularna raka tarczycy
Dyskusja (Sala Rysy)
Postery (Sala Rysy)

Przewodniczący: M. Karbownik-Lewińska, M. Niedziela

Sesja 6B. Postępy w wykrywaniu raka tarczycy
Dyskusja (Sala Tatry)
Postery (Sala Giewont)

Przewodniczący: K. Kuzdak, M. Ruchała

Sesja 6C. Biopsje aspiracyjne cienkoigłowe, tyreologia ogólna
Dyskusja (Sala Zawrat)
Postery (Sala Zawrat)

Przewodniczący: A. Kulig, A. Syrenicz

Sesja 6D. Rak rdzeniasty tarczycy
Dyskusja (Sala Morskie Oko)
Postery (Sala Morskie Oko)

Przewodniczący: L. Pomorski, B. Kos-Kudła

16.45–17.15 *Przerwa na kawę*

15.45–16.38 **Sesja 6A. Biologia molekularna raka tarczycy**
Dyskusja (Sala Rysy)
Postery (Sala Rysy)

Przewodniczący: M. Karbownik-Lewińska, M. Niedziela

15.45–15.48 **Geny naprawy DNA w liniach nowotworowych i guzach tarczycy**

J. Janik, K. Hanusek, B. Czarnocka (Warszawa)

15.50–15.53 **Analiza ekspresji mRNA genu NDRG2 w pierwotnym raku brodawkowatym tarczycy oraz w przerzutach tego raka do regionalnych węzłów chłonnych**

A. Mordalska, J. Latek, T. Ferenc, L. Pomorski, A. Zygmunt, E. Gałecka, A. Lewiński (Łódź)

15.55–15.58 **Model zwierzęcy raka brodawkowatego tarczycy indukowanego mutacją BRAFV600E**

D. Rusinek, E. Chmielik, M. Kowal, E. Gubała, W. Widłak (Gliwice)

16.00–16.03 **Ocena transkryptomu raka brodawkowatego tarczycy w stosunku do tarczycy niezmienionej nowotworowo na podstawie profilu ekspresji genów**

M. Świerniak, M. Jarząb, M. Oczko-Wojciechowska, A. Pfeifer, K. Unger, C. Maenhaut, G. Thomas, B. Jarząb (Gliwice)

16.05–16.08 **Próba zastosowania techniki lasów losowych (Random Forests) do dyskryminacji typów histologicznych nowotworów tarczycy**

T. Stokowy, M. Jarząb, K. Fujarewicz, M. Oczko-Wojciechowska, A. Pfeifer, R. Paschke, M. Eszlinger (Gliwice)

16.10–16.13 **Ekspresja genów odpowiedzi immunologicznej w nowotworach tarczycy — analiza transkryptomu**

M. Jarząb, M. Oczko-Wojciechowska, M. Kowal, M. Olakowski, A. Rusin, M. Kowalska, D. Rusinek, A. Pfeifer, M. Świerniak, A. Czarniecka, E. Chmielik, E. Stobiecka, D. Lange, J. Jarząb, Z. Krawczyk (Gliwice)

16.15–16.18 **Porównanie profilu ekspresji genów w gruczolakach tarczycy i innych gruczolakach wewnątrzwydzielniczych**

J. Żebracka-Gala, M. Oczko-Wojciechowska, M. Kowalska, A. Kukulska, A. Czarniecka, E. Gubała, D. Larysz, A. Rudnik, J. Waler, J. Gawrychowski, A. Pfeifer, M. Świerniak, M. Jarząb, E. Chmielik, D. Lange, K. Fujarewicz, A. Świerniak, B. Jarząb (Gliwice)

16.20–16.23 **Ekspresja ghreliny i obestatyny w ludzkiej zdrowej tarczycy i nowotworach tarczycy**

E. Gurgul, M. Ruchała, M. Biczysko, J. Surdyk-Zasada, A. Kasprzak, A. Łukaszyk, J. Sowiński (Poznań)

16.25–16.28 **Chip diagnostyczny oparty o inhibitory enzymów — wstępne badania**

W. Balcerzak, A. Czernicka, S. Deja, P. Młynarz, P. Kafarski (Wrocław)

16.30–16.33 **Ryzyko wystąpienia oraz obraz kliniczny raka brodawkowatego tarczycy a polimorfizm genu CHEK2A**

M. Kalemba, Z. Puch, D. Kula, M. Kowalska, M. Kowal, T. Tyszkiewicz, D. Handkiewicz-Junak, J. Roskosz, K. Drosik, M. Żydek, A. Sikora, A. Chróst, E. Gubała, B. Jarząb (Gliwice)

16.35–16.38 **Opis przypadku chorej z rakiem brodawkowatym tarczycy, u której diagnostykę tyreologiczną podjęto ze względu na obecność mutacji CHEK2**

K. Lizis-Kolus, A. Kowalska, B. Kozak-Klonowska, M. Siołek, J. Słuszniak, J. Lubiński, C. Cybulski (Kielce)

16.45–17.15 *Przerwa na kawę*

15.45–16.33 **Sesja 6B. Postępy w wykrywaniu raka tarczycy**
Dyskusja (Sala Tatry)
Postery (Sala Giewont)

Przewodniczący: K. Kuzdak, M. Ruchała

15.45–15.48 **Analiza obrazów ultrasonograficznych raków wielkości do 15 mm w aspekcie typowania zmian do BAC w wolu wieloguzkowym**

J. Pankowski, E. Kaznowska, B. Maksymiuk (Zakopane)

15.50–15.53 **Analiza przydatności oznaczania steżenia PTH w materiale uzyskanym podczas biopsji aspiracyjnej cienkoigłowej zmian ogniskowych szyi w lokalizowaniu przytarczyc**

B. Popowicz, J. Jankiewicz-Wika, S. Sporny, M. Klencki, E. Woźniak, E. Sewerynek, E.J. Komorowski, D. Słowińska-Klencka (Łodź)

15.55–15.58 **Wykorzystanie elastografii opartej na metodzie obrazowania harmonicznego na podstawie Dopplera tkankowego w diagnostyce zmian ogniskowych w tarczycy — badanie pilotażowe**

Z. Adamczewski, K. Krawczyk-Rusiecka, M. Dedecjus, J. Brzeziński, A. Lewiński (Łódź)

16.00–16.03 **Nowe metody ultrasonograficzne w wizualizacji mikrozwapnień w diagnostyce zmian ogniskowych tarczycy**

R.Z. Słapa, W. Jakubowski, K.T. Szopiński, A. Szcześniak, J. Bierca, J. Słowińska-Srzednicka (Warszawa)

16.05–16.08 **Zalety i wady ultrasonografii trójwymiarowej guzów tarczycy z uwzględnieniem rekonstrukcji cienkiej warstwy**

R.Z. Słapa, W. Jakubowski, J. Słowińska-Srzednicka, K.T Szopiński (Warszawa)

16.10–16.13 **Częstość występowania oraz charakterystyka zmian ogniskowych u pacjentów z hemiagenezją tarczycy**

M. Ruchała, E. Szczepanek, J. Sowiński (Poznań)

16.15–16.18 **Wole nawrotowe poza typową lokalizacją płatów bocznych — analiza ponad 60 przypadków**

E. Woźniak, M. Klencki, B. Popowicz, S. Sporny, D. Słowińska-Klencka (Łódź)

16.20–16.23 **Występowanie zmian nowotworowych w tarczycy u pacjentów po leczeniu radiojodem z powodu zmian łagodnych**

M.H. Listewnik, B. Birkenfeld, K. Niedziałkowska, M. Chosia, B. Elbl, M. Sawrymowicz (Szczecin)

16.25–16.28 **Zastosowanie badania SPECT/CT z MIBI-Tc99m i porównanie z metodą subtrakcji w diagnostyce zmian guzkowych w tarczycy**

M.H. Listewnik, B. Birkenfeld, K. Cichoń-Bańkowska, K. Niedziałkowska, L. Iglińska-Wagner, W. Watrak, W. Smolira, P. Zorga, H. Piwowarska-Bilska, B. Elbl, M. Sawrymowicz (Szczecin)

16.30–16.33 **Analiza wyników badania histopatologicznego tarczycy po reperacjach z powodu raka tarczycy w rozpoznaniach po strumektomii**

J. Skrobisz (Poznań)

16.45–17.15 *Przerwa na kawę*

15.45–16.38 **Sesja 6C. Biopsje aspiracyjne cienkoigłowe, tyreologia ogólna**
Dyskusja (Sala Zawrat)
Postery (Sala Zawrat)

Przewodniczący: A. Kulig, A. Syrenicz

15.45–15.48 **Analiza zgodności wyników biopsji aspiracyjnej cienkoigłowej celowanej (BACC) z badaniem histopatologicznym u pacjentów ze zmianami ogniskowymi tarczycy w materiale własnym**

M. Rzeszutko, W. Rzeszutko, T. Tomkalski (Wrocław)

15.50–15.53 **Ocena zgodności przed- i pooperacyjnych rozpoznań nowotworów złośliwych gruczołu tarczowego**

P. Furga, J. Łapiński, K. Paśnik (Warszawa)

15.55–15.58 **Biopsja celowana aspiracyjna cienkoiglowa a badanie śródoperacyjne tarczycy w materiale własnym oddzialu chirurgii onkologicznej**

D. Bisz, J. Albiński, S. Borczewski, P. Ciszewski (Warszawa)

16.00–16.03 **Cytodiagnostyka niskozróżnicowanego raka tarczycy**

J. Sygut, W. Rezner, J. Kopczyński, J. Słuszniak, A. Kowalska (Kielce)

16.05–16.08 **Rola biopsji aspiracyjnej cienkoigłowej w rozpoznawaniu przerzutów nowotworowych do tarczycy — spostrzeżenia własne**

G. Buła, J. Waler, A. Niemiec, H. Koziołek, W. Bichalski, J. Gawrychowski (Bytom)

16.10–16.13 **Morphological diagnostics of solitary cystic thyroid nodules**

V.N. Marina, V.I. Kolomiytsev, V.I. Vovk, O.V. Lukavetsky, M.P. Pavlovsky (Lwów, Ukraina)

16.15–16.18 **Etyczno-ekonomiczne aspekty biopsji tarczycy — obserwacje ośrodka terenowego**

M. Maciejewski, M. Gąsiorek, M. Słomian, A. Sawicka, K. Marczewski (Zamość)

16.20–16.23 **Ocena wyników stężenia IL-6 u pacjentów z chorobą Graves-Basedowa bez aktywnej oftalmopatii**

D. Zalewska-Rydzkowska, A. Nowicka, J. Kwaśniewska-Błaszkowska, S. Manysiak, G. Odrowąż-Sypniewska, R. Junik (Bydgoszcz)

16.25–16.28 **Zaburzenia czynności tarczycy wykrywane w badaniu przesiewowym w kierunku wrodzonej niedoczynności tarczycy**

M. Kumorowicz-Czoch, D. Tylek-Lemańska, J. Starzyk (Kraków)

16.30–16.33 **Udział polimorfizmu Pro12Ala genu PPAR-γ w orbitopatii endokrynnej**

J. Daroszewski, E. Pawlak, M. Bolanowski, I. Rydecka (Wrocław)

16.35–16.38 **Identyfikacja markerów immunologicznych (CD54, CD95, CD134, CD152) na tyreocytach pacjentów z immunologicznymi i nieimmunologicznymi schorzeniami tarczycy przy wykorzystaniu hodowli komórkowych**

A. Bossowski, E. Ilendo, K. Ratomski, B. Czarnocka, J. Dadan (Białystok)

16.45–17.15 *Przerwa na kawę*

15.45–16.13 **Sesja 6D. Rak rdzeniasty tarczycy**
Dyskusja (Sala Morskie Oko)
Postery (Sala Morskie Oko)

Przewodniczący: L. Pomorski, B. Kos-Kudła

15.45–15.48 **Analiza transkryptomu raka rdzeniastego tarczycy**

M. Oczko-Wojciechowska, J. Włoch, J. Żebracka-Gala, A. Pfeifer, M. Kowalska, Z. Wygoda, A. Czarniecka, E. Gubała, B. Jarząb (Gliwice)

15.50–15.53 **Rola badań PET-CT z analogiem somatostatyny znakowanym galem-68 (^{68}Ga-DOTA-TATE PET-CT) w diagnostyce rozsiewu raka rdzeniastego tarczycy (MTC)**

I. Pałyga, A. Kowalska, D. Gąsior-Perczak, J. Słuszniak. J. Sygut, M. Tarnawska-Pierścińska, S. Góźdź (Kielce)

15.55–15.58 **Ocena przydatności oznaczeń stężenia prokalcytoniny w obserwacji chorych z rakiem rdzeniastym tarczycy (RRT)**

D. Gąsior-Perczak, A. Kowalska, I. Pałyga, G. Antczak, A. Słuszniak, S. Góźdź (Kielce)

16.00–16.03 **Ocena wartości prognostycznej czasu podwojenia stężenia markerów nowotworowych raka rdzeniastego tarczycy**

T. Gawlik, A. d'Amico, E. Gubała, A. Chorąży, K. Gorczewski, B. Jarząb (Gliwice)

16.05–16.08 **Fenotyp nosicieli mutacji w eksonie 10 protoonkogenu RET**

S. Szpak-Ulczok, E. Gubała, A. Pawlaczek, M. Oczko-Wojciechowska, B. Jarząb (Gliwice)

16.10–16.13 **Guzy chromochłonne wsród nosicieli mutacji germinalnych protoonkogenu RET**

K. Hasse-Lazar, A. Krawczyk, S. Szpak-Ulczok, A. Pawlaczek, J. Ziaja, B. Jarząb (Gliwice)

16.45–17.15 *Przerwa na kawę*

17.15–20.00 **SESJA 7. Nowoczesne leczenie raka tarczycy (Sala Tatry)**

Przewodniczący: M. Gembicki, I. Kinalska

17.15–17.45 **Recent Advances in Management of Thyroid Cancer (WYKŁAD NA ZAPROSZENIE)**

Paul Ladenson

17.50–18.10 **Terapia celowana w zaawansowanym raku tarczycy**

B. Jarząb (Gliwice)

18.15–18.30 **Nowe możliwości diagnostyczne w medycynie nuklearnej**
Prezentacja sponsorowana SIEMENS
KONFERENCJA OKRĄGŁEGO STOŁU Leczenie raka tarczycy
Polska Grupa ds. Nowotworów Endokrynnych

Moderatorzy: S. Zgliczyński, B. Jarząb

18.30–18.40 **Polskie Rekomendacje Raka Tarczycy: prezentacja części dotyczącej leczenia operacyjnego raka tarczycy**

K. Kuzdak, J. Brzeziński, J. Włoch (Gliwice)

18.50–19.00 **Polskie Rekomendacje Raka Tarczycy: prezentacja części dotyczącej leczenia izotopowego raka tarczycy**

B. Jarząb, J. Sowiński, I. Kozłowicz-Gudzińska (Gliwice)

19.10–19.20 **Polskie Rekomendacje Raka Tarczycy: prezentacja części dotyczącej raka rdzeniastego tarczycy**

L. Pomorski, J. Włoch, B. Jarząb (Gliwice)

19.20–20.00 **Dyskusja**

J. Brzeziński, I. Kozłowicz-Gudzińska, K. Kuzdak, A. Lewiński, L. Pomorski, J. Sowiński, J. Włoch

20.30 **SPOTKANIE TOWARZYSKIE**

Sobota, 22 maja 2010 roku

9.00–10.45 **SESJA 8. Obrazowanie i leczenie izotopowe raka tarczycy (Sala Tatry)**

Przewodniczący: J. Sowiński, T. Bednarczuk

9.00–9.08 **Wartość kliniczna badania PET z 18F-fluorodeoksyglukozą u chorych z podejrzeniem wznowy zróżnicowanego raka tarczycy**

A. d'Amico, T. Gawlik, J. Roskosz, A. Kukulska, B. Jarząb (Gliwice)

9.11–9.19 **Rola badań obrazowych w diagnostyce przerzutów odległych zróżnicowanego raka tarczycy**

R. Czepczyński, M. Gryczyńska, A. Czepczyńska, M. Stajgis, J. Sowiński (Poznań)

9.22–9.30 **Scyntygrafia receptorowa PET z użyciem znakowanych galem pozytonowym analogów somatostatyny w raku rdzeniastym tarczycy**

Z. Wygoda, A. d'Amico, D. Hankiewicz-Junak, B. Jurecka-Lubieniecka, K. Hasse-Lazar, B. Jarząb (Gliwice)

9.33–9.41 **Prokalcytonina — nowy marker u chorych z rakiem rdzeniastym tarczycy**

K. Kaczka, S. Mikosiński, L. Pomorski (Łódź)

9.44–10.10 **Advances in radioiodine treatment of thyroid cancer (WYKŁAD NA ZAPROSZENIE)**

Markus Luster (Ulm, Niemcy)

10.15–10.40 **Nuclear medicine for medullary thyroid cancer (WYKŁAD NA ZAPROSZENIE)**

Lisa Bodei (Mediolan, Włochy)

10.45–11.00 *Przerwa na kawę*

11.00–12.00 **SESJE 9A–9C. OMÓWIENIE DONIESIEŃ PLAKATOWYCH**

Sesja 9A. Wspomaganie wykrywania raka tarczycy
Dyskusja (Sala Tatry)
Postery (Sala Giewont)

Przewodniczący: S. Sporny, M. Puzianowska-Kuźnicka

Sesja 9B. Klinika raka tarczycy
Dyskusja (Sala Rysy)
Postery (Sala Rysy)

Przewodniczący: S. Cichoń, M. Zieliński

Sesja 9C. Leczenie i monitorowanie raka tarczycy
Dyskusja (Sala Zawrat)
Postery (Sala Zawrat)

Przewodniczący: M. Gryczyńska, M. Grzywa

12.00–13.15 *Przerwa obiadowa*

11.00–11.48 **Sesja 9A. Wspomaganie wykrywania raka tarczycy**
Dyskusja (Sala Tatry)
Postery (Sala Giewont)

Przewodniczący: S. Sporny, M. Puzianowska-Kuźnicka

11.00–11.03 **Guzy pęcherzykowe i oksyfilne tarczycy — doświadczenia własne**

J. Waler, G. Buła, A. Niemiec, W. Truchanowski, R. Mucha, N. Waler, J. Gawrychowski (Bytom)

11.05–11.08 **Zastosowanie nienadzorowanych metod analizy do interpretacji zmienności ekspresji genów w zbiorze guzów pechęrzykowych**

A. Pfeifer, M. Eszlinger, T. Musholt, S. Hauptmann, M. Oczko-Wojciechowska, M. Jarząb, M. Świerniak, D. Lange, R. Paschke, B. Jarząb (Gliwice)

11.10–11.13 **Ocena ekspresji genu COX-2 u pacjentów z rakiem brodawkowatym gruczołu tarczowego w materiale pobranym w badaniu BAC tarczycy**

K. Krawczyk-Rusiecka, K. Wojciechowska-Durczyńska, A. Cyniak-Magierska, Z. Adamczewski, A. Lewiński (Łódź)

11.15–11.18 **Ocena poziomu ekspresji genu PIK3CA w raku brodawkowatym tarczycy**

K. Wojciechowska-Durczyńska, K. Krawczyk-Rusiecka, A. Cyniak-Magierska, A. Zygmunt, A. Lewiński (Łódź)

11.20–11.23 **Endogenna aktywność biotynowo-awidynowa w badaniach immunohistochemicznych chorób tarczycy**

B. Nikiel, M. Chekan, M. Jarząb, D. Lange (Gliwice)

11.25–11.28 **Ocena występowania rearanżacji RET/PTC1 i RET/PTC3 w bioptatach tarczycy pobranych od pacjentów z przewlekłym autoimmunologicznym zapaleniem tego gruczołu**

A. Cyniak-Magierska, K. Wojciechowska-Durczyńska, K. Rusiecka-Krawczyk, A. Zygmunt, A. Lewiński (Łódź)

11.30–11.33 **Identyfikacja immunohistochemiczna ogniska pierwotnego oraz przerzutów węzłowych raka brodawkowatego tarczycy**

A. Konturek, M. Barczyński, M. Stopa, P. Richter, W. Nowak (Kraków)

11.35–11.38 **Ocena korelacji ekspersji metalotioneiny i ekspresji antygenu Ki-67 w łagodnych i złośliwych chorobach tarczycy**

A. Królicka, P. Domosławski, B. Wojtczak, J. Dawiskiba, Ch. Kobierzycki, A. Piotrowska, M. Podhorska-Okołów, P. Dzięgiel, T. Łukieńczuk, K. Kaliszewski, J. Daroszewski (Wrocław)

11.40–11.43 **Ocena swoistości potencjalnych genów markerowych FN1, KRT19, DPP4, MET, CDH3 w różnicowaniu raka brodawkowatego i guzków łagodnych tarczycy**

W. Truchanowski, M. Kowalska, M. Oczko-Wojciechowska, M. Kowal, T. Tyszkiewicz, A. Kukulska, A. Czarniecka, J. Włoch, J. Waler, G. Buła, M. Kucharzewski, B. Jarząb, J. Gawrychowski (Bytom)

11.45–11.48 **Ekspresja genu LGALS3BP w tkance gruczołu tarczowego i limfocytach krwi obwodowej jako potencjalny czynnik prognostyczny raka brodawkowatego tarczycy o wysokiej złośliwości — 5 lat obserwacji**

K. Kaliszewski, T. Łukieńczuk, W. Bednarz, W. Balcerzak, B. Wojtczak, T. Dobosz, M. Kaliszewska, J. Dawiskiba (Wrocław)

12.00–13.15 *Przerwa obiadowa*

11.00–11.58 **Sesja 9B. Klinika raka tarczycy**
Dyskusja (Sala Rysy)
Postery (Sala Rysy)

Przewodniczący: S. Cichoń, M. Zieliński

11.00–11.03 **Ocena zawansowania raka tarczycy: czy obserwujemy różnice w ciągu ostatniego dziesięciolecia?**

B. Michalik, J. Kern-Bałaga, M. Kalemba, B. Włodarczyk-Marciniec, B. Zemła (Gliwice)

11.05–11.08 **Zapadalność na raka tarczycy w obszarze epidemiologicznym Olsztyna i dawnych granicach województwa olsztyńskiego w latach 1993–2008**

E. Bandurska-Stankiewicz, E. Aksamit-Białoszewska, A. Stankiewcz, D. Shafie (Olsztyn)

11.10–11.13 **Ocena częstości przerzutów raka brodawkowatego tarczycy do węzłów chłonnych kompartymentu centralnego szyi u chorych poddawanych elektywnej limfadenektomii**

M. Barczyński, A. Konturek, M. Stopa, P. Richter, W. Nowak (Kraków)

11.15–11.18 **Znaczenie rokownicze przerzutów do węzłów chłonnych zróżnicowanych raków tarczycy (ZRT) w zależności od zakresu leczenia operacyjnego i zaawansowania miejscowego**

A. Czarniecka, M. Jarząb, J. Krajewska, E. Chmielik, E. Stobiecka, B. Szcześniak-Kłusek, R. Kokot, A. Sacher, S. Półtorak, J. Włoch (Gliwice)

11.20–11.23 **Przerzuty przeskakujące w raku brodawkowatym tarczycy — częstość występowania i wpływ na leczenie operacyjne**

L. Pomorski, M. Dobrogowski, S. Mikosiński, K. Kaczka (Zgierz)

11.25–11.28 **Nowotwory tarczycy u dzieci i młodzieży operowanych z powodu wola guzkowego w uniwersyteckim szpitalu pediatrycznym w ostatnim 40-leciu**

A. Kalicka-Kasperczyk, G. Drabik, J. Skirpan, W. Mieżyński, J. Starzyk (Kraków)

11.30–11.33 **Rak tarczycy wykryty przypadkowo w pooperacyjnym badaniu parafinowym**

R. Anielski, S. Cichoń, A. Hubalewska-Dydejczyk, M. Buziak-Bereza, P. Orlicki, A. Bałdys-Waligórska (Kraków)

11.35–11.38 **Rak tarczycy leczony w trybie ostrodyżurowym — 10 lat doświadczeń I Katedry i Kliniki Chirurgii Ogólnej Gastroenterologicznej i Endokrynologicznej Akademii Medycznej we Wrocławiu**

K. Kaliszewski, T. Łukieńczuk, W. Bednarz, P. Domosławski, B. Knychalski, M. Kaliszewska, K. Sutkowski (Wrocław)

11.40–11.43 **Rak brodawkowaty tarczycy teraz i 10 lat temu — analiza w oparciu o materiał I Katedry i Kliniki Chirurgii Ogólnej, Gastroenterologicznej i Endokrynologicznej Akademii Medycznej we Wrocławiu**

K. Kaliszewski, T. Łukieńczuk, W. Bednarz, W. Balcerzak, Z. Forkasiewicz, J. Spodzieja, M. Kaliszewska, T. Dawiskiba, M. Napierała, W. Podhorski (Wrocław)

11.45–11.48 **Zastosowanie nowej techniki operacyjnej z dostępu szyjnego z uniesieniem rękojeści mostka w leczeniu operacyjnym wola ekotopowego**

M. Zielinski, J. Pankowski, M. Skrobot, L. Hauer, T. Nabialek, A. Szlubowski (Zakopane)

11.50–11.53 **Występowanie innych nowotworów złośliwych u chorych ze zróżnicowanym rakiem tarczycy**

E. Mikina, J. Sygut, A. Kowalska (Kielce)

11.55–11.58 **Przebieg kliniczny niskozróżnicowanego raka tarczycy (*ca insulare*) — obserwacja własna**

A. Walczyk, A. Kowalska (Kielce)

12.00–13.15 *Przerwa obiadowa*

11.00–11.58 **Sesja 9C. Leczenie i monitorowanie raka tarczycy**
Dyskusja (Sala Zawrat)
Postery (Sala Zawrat)

Przewodniczący: M. Gryczyńska, M. Grzywa

11.00–11.03 **Prospektywna analiza wskazań do leczenia 131I u chorych na mikroraka brodawkowatego po niecałkowitym wycięciu tarczycy**

T. Olczyk, A. Kropińska, A. Krawczyk, J. Krajewska, D. Handkiewicz-Junak, B. Jarząb (Gliwice)

11.05–11.08 **Leczenie jodem promieniotwórczym chorych na zaawansowanego zróżnicowanego raka tarczycy (ZRT)**

D. Handkiewicz-Junak, E. Paliczka-Cieślik, J. Roskosz, K. Hasse-Lazar (Gliwice)

11.10–11.13 **Wpływ obecności przerzutów odległych i/lub do węzłów chłonnych na częstość uzyskania pełnej remisji u chorych ze zróżnicowanym rakiem tarczycy (DTC)**

T. Trybek, A. Kowalska (Kielce)

11.15–11.18 **Wydalanie jodu z moczem u chorych na zróżnicowanego raka tarczycy leczonych jodem promieniotwórczym z użyciem rhTSH**

A. Stanjek-Cichoracka, B. Michalik, A. Kochańska-Dziurowicz, J. Roskosz (Gliwice)

11.20–11.23 **Wysokie stężenia osoczowe TSH po podaniu rhTSH u chorych ze zróżnicowanym rakiem tarczycy (ZRT) i nieodwracalną niewydolnością nerek (NN) — opis 3 przypadków**

A. Kowalczyk, G. Kamiński (Warszawa)

11.25–11.28 **Biochemiczne wykrywanie nawrotu zróżnicowanego raka tarczycy (ZRT)**

E. Gubała, A. Kropińska, R. Deja, B. Jarząb (Gliwice)

11.30–11.33 **Czy leczenie supresyjne L-tyroksyną ma wpływ na serce u młodych chorych na zróżnicowanego raka tarczycy?**

A. Kropińska, J. Krajewska, K. Zawisza, H. Lewandowska, A. Antosz, M. Dobrakowski, B. Jarząb, D. Handkiewicz-Junak (Gliwice)

11.35–11.38 **Porównanie wyników oznaczeń tyreoglobuliny i przeciwciał przeciw tyreoglobulinie otrzymanych metodą TRACE i ECLIA u pacjentów leczonych z powodu zróżnicowanego raka tarczycy (ZRT)**

R. Deja, Z. Kołosza, E. Gubała, B. Masłyk (Gliwice)

11.40–11.43 **Obrazowanie przerzutów do kośćca w zróżnicowanych rakach tarczycy**

B. Jurecka-Lubieniecka, A. d'Amico, K. Steinhof-Radwańska, J. Szczasny, Z. Wygoda, B. Bobek-Billewicz, B. Jarząb (Gliwice)

11.45–11.48 **Opieka psychoonkologiczna nad chorymi na zróżnicowane raki tarczycy — identyfikacja kluczowych punktów interwencji**

A. Syska-Bielak, A. Kropińska, M. Jarząb, A. Heyda, M. Jarząb, E. Wojtyna, J. Życińska, D. Handkiewicz-Junak, K. Hasse-Lazar, A. Czarniecka, T. Olczyk, B. Jarząb (Gliwice)

11.50–11.53 **Objawy zaburzeń lękowych i depresyjnych i jakość życia u młodych dorosłych leczonych w wieku dziecięcym z powodu zróżnicowanego raka tarczycy**

M. Jarząb, A. Syska-Bielak, A. Kropińska, D. Handkiewicz-Junak, M. Jarząb, K. Hasse-Lazar, A. Heyda, A. Król, P. Gorczyca, R.T. Hese (Tarnowskie Góry)

11.55–11.58 **Leczenie uzupełniające izotopem jodu 131 u chorych z mikrorakiem brodawkowatym tarczycy**

A. Klimowicz, J. Fischbach, M. Gryczyńska, M. Matysiak-Grześ, P. Gut, M. Pisarek, B. Więckowska, J. Sowiński (Poznań)

12.00–13.15 *Przerwa obiadowa*

13.15–14.45 **SESJA 10. Patogeneza i rozpoznanie raka tarczycy (Sala Tatry)**

Przewodniczący: B. Czarnecka, D. Lange

13.15–13.35 **Molecular diagnosis of thyroid nodules (WYKŁAD NA ZAPROSZENIE)**

Markus Eszlinger (Leipzig, Niemcy)

13.40–13.48 **Profil molekularny raka tarczycy indukowanego promieniowaniem jonizującym**

D. Handkiewicz-Junak, M. Świerniak, M. Jarząb, D. Rusinek, M. Oczko-Wojciechowska, M. Kowal, B. Jarząb (Gliwice)

13.51–13.59 **Przydatność biomarkerów nowotworu tarczycy (RET/PTC 1, RET/PTC 3, AKAP9/BRAF, PAX8/PPARγ, BRAF) w analizie aspiratów z biopsji guzków tarczycy u dzieci**

M. Niedziela, J. Maceluch (Poznań)

14.02–14.10 **„Zmiana pęcherzykowa" w BAC tarczycy — analiza 130 zweryfikowanych histopatologicznie przypadków**

Ł. Koperski, B. Górnicka, M. Bogdańska, E. Wilczek, A. Wasiutyński (Warszawa)

14.13–14.21 **Wartość diagnostyczna oznaczania PTH w popłuczynach z igły po biopsji cienkoigłowej zmian ogniskowych nieznanego pochodzenia zlokalizowanych w obrębie gruczołu tarczowego**

S. Mikosiński, P. Jarek, J. Makarewicz, S. Sporny, L. Pomorski (Łódź)

14.24–14.32 **Zastosowanie oznaczenia stężenia parathormonu z materiału uzyskanego w biopsji aspiracyjnej cienkoigłowej zmian ogniskowych na szyi w diagnostyce pacjentów z pierwotną nadczynnością przytarczyc i negatywnym wynikiem scyntygrafii SPECT**

Z. Adamczewski, M. Dedecjus, J. Brzeziński, A. Lewiński (Łódź)

14.35–14.43 **Badanie predyspozycji genetycznej do raka brodawkowatego tarczycy**

B. Jarząb, D. Kula, Z. Puch, M. Kalemba, D. Handkiewcz-Junak, M. Kowalska, T. Tyszkiewicz, M. Kowal (Gliwice)

14.45–15.15 *Przerwa na kawę*

KONFERENCJA OKRĄGŁEGO STOŁU Rak tarczycy: stan aktualny i nowe perspektywy
POLSKA GRUPA ds. NOWOTWORÓW ENDOKRYNNYCH

Moderator: A. Lewiński, B. Jarząb

15.15–16.45 **Dyskusja**

M. Gembicki, B. Jarząb, M. Karbownik-Lewińska, A. Lewiński, A. Milewicz, J. Nauman, A. Syrenicz, Z. Szybiński

16.45–17.00 **OGŁOSZENIE WYNIKÓW KONKURSU I WRĘCZENIE NAGRÓD**
ZAMKNIĘCIE KONFERENCJI

19.00 **Góralska kolacja przy ognisku**

IV Conference „Thyroid cancer"
Zakopane, 20–22 May 2010 roku

PROGRAME OF THE CONFERENCE

Thursday, 21 May 2010

15.00–16.00	**Poster session (Rooms: Tatry, Rysy, Zawrat, Giewont, Morskie Oko)**
16.00–16.15	**WELCOME AND OPENING (Room: Tatry)**
16.15–19.45	**Session 1. Management of nodular goiter (Room: Tatry)**
	Chairman: A. Milewicz, J. Nauman
16.15–16.40	**Update on European guidelines in thyroid nodules (INVITED LECTURE)**
	Ralf Paschke (Lipsk Germany)
16.45–17.00	**Criteria and Standards in FNB of thyroid cancer**
	W. Jakubowski (Warsaw)
17.05–17.15	**Elastography — new development in ultrasound in evaluating thyroid nodules**
	M. Gietka-Czernel, M. Kochman, K. Bujalska, E.Stachlewska-Nasfeter, W. Zgliczyński (Warsaw)
17.20–17.30	**Vocal cords examination by use of real time, high-resolution ultrasonography — a prospective pilot study in patients before and after thyroidectomy**
	M. Dedecjus, Z. Adamczewski, J. Brzeziński, A. Lewiński (Lodz)
17.35–17.45	**Does second opinion on thyroid fine-needle aspiration (FNA) cytology change clinical treatment?**
	D. Lange, E. Stobiecka, A. Stanek-Widera, D. Banaś, M. Wesołowski (Gliwice)
17.50–18.00	**Retrospective categorization of diagnoses by ultrasound-guided FNAB of the thyroid gland**
	J. Sygut, A. Kowalska, J. Kopczyński, D. Gąsior-Perczak, R. Mężyk, K. Niemyska (Kielce)
18.05–18.15	**Difficulties in pathological evaluation of thyroid carcinomas — results of verification by the Polish Working-Group for Endocrine Tumors**
	A. Konturek, M. Barczyński, M. Stopa, P. Richter, W. Nowak (Krakow)
18.20–18.35	**New diagnostic possibilities in ultrasonography**
	Sponsored session SIEMENS
18.35–18.50	*Coffee break*
	Round Table Conference Management of nodular goiter: diagnostic and therapy
	Polish Working-Group for Endocrine Tumors
	Moderators: A. Lewiński, J. Nauman
18.50–19.05	**Polish Recommendations in Thyroid Cancer: cythological diagnostic of thyroid nodules and histopathological evaluation of thyroid cancer**
	S. Sporny (Lodz)
19.05–19.45	**Discussion**
	W. Jakubowski, A. Kulig, D. Lange, W. Olszewski, L. Pomorski, D. Słowińska-Klencka, J. Sowiński
20.00–21.00	**Wellcome coctail and poster discussion**
21.00–22.05	**SESSION 2. Interesting cases of thyroid cancer poster presentation** **Discussion (Room Tatry)** **Posters (Room Tatry)**
	Chairman: Z. Szybiński, R. Junik
21.00–21.03	**PDS gene analysis in family with Pendred's syndrome associated with thyroid papillary cancer**
	K. Łącka, A. Paradowska, E. Korman, J. Rajewska, B. Stawny, J.K. Łącki (Poznan)

21.05–21.08 **Difficulties in diagnosis and therapy of the patient with chronic autoimmune thyroiditis and the coexisting thyroid nodule**

M. Niedziela, D. Bręborowicz, B. Rabska-Pietrzak, E. Trejster, J. Harasymczuk (Poznan)

21.10–21.13 **Familial case of oxyphilic thyroid neoplasm GRIM-19: gene analysis**

J. Maceluch, B. Rabska-Pietrzak, A. Rojek, J. Harasymczuk, E. Trejster, M. Warzywoda, D. Bręborowicz, J. Bręborowicz, M. Niedziela (Poznan)

21.15–21.18 **Thyroid lesion as first manifestation of Hodgkin's lymphoma**

M. Ruchała, E. Szczepanek, P. Majewski, J. Sowiński (Poznan)

21.20–21.23 **A case of Hodgkin lymphoma of the thymus imitating retrosternal goiter retrospective analysis of the diagnostic process**

M. Dedecjus, A. Kędzierska, J. Kozak, G. Stróżyk, R. Kordek, J. Brzeziński (Lodz)

21.25–21.28 **Differentiated thyroid cancer in pregnant women — clinical dilemmas**

M. Koziołek, E. Wentland-Kotwicka, A. Syrenicz (Szczecin)

21.30–21.33 **Columnar cell variant of papillary thyroid carcinoma in ovarian struma — case report**

B. Szcześniak-Kłusek, E. Stobiecka, A. Smok-Ragankiewicz, J. Krajewska, A. Czarniecka, D. Lange (Gliwice)

21.35–21.38 **Treatment with Sorafenib in advanced thyroid cancer a case report**

J. Krajewska, T. Olczyk, J. Roskosz, A. Śmietana, B. Kaczmarek-Borowska, E. Paliczka-Cieślik, S. Szpak-Ulczok, B. Jarząb (Gliwice)

21.40–21.43 **Case of a patient with acromegaly and a disseminated follicular thyroid carcinoma**

A. Bałdys-Waligórska, F. Gołkowski, A. Krzentowska, A. Stefańska, O. Halytskyy, A. Hubalewska-Dydejczyk (Krakow)

21.45–21.48 **Solitary metastasis of the clarocellular renal carcinoma to the thyroid gland — case report**

M. Bilski, G. Kamiński (Warszawa)

21.50–21.53 **Metastases of breast cancer to the thyroid gland in two patients — a case report**

E. Skowrońska-Jóźwiak, Z. Adamczewski, K. Krawczyk-Rusiecka, A. Gumińska, S. Sporny, A Kulig, M. Dedecjus, J. Brzeziński, A. Lewiński (Lodz)

21.55–21.58 **A case of a patient with secondary hyperparathyroidism and thyroid cancer**

J. Skrobisz, R. Wieczorek (Poznan)

22.00–22.03 **Coincidence of the clarocellular renal and follicular thyroid carcinomas: case report**

M. Bilski, G. Kamiński (Warszawa)

Friday, 21 May 2010

8.30–10.30 **SESSION 3. Surgical treatment of thyroid cancer**
Session of Prof. Jan Skrzypek (Room Tatry)

Chairmen: J. Brzeziński, J. Włoch

8.30–8.45 **Molecular and clinical prognostic factors and their role in thyroid cancer surgery planning**

A. Czarniecka, J. Włoch (Gliwice)

8.48–9.03 **Pre-, intra- and postsurgical monitoring of recurrent laryngeal nerve after thyroidectomy**

M. Dedecjus, J. Brzeziński (Lodz)

9.06–9.15 **Clinical value of intraoperative neuromonitoring of the recurrent laryngeal nerves in improving outcomes of surgery for thyroid cancer**

M. Barczyński, A. Konturek, S. Cichoń, W. Nowak (Krakow)

9.18–9.27 **The risk of inadvertent parathyroid excision during thyroid cancer surgery**

L. Pomorski, K. Paduszyńska, S. Mikosiński, E. Rogowska, K. Kaczka (Lodz)

9.30–9.39 **The treatment of differentiated thyroid cancer (DTC) in children: evaluation of permanent side effects**

A. Kropińska, J. Roskosz, J. Włoch, J. Krajewska, A. Krawczyk, T. Olczyk, E. Paliczka-Cieślik, J. Kozielski, A. Krzywiecki, J. Szczasny, K. Steinhof-Radwańska, W. Przeorek, D. Handkiewicz-Junak (Gliwice)

9.42–9.51 **Tracheal reconstruction with the use of radial forearm free flap and biodegradative mesh suspension description of three cases**

A. Maciejewski, C. Szymczyk, J. Wierzgoń, M. Grajek, M. Dobrut, R. Szumniak, S. Półtorak, Ł. Krakowczyk, P. Jędrzejewski (Gliwice)

9.54–10.20 **Advances in thyroid cancer surgery (INVITED LECTURE)**

Michele Minuto (Pisa, Italy)

10.30–10.45 *Coffee break*

10.45–12.45 **SESSION 4. Molecular analyses of thyroid cancer and the role of thyroid hormones in carcinogenesis**

Session of Prof. Jan Steffen (Room Tatry)

Chairman: A. Nauman, K. Łącka

10.45–11.10 **Molecular biology of thyroid cancer (INVITED LECTURE)**

Clara Alvarez (Santiago de Compostela, Spain)

11.15–11.24 **Karyometric characteristics of papillary thyroid carcinoma and its relation to gene expression profile of tumor tissue**

M. Chekan, M. Świerniak, M. Jarząb, M. Oczko-Wojciechowska, D. Rusinek, M. Śnietura, B. Jarząb (Gliwice)

11.27–11.36 **Transcriptome of microdissected papillary thyroid cancer cell**

M. Oczko-Wojciechowska, A. Rusin, D. Rusinek, M. Kowalska, M. Kowal, T. Tyszkiewicz, M. Chekan, A. Czarniecka, E. Gubała, B. Jarząb (Gliwice)

11.39–11.48 **Prediction of the papillary thyroid cancer distant metastases risk by gene expression profiling**

S. Szpak-Ulczok, M. Jarząb, M. Oczko-Wojciechowska, M. Kowalska, M. Kowal, T. Tyszkiewicz, A. Pfeifer, A. Czarniecka, J. Włoch, B. Jarząb (Gliwice)

11.51–12.00 **Expression of age-related genes in thyroid and thyroid neoplasms by oligonucleotide microarray profiling**

M. Jarząb, M. Oczko-Wojciechowska, M. Świerniak, S. Szpak-Ulczok, D. Handkiewicz-Junak, M. Kowal, T. Tyszkiewicz, D. Lange, M. Chekan, A. Pfeifer, T. Tyszkiewicz, A. Czarniecka, B. Jarząb, Z. Krawczyk (Gliwice)

12.03–12.12 **The role of miRNA in reduction of type I 5-iodothyronine deiodinase expression and mRNA level in renal clear cell carcinoma (ccRCC)**

J. Bogusławska, A. Master, A. Piekiełko-Witkowska, A. Wójcicka, P. Popławski, Z. Tański, A. Nauman (Warsaw)

12.15–12.24 **Disturbances of expression of thyroid hormone receptor TR-beta-1 in human renal cancer**

A. Piekiełko-Witkowska, A. Master, A. Wójcicka, J. Bogusławska, P. Popławski, H. Wiszomirska, Z. Tański, V.M. Darras, G.R. Williams, A. Nauman (Londyn)

12.27–12.36 **Effects of Fenton reaction on oxidative damage to membrane lipids and nuclear DNA in porcine thyroid potential role in cancer initiation**

J. Stępniak, A. Kokoszko, K. Zasada, J. Szosland, M. Milczarek, A. Gesing, A. Lewiński, M. Karbownik-Lewińska (Lodz)

12.45–14.15 *Lunch break*

14.15–15.15 **SESSION 5. Complementary treament of thyroid cancer (Room Tatry)**

Chairman: I. Kozłowicz-Gudzińska, M. Gryczyńska

14.15 14.24 **The assessment of the efficacy of radioiodine remnant ablation after radical surgery in patients with differentiated thyroid cancer (DTC)**

J. Krajewska, M. Jarząb, A. Czarniecka, J. Roskosz, A. Kukulska, E. Paliczka-Cieślik, Z. Puch, D. Handkiewicz-Junak, B. Jarząb (Gliwice)

14.27–14.36 **Radioiodine remnant ablation in patients with differentiated thyroid carcinoma (DTC): comparison of long-term outcomes of treatment with 30, 60 and 100 mCi**

A. Kukulska, J. Krajewska, Z. Puch, M. Gawkowska-Suwińska, E. Paliczka-Cieślik, J. Roskosz, D. Handkiewicz-Junak, M. Jarząb, E. Gubała, B. Jarząb (Gliwice)

14.39–14.48 **Comparison of two groups of patients with differentiated thyroid carcinoma treated with radioiodine 131-I following endogenous and exogenous stimulation of TSH**

A. Bałdys-Waligórska, F. Gołkowski, A. Krzentowska, A. Hubalewska-Dydejczyk (Krakow)

14.51–15.00 **Clinical analysis of urinary iodine excretion in patients with differentiated thyroid cancer (DTC)**

B. Michalik, J. Roskosz, A. Stanjek-Cichoracka, A. Kochańska-Dziurowicz, B. Jarząb (Gliwice)

15.03–15.12 **L-thyroxin suppressive treatment in patients with differentiated thyroid cancer (DTC): Evaluation of our clinical practice**

A. Kropińska, J. Roskosz, Z. Puch, J. Krajewska, A. Krawczyk, T. Olczyk, H. Lewandowska, A. Antosz, M. Dobrakowski, E. Gubała, B. Jarząb (Gliwice)

15.15–15.45 *Coffee break*

15.45–16.45 **SESSIONS 6A–6D. POSTER PRESENTATION**

Session 6A. Molecular biology of thyroid cancer
Discussion (Room Rysy)
Posters in (Room Rysy)

Chairmen: M. Karbownik-Lewińska, M. Niedziela

Session 6B. Progress in thyroid cancer detection
Discussion (Room Tatry)
Posters (Room Giewont)

Chairman: K. Kuzdak, M. Ruchała

Session 6C. Fine needle aspiration biopsies, general thyroidology
Discussion (Room Zawrat)
Posters (Room Zawrat)

Chairman: A. Kulig, A. Syrenicz

Session 6D. Medullary thyroid cancer
Discussion (Room Morskie Oko)
Posters (Room Morskie Oko)

Chairman: L. Pomorski, B. Kos-Kudła

16.45–17.15 *Coffee break*

15.45–16.38 **Session 6A. Molecular biology of thyroid cancer**
Discussion (Room Rysy)
Posters in (Room Rysy)

Chairmen: M. Karbownik-Lewińska, M. Niedziela

15.45–15.48 **DNA repair genes in the thyroid cell lines and human tumors**

J. Janik, K. Hanusek, B. Czarnocka (Warsaw)

15.50–15.53 **Analysis of NDRG2 mRNA expression in primary papillary thyroid carcinoma and in its metastases to regional lymph nodes**

A. Mordalska, J. Latek, T. Ferenc, L. Pomorski, A. Zygmunt, E. Gałecka, A. Lewiński (Lodz)

15.55–15.58 **Animal model of the papillary thyroid carcinoma induced by BRAFV600E mutation — preliminary**

D. Rusinek, E. Chmielik, M. Kowal, E. Gubała, W. Widłak (Gliwice)

16.00–16.03 **Scale of differences between transcriptomes of papillary thyroid carcinoma and normal thyroid — analysis of gene expression profile**

M. Świerniak, M. Jarząb, M. Oczko-Wojciechowska, A. Pfeifer, K. Unger, C. Maenhaut, G. Thomas, B. Jarząb (Gliwice)

16.05–16.08 **Application of Random Forests technique for discrimination of histological types of thyroid tumor**

T. Stokowy, M. Jarząb, K. Fujarewicz, M. Oczko-Wojciechowska, A. Pfeifer, R. Paschke, M. Eszlinger (Gliwice)

16.10–16.13 **Expression of immunity-related genes in thyroid cancer — transcriptome analysis**

M. Jarząb, M. Oczko-Wojciechowska, M. Kowal, M. Olakowski, A. Rusin, M. Kowalska, D. Rusinek, A. Pfeifer, M. Świerniak, A. Czarniecka, E. Chmielik, E. Stobiecka, D. Lange, J. Jarząb, Z. Krawczyk (Gliwice)

16.15–16.18 **Gene expression profile of follicular adenoma in comparison to other endocrine adenomas**

J. Żebracka-Gala, M. Oczko-Wojciechowska, M. Kowalska, A. Kukulska, A. Czarniecka, E. Gubała, D. Larysz, A. Rudnik, J. Waler, J. Gawrychowski, A. Pfeifer, M. Świerniak, M. Jarząb, E. Chmielik, D. Lange, K. Fujarewicz, A. Świerniak, B. Jarząb (Gliwice)

16.20–16.23 **Exression of ghrelin and obestatin in human thyroid gland and thyroid tumors**

E. Gurgul, M. Ruchała, M. Biczysko, J. Surdyk-Zasada, A. Kasprzak, A. Łukaszyk, J. Sowiński (Poznan)

16.25–16.28 **Diagnostic chip based on enzyme inhibitors — preliminary approach**

W. Balcerzak, A. Czernicka, S. Deja, P. Młynarz, P. Kafarski (Wroclaw)

16.30–16.33 **CHEK2 polymorphism and its association with occurrence and staging of papillary thyroid cancer**

M. Kalemba, Z. Puch, D. Kula, M. Kowalska, M. Kowal, T. Tyszkiewicz, D. Handkiewicz-Junak, J. Roskosz, K. Drosik, M. Żydek, A. Sikora, A. Chrást, E. Gubała, B. Jarząb (Gliwice)

16.35–16.38 **Case report of the woman with papillary thyroid carcinoma, which was thyreological diagnosed because of presence CHEK2 mutation in genetic examinations**

K. Lizis-Kolus, A. Kowalska, B. Kozak-Klonowska, M. Siołek, J. Słuszniak, J. Lubiński, C. Cybulski (Kielce)

16.45–17.15 *Coffee break*

15.45–16.33 **Session 6B. Progress in thyroid cancer detection**
Discussion (Room Tatry)
Posters (Room Giewont)

Chairman: K. Kuzdak, M. Ruchała

15.45–15.48 **Analysis of ultrasound images of thyroid cancers of diameter less then 15 mm for selection of Fine Needle Aspiration for patients with multinodular goiter**

J. Pankowski, E. Kaznowska, B. Maksymiuk (Zakopane)

15.50–15.53 **Analysis of usefulness of PTH concentration measurement in the material obtained during fine needle aspiration biopsy of neck focal lesions in the identification of parathyroids**

B. Popowicz, J. Jankiewicz-Wika, S. Sporny, M. Klencki, E. Woźniak, E. Sewerynek, E.J. Komorowski, D. Słowińska-Klencka (Lodz)

15.55–15.58 **Elastography based on tissue Doppler in the diagnosis of thyroid nodules — a pilot study**

Z. Adamczewski, K. Krawczyk-Rusiecka, M. Dedecjus, J. Brzeziński, A. Lewiński (Lodz)

16.00–16.03 **Nowe metody ultrasonograficzne w wizualizacji mikrozwapnień w diagnostyce zmian ogniskowych tarczycy**

R.Z. Słapa, W. Jakubowski, K.T. Szopiński, A. Szcześniak, J. Bierca, J. Słowińska-Srzednicka (Warsaw)

16.05–16.08 **Advantages and disadvantages of 3D ultrasound of thyroid nodules including thin slice volume rendering**

R.Z. Słapa, W. Jakubowski, J. Słowińska-Srzednicka, K.T Szopiński (Warsaw)

16.10–16.13 **The incidence and characteristics of thyroid focal lesions in patients with thyroid hemiagenesis**

M. Ruchała, E. Szczepanek, J. Sowiński (Poznan)

16.15–16.18 **The recurrent goiter beyond the typical lateral lobes localization — the analysis of over 60 cases**

E. Woźniak, M. Klencki, B. Popowicz, S. Sporny, D. Słowińska-Klencka (Lodz)

16.20–16.23 **The occurrence of malignant thyroid lesions in patients after radioiodine treatment due to benign thyroid diseases**

M.H. Listewnik, B. Birkenfeld, K. Niedziałkowska, M. Chosia, B. Elbl, M. Sawrymowicz (Szczecin)

16.25–16.28 **The application of SPECT/CT scintigraphy with MIBI-Tc99m and a comparison with the subtraction method in the diagnostics of nodular goiter in the thyroid**

M.H. Listewnik, B. Birkenfeld, K. Cichoń-Bańkowska, K. Niedziałkowska, L. Iglińska-Wagner, W. Watrak, W. Smolira, P. Zorga, H. Piwowarska-Bilska, B. Elbl, M. Sawrymowicz (Szczecin)

16.30–16.33 **Analysis of the results of histopathological examination of the thyroid gland after reoperations caused by thyroid cancer diagnosed after strumectomy**

J. Skrobisz (Poznan)

16.45–17.15 *Coffee break*

15.45–16.38 **Session 6C. Fine needle aspiration biopsies, general thyroidology**
Discussion (Room Zawrat)
Posters (Room Zawrat)

Chairman: A. Kulig, A. Syrenicz

15.45–15.48 **The analysis of value of ultrasound-guided fine-needle aspiration biopsy (US-FNAB) of thyroid nodules patients with nodular goiter**

M. Rzeszutko, W. Rzeszutko, T. Tomkalski (Wroclaw)

15.50–15.53 **Compliance of pre and postoperative diagnosis of malignant thyroid neoplasms**

P. Furga, J. Łapiński, K. Paśnik (Warsaw)

15.55–15.58 **Thyroid fine-needle aspiration (FNA) cytology versus frozen section examination (FS) in the experience of the Surgical Oncology Department**

D. Bisz, J. Albiński, S. Borczewski, P. Ciszewski (Warsaw)

16.00–16.03 **Diagnostic cytology of poorly differentiated thyroid carcinoma**

J. Sygut, W. Rezner, J. Kopczyński, J. Słuszniak, A. Kowalska (Kielce)

16.05–16.08 **Role of fine-needle aspiration biopsy in diagnosing tumor metastases to thyroid gland — personal observation**

G. Buła, J. Waler, A. Niemiec, H. Koziołek, W. Bichalski, J. Gawrychowski (Bytom)

16.10–16.13 **Morphological diagnostics of solitary cystic thyroid nodules**

V.N. Marina, V.I. Kolomiytsev, V.I. Vovk, O.V. Lukavetsky, M.P. Pavlovsky (Lwow, Ukraine)

16.15–16.18 **Ethically-economic aspects of thyroid biopsy observation from local center**

M. Maciejewski, M. Gąsiorek, M. Słomian, A. Sawicka, K. Marczewski (Zamosc)

16.20–16.23 **Evaluation of the results of IL-6 levels in patients with Graves-Basedow disease without active ophthalmopathy**

D. Zalewska-Rydzkowska, A. Nowicka, J. Kwaśniewska-Błaszkowska, S. Manysiak, G. Odrowąż-Sypniewska, R. Junik (Bydgoszcz)

16.25–16.28 **Thyroid dysfunctions in children detected in mass screening for congenital hypothyroidism**

M. Kumorowicz-Czoch, D. Tylek-Lemańska, J. Starzyk (Krakow)

16.30–16.33 **The contribution of Pro12Ala PPAR-γ gene polymorphism to Graves orbitopathy**

J. Daroszewski, E. Pawlak, M. Bolanowski, I. Rydecka (Wroclaw)

16.35–16.38 **Identification of immune markers (CD54, CD95, CD134, CD152) on the thyroid follicular cells in patients with immune and non-immune thyroid diseases using cellular culture**

A. Bossowski, E. Ilendo, K. Ratomski, B. Czarnocka, J. Dadan (Bialystok)

16.45–17.15 *Coffee break*

15.45–16.13 **Session 6D. Medullary thyroid cancer**
Discussion (Room Morskie Oko)
Posters (Room Morskie Oko)

Chairman: L. Pomorski, B. Kos-Kudła

15.45–15.48 **The analysis of transcriptome of medullary thyroid carcinoma**

M. Oczko-Wojciechowska, J. Włoch, J. Żebracka-Gala, A. Pfeifer, M. Kowalska, Z. Wygoda, A. Czarniecka, E. Gubała, B. Jarząb (Gliwice)

15.50–15.53 **The role of gallium-68 labelled somatostatine analogue PET-CT (68Ga-DOTA-TATE PET-CT) in diagnosing of patients with disseminated medullary thyroid carcinoma (MTC)**

I. Pałyga, A. Kowalska, D. Gąsior-Perczak, J. Słuszniak. J. Sygut, M. Tarnawska-Pierścińska, S. Góźdź (Kielce)

15.55–15.58 **Diagnostic performance evaluation of procalcitonin measurments during the follow-up of patients with medullary thyroid carcinoma (MTC)**
D. Gąsior-Perczak, A. Kowalska, I. Pałyga, G. Antczak, A. Słuszniak, S. Góźdź (Kielce)

16.00–16.03 **Prognostic impact of the doubling time of medullary thyroid carcinoma tumor markers**
T. Gawlik, A. d'Amico, E. Gubała, A. Chorąży, K. Gorczewski, B. Jarząb (Gliwice)

16.05–16.08 **Phenotype of exon 10 RET gene mutations carriers**
S. Szpak-Ulczok, E. Gubała, A. Pawlaczek, M. Oczko-Wojciechowska, B. Jarząb (Gliwice)

16.10–16.13 **Pheochromocytomas in the RET protooncogene mutations carriers**
K. Hasse-Lazar, A. Krawczyk, S. Szpak-Ulczok, A. Pawlaczek, J. Ziaja, B. Jarząb (Gliwice)

16.45–17.15 *Coffee break*

17.15–20.00 **SESSION 7. Modern thyroid cancer treatment (Room Tatry)**
Chair: M. Gembicki, I. Kinalska

17.15–17.45 **Recent Advances in Management of Thyroid Cancer (INVITED LECTURE)**
Paul Ladenson

17.50–18.10 **Therapy in advanced thyroid cancer**
B. Jarząb (Gliwice)

18.15–18.30 **New diagnostic methods in nuclear medicine**
Sponsored presentation SIEMENS
ROUND TABLE CONFERENCE: Thyroid cancer treatment
Polish Working-Group for Endocrine Tumors
Moderators: S. Zgliczyński, B. Jarząb

18.30–18.40 **Polish Recommendations in Thyroid Cancer: surgical treatment of thyroid cancer**
K. Kuzdak, J. Brzeziński, J. Włoch (Gliwice)

18.50–19.00 **Polish Recommendations in Thyroid Cancer: isotope treatment of thyroid cancer**
B. Jarząb, J. Sowiński, I. Kozłowicz-Gudzińska (Gliwice)

19.10–19.20 **Polish Recommendations in Thyroid Cancer: medullary thyroid cancer**
L. Pomorski, J. Włoch, B. Jarząb (Gliwice)

19.20–20.00 **Discussion**
J. Brzeziński, I. Kozłowicz-Gudzińska, K. Kuzdak, A. Lewiński, L. Pomorski, J. Sowiński, J. Włoch

20.30 **GET-TOGETHER PARTY**

Saturday, 22 May 2010

9.00–10.45 **SESSION 8. Imaging and isotope treatment of thyroid cancer (Room Tatry)**
Chairman: J. Sowiński, T. Bednarczuk

9.00–9.08 **The clinical value of PET with 18F-fluorodeoxyglucose in patients with suspected recurrence of differentiated thyroid carcinoma**
A. d'Amico, T. Gawlik, J. Roskosz, A. Kukulska, B. Jarząb (Gliwice)

9.11–9.19 **Role of different imaging modalities in diagnosis of differentiated thyroid carcinoma metastases**
R. Czepczyński, M. Gryczyńska, A. Czepczyńska, M. Stajgis, J. Sowiński (Poznan)

9.22–9.30 **Receptor PET scintigraphy with positon-gallium labeled somatostatin analogues in medullary thyroid carcinoma**
Z. Wygoda, A. d'Amico, D. Hankiewicz-Junak, B. Jurecka-Lubieniecka, K. Hasse-Lazar, B. Jarząb (Gliwice)

9.33–9.41 **Procalcitonin — a new marker for medullary thyroid cancer patients?**

K. Kaczka, S. Mikosiński, L. Pomorski (Lodz)

9.44–10.10 **Advances in radioiodine treatment of thyroid cancer (INVITED LECTURE)**

Markus Luster (Ulm, Germany)

10.15–10.40 **Nuclear medicine for medullary thyroid cancer (INVITED LECTURE)**

Lisa Bodei (Milan, Italy)

10.45–11.00 *Coffee break*

11.00–12.00 **SESSION 9A–9C. POSTER SESSION**

Session 9A. Assisted detection of thyroid cancer
Discussion (Room Tatry)
Posters (Room Giewont)

Chairman: S. Sporny, M. Puzianowska-Kuźnicka

Session 9B. Clinics of thyroid cancer
Discussion (Room Rysy)
Posters (Room Rysy)

Chairman: S. Cichoń, M. Zieliński

Session 9C. Treatment and monitoring of thyroid cancer
Discussion (Room Zawrat)
Posters (Room Zawrat)

Chairman: M. Gryczyńska, M. Grzywa

12.00–13.15 *Lunch break*

11.00–11.48 **Session 9A. Assisted detection of thyroid cancer**
Discussion (Room Tatry)
Posters (Room Giewont)

Chairman: S. Sporny, M. Puzianowska-Kuźnicka

11.00–11.03 **Follicular tumors and oxyphilic tumors of thyroid gland in own experience**

J. Waler, G. Buła, A. Niemiec, W. Truchanowski, R. Mucha, N. Waler, J. Gawrychowski (Bytom)

11.05–11.08 **Applying unsupervised analysis to interpret the variability of gene expression in the set of follicular tumours**

A. Pfeifer, M. Eszlinger, T. Musholt, S. Hauptmann, M. Oczko-Wojciechowska, M. Jarząb, M. Świerniak, D. Lange, R. Paschke, B. Jarząb (Gliwice)

11.10–11.13 **COX-2 expression in thyroid papillary cancer in material obtained by FNAB**

K. Krawczyk-Rusiecka, K. Wojciechowska-Durczyńska, A. Cyniak-Magierska, Z. Adamczewski, A. Lewiński (Lodz)

11.15–11.18 **Assessment of PIK3CA gene expression in papillary thyroid cancer**

K. Wojciechowska-Durczyńska, K. Krawczyk-Rusiecka, A. Cyniak-Magierska, A. Zygmunt, A. Lewiński (Lodz)

11.20–11.23 **EABA in immunohistochemical study of thyroid lesions**

B. Nikiel, M. Chekan, M. Jarząb, D. Lange (Gliwice)

11.25–11.28 **Assessment of RET/PTC1 and RET/PTC3 rearrangements in fine-needle aspiration biopsy specimens collected from patients with Hashimoto thyroiditis**

A. Cyniak-Magierska, K. Wojciechowska-Durczyńska, K. Rusiecka-Krawczyk, A. Zygmunt, A. Lewiński (Lodz)

11.30–11.33 **Immunohistochemical characterization of a primary papillary thyroid carcinoma and co-existing thyroid metastases in cervical lymph node**

A. Konturek, M. Barczyński, M. Stopa, P. Richter, W. Nowak (Krakow)

11.35–11.38 **Correlation of metallothionein expression with antigen Ki-67 in benign and malignant thyroid lesions**

A. Królicka, P. Domosławski, B. Wojtczak, J. Dawiskiba, Ch. Kobierzycki, A. Piotrowska, M. Podhorska-Okołów, P. Dzięgiel, T. Łukieńczuk, K. Kaliszewski, J. Daroszewski (Wroclaw)

11.40–11.43 **Evaluation of specificity of potential papillary thyroid cancer (PTC) marker genes FN1, KRT19, DPP4, MET and CDH3**

W. Truchanowski, M. Kowalska, M. Oczko-Wojciechowska, M. Kowal, T. Tyszkiewicz, A. Kukulska, A. Czarniecka, J. Włoch, J. Waler, G. Buła, M. Kucharzewski, B. Jarząb, J. Gawrychowski (Bytom)

11.45–11.48 **Expression of LGALS3BP gene in thyroid tissues and peripherial blood lymphocytes as a potential prognostic factor for high malignancy type of papillary thyroid cancer five-year follow up**

K. Kaliszewski, T. Łukieńczuk, W. Bednarz, W. Balcerzak, B. Wojtczak, T. Dobosz, M. Kaliszewska, J. Dawiskiba (Wroclaw)

12.00–13.15 *Lunch break*

11.00–11.58 **Session 9B. Clinics of thyroid cancer**
Discussion (Room Rysy)
Posters (Room Rysy)

Chairman: S. Cichoń, M. Zieliński

11.00–11.03 **Does differentiated thyroid cancer (DTC) staging change within the last ten years?**

B. Michalik, J. Kern-Bałaga, M. Kalemba, B. Włodarczyk-Marciniec, B. Zemła (Gliwice)

11.05–11.08 **Incidence rate of thyroid cancer in Olsztyn Region in the years 1993–2008**

E. Bandurska-Stankiewicz, E. Aksamit-Białoszewska, A. Stankiewcz, D. Shafie (Olsztyn)

11.10–11.13 **The prevalence of central compartment of the neck lymph nodes involvement following elective clearance for papillary thyroid cancer**

M. Barczyński, A. Konturek, M. Stopa, P. Richter, W. Nowak (Krakow)

11.15–11.18 **Prognostic value of differentiated thyroid cancer (DTC) lymph node metastases in relation to the extent of surgical treatment**

A. Czarniecka, M. Jarząb, J. Krajewska, E. Chmielik, E. Stobiecka, B. Szcześniak-Kłusek, R. Kokot, A. Sacher, S. Półtorak, J. Włoch (Gliwice)

11.20–11.23 **Skip metastases in papillary thyroid carcinoma — incidence and impact on surgery**

L. Pomorski, M. Dobrogowski, S. Mikosiński, K. Kaczka (Zgierz)

11.25–11.28 **Thyroid neoplasms in children and adolescents operated on due to nodular goiter in a single institution within the past 40 years**

A. Kalicka-Kasperczyk, G. Drabik, J. Skirpan, W. Mieżyński, J. Starzyk (Krakow)

11.30–11.33 **Differentiated thyroid carcinoma diagnosed incidentally in postoperative histopathology**

R. Anielski, S. Cichoń, A. Hubalewska-Dydejczyk, M. Buziak-Bereza, P. Orlicki, A. Bałdys-Waligórska (Krakow)

11.35–11.38 **Thyroid cancer treated in emergency mode — 10 years experience of I Department of General Gastroenterological and Endocrinological Surgery Medical University of Wroclaw**

K. Kaliszewski, T. Łukieńczuk, W. Bednarz, P. Domosławski, B. Knychalski, M. Kaliszewska, K. Sutkowski (Wroclaw)

11.40–11.43 **Papillary thyroid cancer now and 10 years ago — the analysis of material of 1st Department of General, Gastroenterological and Endocrinological Surgery Medical University of Wroclaw**

K. Kaliszewski, T. Łukieńczuk, W. Bednarz, W. Balcerzak, Z. Forkasiewicz, J. Spodzieja, M. Kaliszewska, T. Dawiskiba, M. Napierała, W. Podhorski (Wrocław)

11.45–11.48 **The use of transervical approach with elevation of the sternal manubrium for surgery of mediastinal ectopic goiter, mediastinal parathyroid tumors and the mediastinal metastases of the thyroid cancer**

M. Zielinski, J. Pankowski, M. Skrobot, L. Hauer, T. Nabialek, A. Szlubowski (Zakopane)

11.50–11.53 **Incidence of other malignant neoplasms in patient with thyroid carcinoma**

E. Mikina, J. Sygut, A. Kowalska (Kielce)

11.55–11.58 **The clinical course of poorly differentiated thyroid carcinoma (insular carcinoma) — own observation**

A. Walczyk, A. Kowalska (Kielce)

12.00–13.15 *Lunch break*

11.00–11.58 **Session 9C. Treatment and monitoring of thyroid cancer**
Discussion (Room Zawrat)
Posters (Room Zawrat)

Chairman: M. Gryczyńska, M. Grzywa

11.00–11.03 **Prospective analysis of 131-I treatment in patients with papillary microcarcinoma operated by subtotal thyroidectomy**

T. Olczyk, A. Kropińska, A. Krawczyk, J. Krajewska, D. Handkiewicz-Junak, B. Jarząb (Gliwice)

11.05–11.08 **Radioiodine treatment of advanced differentiated thyroid cancer (DTC)**

D. Handkiewicz-Junak, E. Paliczka-Cieślik, J. Roskosz, K. Hasse-Lazar (Gliwice)

11.10–11.13 **The influence of presence distant and/or regional nodal metastases on frequency of complete remission at patients with differentiated thyroid carcinoma (DTC)**

T. Trybek, A. Kowalska (Kielce)

11.15–11.18 **Urinary iodine excretion in patients with differentiated thyroid cancer (DTC) treated with recombinant human TSH**

A. Stanjek-Cichoracka, B. Michalik, A. Kochańska-Dziurowicz, J. Roskosz (Gliwice)

11.20–11.23 **High serum TSH concentration after rhTSH administration in patients with differentiated thyroid carcinoma (DTC) and irreversible renal failure(RF) — 3 cases study**

A. Kowalczyk, G. Kamiński (Warszawa)

11.25–11.28 **Biochemical detection of relapse of differentiated thyroid cancer (DTC)**

E. Gubała, A. Kropińska, R. Deja, B. Jarząb (Gliwice)

11.30–11.33 **Does the suppressive treatment of L-thyroxine impair heart function in young patients with differentiated thyroid cancer (DTC)?**

A. Kropińska, J. Krajewska, K. Zawisza, H. Lewandowska, A. Antosz, M. Dobrakowski, B. Jarząb, D. Handkiewicz-Junak (Gliwice)

11.35–11.38 **Comparison of results of thyroglobulin (Tg) and Tg autoantibodies (aTg) measurements obtained with TRACE and ECLIA methods in patients with differentiated thyroid carcinoma**

R. Deja, Z. Kołosza, E. Gubała, B. Masłyk (Gliwice)

11.40–11.43 **Detection of bone metastases in differentiated thyroid cancer**

B. Jurecka-Lubieniecka, A. d'Amico, K. Steinhof-Radwańska, J. Sczasny, Z. Wygoda, B. Bobek-Billewicz, B. Jarząb (Gliwice)

11.45–11.48 **Psycho-oncological care over patients suffering from differentiated thyroid cancer — identification of crucial points of intervention**

A. Syska-Bielak, A. Kropińska, M. Jarząb, A. Heyda, M. Jarząb, E. Wojtyna, J. Życińska, D. Handkiewicz-Junak, K. Hasse-Lazar, A. Czarniecka, T. Olczyk, B. Jarząb (Gliwice)

11.50–11.53 **Depressive symptoms, anxiety and quality of life in young adults, treated in childhood due to differentiated thyroid cancer**

M. Jarząb, A. Syska-Bielak, A. Kropińska, D. Handkiewicz-Junak, M. Jarząb, K. Hasse-Lazar, A. Heyda, A. Król, P. Gorczyca, R.T. Hese (Tarnowskie Gory)

11.55–11.58 **Complementary treatment by 131I at patients with thyroid papillary microcancer**

A. Klimowicz, J. Fischbach, M. Gryczyńska, M. Matysiak-Grześ, P. Gut, M. Pisarek, B. Więckowska, J. Sowiński (Poznan)

12.00–13.15 *Lunch break*

13.15–14.45 **SESSION 10. Pathiogenesis and diagnosis of thyroid cancer (Room Tatry)**

Chairman: B. Czarnocka, D. Lange

13.15–13.35 **Molecular diagnosis of thyroid nodules (INVITED LECTURE)**

Markus Eszlinger (Leipzig, Germany)

13.40–13.48 **Radioiodine treatment of advanced differentiated thyroid cancer (DTC)**

D. Handkiewicz-Junak, M. Świerniak, M. Jarząb, D. Rusinek, M. Oczko-Wojciechowska, M. Kowal, B. Jarząb (Gliwice)

13.51–13.59 **Usefulness of biomarkers of thyroid neoplasm (RET/PTC-1, RET/PTC-3, AKAP9/BRAF, PAX8/PPARγ, BRAF) in analysis of aspirates from biopsy of thyroid nodules in children**

M. Niedziela, J. Maceluch (Poznan)

14.02–14.10 **Follicular lesion in thyroid FNAB — a study of histopathologically verified 129 cases**

Ł. Koperski, B. Górnicka, M. Bogdańska, E. Wilczek, A. Wasiutyński (Warsaw)

14.13–14.21 **The diagnostic value of PTH concentration in the needle washout after fine-needle biopsy of foci of unknown origin localized within thyroid gland**

S. Mikosiński, P. Jarek, J. Makarewicz, S. Sporny, L. Pomorski (Lodz)

14.24–14.32 **Estimation of Parathyroid Hormone level in patients with primary hyperparathyroidism (PHPT) and negative SPECT scans in the material obtained during fine needle aspiration biopsy (FNAB) of the focal neck lesions**

Z. Adamczewski, M. Dedecjus, J. Brzeziński, A. Lewiński (Lodz)

14.35–14.43 **Analysis of genetic predisposition to papillary thyroid cancer**

B. Jarząb, D. Kula, Z. Puch, M. Kalemba, D. Handkiewcz-Junak, M. Kowalska, T. Tyszkiewicz, M. Kowal (Gliwice)

14.45–15.15 *Coffee break*

ROUND TABLE CONFERENCE: Thyroid cancer: present situation and new perspectives

Polish Working-Group for Endocrine Tumors

Moderators: A. Lewiński, B. Jarząb

15.15–16:45 **Discussion**

M. Gembicki, B. Jarząb, M. Karbownik, Lewińska, A. Lewinski, A. Milewicz, J. Nauman, A. Syrenicz, Z. Szybiński

16.45–17.00 **ANNOUNCEMENT OF BEST POSTER PRIZE WINNERS FARAWELL**

19.00 **Dinner by the bonfire**

STRESZCZENIA
ABSTRACTS
Invited lectures

Molecular biology of thyroid cancer

C. Alvarez
Department of Physiology, School of Medicine, University of Santiago de Compostela (USC), Santiago de Compostela, Spain

Follicular thyroid tumors are the most common neoplasias of the endocrine system and, in this moment, thyroid carcinoma represents the seventh cancer in incidence in females. Advances in biomedical research tools have been constant in the last years, from the use of genetic platforms where thousands of genes could be analyzed in minutes to the generation of complex mouse models where a gene could be shut off or replaced in a specific tissue within an organ. However, much of this research remains far off the clinical application because the preclinical models where mechanisms should be demonstrated do not correspond well with the human patient. This has happened in the thyroid: most of the human cell lines used to test new drugs or to explain molecular mechanisms of mutated genes are not of thyroid phenotype.
During the last ten years, and after careful standardization, we had developed a Bank of Thyroid Tumors in Culture (BANTTIC) where we collected primary follicular cultures obtained from surgery pieces of thyroid operations from normal, hyperplastic goiter, adenoma, multinodular goiter, carcinoma and metastasis. We have groups of cultures coming from a common pathological origin but from different individual patients, reducing the risk of finding spurious results coming from a single unimportant mutation.
Using the BANTTIC as a tool to look for cell mechanisms common to all follicular cancer cells against normal cells we have investigated the role of TGF beta in human thyroid. This factor has a dual anti-tumor action both as an anti-proliferative and a pro-apoptotic factor. Although in previous models it was thought that both actions were affected in thyroid cancer, we have discovered that the anti-proliferative action is maintained and this could well explain the paucity of growth of the human papillary thyroid carcinoma.

Molecular diagnosis of thyroid nodule

M. Eszlinger
III Medical Department, University of Leipzig, Leipzig, Germany

Fine-needle aspiration biopsy (FNAB) is currently the most sensitive and specific tool for the presurgical differential diagnosis of thyroid malignancy, but has also substantial limitations. While approximately 75% of FNAB reveal benign lesions and 5% already cytologically prove malignancy, up to 20% of FNAB show follicular proliferation for which follicular adenoma, follicular carcinoma, and follicular variant of papillary carcinoma can only be distinguished histologically, thus requiring thyroid surgery. However, new biomarkers that might improve the accuracy of FNAB come along with the discovery of more and more details of the molecular etiology of thyroid tumors. So far molecular testing for somatic mutations is most promising (e.g., BRAF, RAS, RET/PTC, and PAX8/PPARG), since the proposed biomarkers from mRNA and miRNA expression studies need further evaluation, especially in FNAB samples. Nevertheless, the application of molecular markers will significantly improve thyroid tumor diagnosis and thus it will help to prevent unnecessary surgeries and it will also help to guide mutation-specific targeted therapies.

Recent advances in management of thyroid cancer

P. Ladenson
Johns Hopkins University School of Medicine, Baltimore, USA

The incidence of thyroid carcinoma is rising worldwide. Management of thyroid cancer has undergone major changes in the past decade, including discovery of molecular mechanisms of thyroid carcinogenesis, implementation of novel approaches to detection and localization of residual disease, and guidelines for radioiodine and TSH-suppressive therapies. Cytologically indeterminate thyroid nodules remain a diagnostic challenge. There is still the need for better prediction of which thyroid cancer patients are more likely to suffer recurrent disease. Highly sensitive serum thyroglobulin testing, particularly after TSH stimulation, has identified a substantial cohort of patients with previously unsuspected residual disease; but use of cervical sonography and other anatomic and metabolic imaging techniques identified the site of this remaining disease in only one-fourth of serologically positive patients. Since most residual disease is not iodine-avid, the management paradigm has changed from repeated radioiodine therapy to surgery. For patients with nonresectable and progressive metastatic disease, novel tyrosine kinase inhibitor therapy offers promise for disease remission, but not cure. Consequently, there remain important challenges for physicians and surgeons caring for patients with thyroid cancer.

Advances in thyroid cancer surgery

M. Minuto
Department of Surgery, University of Pisa, Italy

The philosophy of limiting the surgical accesses, introduced by the laparoscopic surgical techniques, fits perfectly the essential goals

of endocrine surgery: the removal of a tumor that can be hyperfunctioning, benign or malignant. An operation on the neck is felt as a brutal aggression on the patient's self-image and for this reason several techniques have been set up and proposed to the surgical community, aiming at avoiding the traditional Kocher's incision that was felt necessary for every thyroid disease in the past. The innovations that play a significant role in the treatment of thyroid cancer, and that allow to reduce the incisions in the neck nevertheless performing a radical operation, can be divided into different categories: 1) the TOOLS allowing to section structures without the necessity of tying knots; 2) the techniques that allow to perform a radical operation through a single or multiple limited incision(s), or with a robot-assistance; 3) The newest developments on the use of percutaneous energy that can be utilized for the ablation of hyperfunctioning benign tumors. The common rule of any of those three categories is to demonstrate the same efficacy of the traditional operation, without adding, and possibly limiting, any morbidity and/or mortality.

Update on European guidelines in thyroid nodule

R. Paschke
III Medical Department, University of Leipzig, Leipzig, Germany

In borderline iodine sufficient countries like Germany thyroid nodules are detectable by thyroid ultasound in 20% of the general population. About 10% of thyroid nodules in iodine deficient or iodine sufficient areas are scintigraphically hot. Whereas the malignancy rate of thyroid nodules in the general population is very low it is 3––10% for a selected patient with a thyroid nodule referred to a specialist clinic for evaluation. Consequently the diagnostic workup of a thyroid nodule should focus mainly on hyperthyroidism and malignancy. Therefore, evidence based rational screening strategies are required to detect hyperthyroidism and thyroid carcinomas in patients with thyroid nodules.

The recent publication of the revised ETA/AME/AACE thyroid nodule guideline is a considerable step towards evidence based rational strategies. This document was prepared as a collaborative effort between the American Association of Clinical Endocrinologists (AACE), the Associazione Medici Endocrinologi (Italian Association of Clinical Endocrinologists) (AME), and the European Thyroid Association (ETA). This guideline covers diagnostic and therapeutic aspects of thyroid nodular disease but not thyroid cancer management The use of high-resolution ultrasonography (US), sensitive thyrotropin (TSH) assay, and fine-needle aspiration (FNA) biopsy is the basis for management of thyroid nodules. Thyroid scintigraphy is not necessary for diagnosis in most cases. However, it may be warranted in patients with a low serum TSH value or a multinodular gland to detect functional autonomy, most common in iodine-deficient areas. Measurement of serum TSH is the best initial laboratory test of thyroid function and should be followed by measurement of free thyroxine and triiodothyronine if the TSH value is decreased, and measurement of anti-thyroid peroxidase antibodies (TPOAb) if the TSH value is above the reference range. A single, non stimulated calcitonin measurement can be used in the initial workup of thyroid nodules and is recommended before thyroid nodule surgery.

Although thyroid nodules are a common incidental finding, US should not be performed as a screening test. Most patients with thyroid nodules are asymptomatic, but the absence of symptoms does not rule out malignancy; thus, clinical and US risk factors for malignant disease should always be reviewed. All patients with a palpable thyroid nodule or with clinical risk factors should undergo US examination.

Thyroid FNA biopsy is best performed under US guidance because of the increase in diagnostic accuracy of the procedure. US-guided FNA (UGFNA) biopsy is recommended for nodules smaller than 10 mm if clinical information or US features are suspicious. Cytologic smears or liquid-based cytology should be interpreted by a pathologist with specific experience. A classification scheme in 5 cytologic diagnostic categories is recommended for the cytologic report: nondiagnostic, benign, follicular lesion, suspicious, or malignant. Currently, no single cytochemical or genetic marker is specific and sensitive enough to replace the morphologic diagnosis of follicular lesion or suspicious for neoplasm.

Malignant or suspicious nodules should undergo surgery whereas hot nodules should be subjected to radioiodine therapy or surgery. For the majority of thyroid nodules classified as benign by FNAB iodine treatment is an option to prevent further nodules. Nodule volume reevaluation after one or two years may identify nodules with significant volume increases for re FNAB. Thyroid hormone treatment of thyroid nodules is associated with a significant volume reduction in only a minority (20%) of patients and can lead to osteoporosis or atrial fibrillation and increased cardiovascular mortality. It should therefore be avoided in most cases.

Original thyroid cancer oral abstracts

Estimation of Parathyroid Hormone level in patients with primary hyperparathyroidism (PHPT) and negative SPECT scans in the material obtained during fine needle aspiration biopsy (FNAB) of the focal neck lesions

Z. Adamczewski, M. Dedecjus, J. Brzeziński, A. Lewiński
Department of Endocrinology and Metabolic Diseases, Medical University, Łódź, Polish Mother's Memorial Hospital — Research Institute Department of General, Oncological and Endocrine Surgery, Medical University, Łódź, Polish Mother's Memorial Hospital — Research Institute, Łódź, Poland

Introduction: The presence of a single parathyroid adenoma is a cause of primary hyperparathyroidism in most cases. Minimally invasive parathyreoidectomy is a treatment of choice in PHPT patients and precise localization of the changed parathyroids is crucial for successful removal.
The aim of the study was to assess usefulness of parathormone level estimation in the material obtained during FNAB of the focal neck lesions in order to differentiate structures such as enlarged parathyroid glands from other focal lesions in patients with HPTH and negative SPECT scans.
Material and methods: 18 female patients with elevated PTH levels (range: 160–617 pg/mL, median, 224 pg/mL), coexisting calcium and phosphate disorders typical for PHPT and negative SPECT scans, were prospectively evaluated. Patients age range was from 6 months to 76 years (median, 51 years). All patients underwent ultrasound examination (Toshiba Aplio XG, 14 MHz transducer). 23 focal changes were qualified for FNAB (the volume range was from 0,1 cm^3 to 3,0 cm^3, median: 0,85 cm^3). After FNAB examination the needle was washed out with 1 cm3 of 0,9% NaCl and PTH level was measured in the obtained material.
Results: PTH levels exceeded 5000 pg/mL in 13 patients and were lower than serum PTH levels in the remaining group (range 24–35 pg/mL, median, 29 pg/mL). Patients with elevated PTH levels were offered minimally invasive surgical intervention. In all operated cases parathyroid adenoma was removed. In 2 cases neck revision, modified by PTH level intraoperatively determination of the suspected lesions was performed and retrotracheal parathyroid glands were removed.
Conclusions: PTH level determination in the needle wash-out obtained during FNAB has demonstrated 100% specifity in differentiating parathyroid and nonparathyroid tissues.
Identification of parathyroid lesions using described procedure is a timesaving and cost-cutting method. Negative-PTH value should suggest further need for diagnostic imaging or applying modifications while performing the surgery.

A comparison of two groups of patients with differentiated thyroid carcinoma treated with radioiodine ^{131}I following endogenous and exogenous stimulation of TSH

A. Bałdys-Waligórska, F. Gołkowski, A. Krzentowska, A. Hubalewska-Dydejczyk
Chair and Clinic of Endocrinology UCMJ, Kraków, Poland

Introduction: Radioiodine ^{131}I treatment of patients with differentiated thyroid carcinoma (DTC) aided by rhTSH allows to avoid poorly tolerated hypothyroidism. For the first time in 2009 all patients with DTC at our Clinic were treated with ^{131}I following egzogenous stimulation of TSH.
The aim of the study was to compare a group I of patients treated with ^{131}I in 2008 following endogenous stimulation of TSH with group II treated in 2009 with the use of rhTSH.
Material and methods: Group I included 76 patients of mean age 54.3 ± 14.9 years (67 female and 9 male). papillary thyroid cancer was diagnosed 59 patients (77%). follicular in 16 patients (21%). one patient (2%) was evaluated as papillary-follicular cancer (2%). Group II consisted of 75 patients (mean age 53.0 ± 15.4 years. 63 female and 12 male). papillary thyroid cancer was diagnosed in 61 patients (81%). follicular cancer in 13 patients (17%). one patient (2%) was diagnosed as poorly differentiated thyroid cancer. Prior to radioiodine treatment thyroid volume (VT) was evaluated by usg and 24 hrs ^{131}I uptake was measured. TSH and Tg concentrations were measured prior to and after endogenous and exogenous stimulation of TSH. Whole body post-therapeutical scintigraphy was evaluated. Basic statistics. W Shapiro-Wilk. Wilcoxon and U Mann-Whitney tests were applied.
Results: Median values of VT in group I and II were 0.45 ml (max 4.7; min 0.0) and 0.3 ml (max 3.9; min 0.0). respectively; median values of 24 hrs ^{131}I uptake in group I and II were 6.0% (max 15.9; min 1.4) and 5.0% (max 13.0; min 0.3). respectively and were no significantly different. The differences between median values of TSH concentration after stimulation in group
I and II were statistically significant ($p < 0.052$) and respective medians were 61.6 lU/mL (max 99.1; min 16.6) and 183.5 lU/mL (max 459.9; min 33.2). Median values of Tg concentration in group I and II following TSH stimulation were 8.1 ng/mL (max 508.8; min 0.1) and 23.7 ng/mL (max 599.8; min 0.3) respectively.
Conclusion: rhTSH may be safely used for ^{131}I thyroid remnant ablation in low risk DTC patients.

Clinical value of intraoperative neuromonitoring of the recurrent laryngeal nerves in improving outcomes of surgery for thyroid cancer

M. Barczyński, A. Konturek, S. Cichoń, W. Nowak
3rd Chair and Department of General Surgery, Jagiellonian University, Medical College, Kraków, Poland

Introduction: Visualization of the recurrent laryngeal nerves (RLN) and efforts to preserve their anatomical integrity during total extracapsular thyroidectomy in comparis
on to operations without RLN identification, minimizes the risk of nerve lesions. However, intraoperative nerve monitoring may be of additional benefit in reducing the risk of iatrogenic RLNs injury. To evaluate influence of intraoperative RLN monitoring on the prevalence of temporary and permanent nerve lesions following total extracapsular thyroidectomy for well-differentiated thyroid cancer (TC).
Material and methods: Among 249 patients with TC undergoing surgery from 01/2005 to 06/2007, intraoperative RLN monitoring was used in 151 operations of total thyroidectomy with central compartment of the neck lymph nodes clearance for well-differentiated thyroid cancer (pT1-3, N0-1, M0). Neurosign 100 equipment with laryngeal needle electrodes was used. Outcomes of surgery employing nerve monitoring were compared to results of operations performed throughout 2003 and 2004 without nerve monitoring in a control group of 151 carefully age-, gender-, and TNM-stage-matched (according to TNM 2002 classification) patients. Indirect laryngoscopy was used to assess the RLNs morbidity (on the first postoperative day and in a 12-month follow-up). Results were expressed as percentage of nerve events among the number of all nerves at risk, and significance was tested with Chi2-test.
Results: Among patients operated with *v.* without nerve monitoring the early RLN injury rate was 3.0% *v.* 6.7% ($p = 0.02$), including 2.0% *v.* 5.0% ($p = 0.04$) of temporary nerve lesions, and 1.0% *v.* 1.7% of permanent nerve events ($p = 0.31$).
Conclusions: In our experience the employment of intraoperative RLN monitoring in surgery for thyroid cancer significantly reduced the prevalence of nerve injuries. This phenomenon was mostly due to a remarkable decrease of the prevalence of temporary RLN events, with no significant difference in permanent nerve injury rate.

The role of miRNA in reduction of type I 5 — iodothyronine deiodinase expression and mRNA level in renal clear cell carcinoma (ccRCC)

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Introduction: Type I deiodinase (D1) catalyses synthesis of triiodothyronine (T3). We previously revealed that the expression of the whole pool of D1 transcripts was dramatically lowered in ccRCC tissues. One of the mechanisms resulting in this aberration could be microRNAs (miRNAs)-mediated repression of target mRNAs.
The aim of the work: was to study the potential regulation of D1 expression by microRNAs in clear cell Renal Cell Carcinoma (ccRCC)
Material and methods: In silico analysis, real-time PCR. Material: ccRCC samples T (39); control samples C (contralateral pole of ccRCC kidney, not infiltrated by cancer 39 samples); cell line: HeLa and Caki-2 (ccRCC).
Results: We observed statistically significant ($p < 0.0001$) over five fold increase in the expression of miRNA 224 and the three fold increase in the expression of miRNA 383, in samples T compared to control samples C. In order to evaluate whether D1 was effectively a target of miR-224 and miR-383, the D1 3UTR was cloned downstream of a luciferase reporter gene vector; the HeLa cell line were then transfected with the over expressing vector and the reporter construct, with the relative luciferase activity showing that miR-224 and miR-383 led to decreased activity of the reporter gene, thus indicating binding with the 3UTR and destabilization of productive translation of luciferase mRNA.
Conclusions: Reduction of type I 5iodothyronine deiodinase expression and mRNA level in renal clear cell carcinoma (ccRCC) can partially be a result of the overexpression of miRNA-224 and 383. We identify the miR-224 and miR-383 as a potential regulator of the D1 mRNA expression.

Karyometric characteristics of papillary thyroid carcinoma and its relation to gene expression profile of tumor tissue

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Introduction: Papillary thyroid carcinoma (PTC) is based on characteristic morphological features of tumor nuclei. These features are very specific, but their molecular nature is still unknown.
We hypothesized that these mechanisms may be uncovered by the analysis of correlations between PTC karyometric parameters and its gene expression profile.
Material and methods: Karyometric analysis of 100 nuclei from 41 PTC cases was performed and correlated to gene expression profile, analyzed previously using DNA microarray HG-133A. Parameters of nuclear size, shape and chromatin texture were calculated and the permutation Goeman global test (GT) was calculated.
Results: Statistically significant relation with gene expression profile was revealed for two parameters: one anisocaryosis related: Nuclear Area Coefficient of Variation (NACV) and one PTC nuclei shape-related: Circular Factor (mean value) (CF(m)). NACV was chosen for further analysis of correlation with gene expression profile. Significant Pearson correlation with NACV values was obtained for 111 unique genes. Ten genes with interesting biological function were selected for validation analysis. The QPCR analysis was performed on independent group of 36 PTCs. Significant correlation with NACV for the following four of the ten genes: HDAC1, ITGA4, PEX11A, SELENBP1 ($p < 0.05$).
Conclusions: We present the first application of correlation analysis for investigation of interrelationships between cancer nuclei phenotype and gene expression. The significant correlation of anisokaryosis and nuclei shape with gene expression profile was found.

Occurrence of BRAF mutations in Polish cohort of PTC patients — preliminary results

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Genetic alternations involving the mitogen-activated protein kinase (MAPK) pathway are frequently demonstrated in PTC. BRAF(V600E), the most frequent mutation in adult patients, is present in approximately 50% of PTC. Most clinical studies have demonstrated an association of BRAF(V600E) mutation with aggressive clinicopathologic characteristics and high tumor recurrence, although the results are controversial.
In this study we present preliminary results of BRAF mutation frequency and its prognostic significance in a group of 88 polish patients with papillary thyroid cancer (PTC). BRAF(V600E) mutation was diagnosed in 38 (43%) of cases. From all analyzed clinico-pathological factors only older age positively correlated with BRAF mutation frequency (p = 0,0017). Lymph node/distant metastases, multifocality and extra-thyroid extension did not correlated with BRAF status.
Although many studies claim BRAF mutation as a prognostic factor in PTC our results underline that it is too early to consider its as an routine, clinical predictive factor.

Role of different imaging modalities in diagnosis of differentiated thyroid carcinoma metastases

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Introduction: Metastases of differentiated thyroid carcinoma (DTC) are rare. They mostly localize in lungs and bones. The aim of the study was to evaluate the role of basic imaging modalities in distant metastases detection.
Material and methods: 48 patients (37 female, 11 male) with distant metastases of DTC were retrospectively analyzed. Whole body scan using ^{131}I (WBS), chest radiography (CXR), computed tomography (CT) and bone scintigraphy (MDP) were evaluated.
Results: Patients were treated with 1 to 6 doses of radioiodine. During the recent radionuclide diagnostics, thyroglobulin concentration under TSH stimulation (endogenous in 31 pts., rhTSH in 16 pts.) varied from 0.5 tp 500 mg/mL (median 23 ng/mL).
WBS was positive in 27 patients (56.2%). Iodine-avid foci were found in 17 patients, in the thyroid bed in 4, in mediastinum in 3 and in bones in 4 pts. In the remaining 21 patients the WBS was negative. CXR showed pathologic changes in lungs in 19 pts. (39.6%). These were nodules > 1 cm in 13 pts., < 1 cm in 6 pts. In 29 cases CXR did not disclose any suspicious lesions. In 13 cases radiological findings were negative in WBS (68.4%). On the contrary, CXR failed to demonstrate iodine-avid lesions present in WBS (52.9%).
CT was performed in 25 patients in whom the available diagnostic methods did not show metastases. CT revealed lung metastases in 17 cases: nodules > 1 cm in 4 pts., < 1 cm in 11 pts., lymphangiosis carcinomatosa in 1 pt., miliary carcinosis in 1 pt. Moreover, CT revealed mediastinal lymph node metastases in 2 cases. In 14 cases lung metastases were occult on WBS (82.4%).
MDP scan was performed in 20 cases. Bone metastases were found in 11 of them. In 4 pts. MDP confirmed bone metastases diagnosed in WBS. In 7 cases, the bone metastases were WBS occult.
Conclusions: Due to the high incidence of non-iodine-avid metastases of DTC, and false negative radiological examinations, the complementary imaging techniques should be applied on the regular basis.

The clinical value of PET with 18F-fluorodeoxyglucose in patients with suspected recurrence of differentiated thyroid carcinoma

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Introduction: PET-CT with 18F-FDG is indicated in localization of the recurrent differentiated thyroid carcinoma patients with elevated serum thyroglobulin (TG) and negative radioiodine scintigraphy. Aim of the study is to determine the sensitivity and specificity of PET in these patients.
Material and methods: The study included PET-CT examinations performed in our patients with differentiated cancer and suspected recurrence/dissemination. Suspicion of recurrence was based on elevated TG levels (24 pts) or to the presence of radiological lesions. In 36 patients the examination was carried out under TSH stimulation.
Results: PET results were compared with the results of subsequent surveys: histopathological examination (11 patients), radiological examination confirming (34 patients) or with the results of scintigraphy after treatment with iodine ^{131} (3 patients). Overall, the PET study showed sensitivity of 71%, specificity of 81%, positive predictive value of 88% and negative predictive value of 59%. In the sub-group with radiographic changes these values was respectively 87%, 75%, 92% and 64% and in sub-group with increased TG 75%, 67%, 85% and 54%.
Conclusions: In patients with suspected dissemination/recurrence of differentiated thyroid carcinoma, PET-CT showed high PPV while negative predictive value was only 59% (CI: 45–73%).

Vocal cords examination by use of real time, high-resolution ultrasonography — a prospective pilot study in patients before and after thyroidectomy*

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Introduction: Examination of the vocal cords is most commonly performed by direct or indirect laryngoscopy, but this may not be readily approached by some patients and is difficult to register without advanced equipment. Ultrasound examination is accessible, inexpensive and may be easily registered, so it would be a perfect tool for vocal cords examination. Therefore, this prospective study was carried out to evaluate the morphology of the vocal cords and the larynx by real-time, high-resolution US and to correlate the ultrasonographical features with the laryngological examination.

Material and methods: Fifty patients were included in the study. All the patients had ultrasound examination (with 10 MHz linear probe) performed before and two days after thyroidectomy. Simultaneously laryngological examination was performed.
Results: In analyzed group laryngological examination revealed unilateral vocal cord paralysis in two cases. Moreover vocal cord dysfunction was diagnosed in four cases. Examination performed after three months follow-up confirmed transitory character of the above mentioned pathologies. In simultaneously performed US-examination of the vocal cords we observed changes in vocal cords function in ten cases. In two cases the vocal cords were not moving in US examination these were the patient with vocal cord paralysis. In further 8 cases we observed changes in US image in comparison to examination performed before operation. US-scan performed after three months revealed that the image of the vocal cords returned to the one registered before thyroidectomy
Conclusions: after analysis of obtained results we conclude that laryngeal ultrasound examination is a non-invasive, easily reproducible and inexpensive method of examining the larynx. Moreover, thanks to many options of registration it may be a perfect tool for early vocal cords post operative dysfunction discovery and monitoring. However, analysis on the bigger group of patients is necessary.
*Recipient of Polish Thyroid Association — Ipsen Award.

Elastography — new development in ultrasound in evaluating thyroid nodules

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Introduction: Ultrasound elastography (ES) is a new technique for estimating tissue stiffness. It measures tissue distortion under external pressure. ES is employed in differential diagnosis of thyroid, breast and prostatic tumors.
The aim of the study was to investigate the clinical usefulness of ES in differential diagnosis of thyroid nodules.
Material and methods: 52 thyroid nodules in 43 patients: 36 women, 7 men aged 44 ± 17.2 years were examined. Conventional ultrasonography (US), color Doppler fine-flow (CDF) and ES were carried out with Hitachi Hi-Vision Preirus machine and linear transducer of 5–13 MHz. ES images were classified into 5 categories according to the tissue stiffness: pattern 1–2 represented soft tissue, pattern 3 showed mixed type of tissue and patterns 4–5 were characteristic for hard nodules. The final diagnosis was obtained from cytological or histological evaluation.
Results: Cytological data showed thyroid malignancy in 16 nodules, indeterminate results in 13 and benign in 23 of cases. Thyroid carcinoma: papillary and medullary appeared as a single nodule in 5/16 (31%) of cases and as a part of multinodular goiter in 11/16 (69%) of cases. In 7 cases (44%) thyroid cancer was accompanied by Hashimoto thyroiditis. In conventional US and CDF thyroid cancer was a solid tumor in 13/16 (81%) of cases, non homogenous in 12/16 (75%), hypoechoic in 16/16 (100%), had microcalcifications in 8/16 (50%), irregular margins in 10/16 (62.5%), central blood flow in 7/16 (44%). Sensitivity of a single feature indicative for thyroid carcinoma in conventional US and CDF was 64–100% and specificity was 71–85%. ES showed high stiffness tissue pattern 4 and 5 in 13/16 (82%) of thyroid cancers. In 3 cases of thyroid malignancy ES scores were soft (pattern 2) or mixed (pattern 3). All benign nodules were classified into patterns 1–3. Pattern 4 and 5 were characteristic for thyroid carcinoma with sensitivity 84%, specificity 100%, positive predictive value 100% and negative predictive value 92%.
Conclusions:
1. Ultrasound elastography is a highly sensitive and specific method of diagnosing thyroid nodules.
2. This method can be employed in selecting thyroid nodules to the fine-needle aspiration biopsy.

Molecular profile of thyroid cancer after exposure to ionizing radiation

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Thyrocytes derived differentiated thyroid cancers in children are usually sporadic, but in rare cases they can develop after exposure to ionizing radiation. Thyroid irradiation after nuclear plant catastrophe in Chernobyl, was associated with a large peak of papillary thyroid cancers (PTC) developing in children and initiate a large number of studies. However, results of this studies are equivocal and the cancer-initiating role of radiation is debated. At first RET/PRC rearrangements, resulting from radiation induced DNA double breaks, were believed to be "molecular fingerprint" of radiation induced thyroid cancer. Yet, soon it was shown that this rearrangements are frequently detected not only in radiation induced childhood PTC, but also in sporadic ones. Also genomic data on childhood thyroid cancer are very incomplete. The large scale microarray study of expression profile in sporadic and radiation induced childhood PTC could help us not only to clarify whether radiation induced PTC show any specific expression profile, but also extend our knowledge on PTC ethiopathogenesis and carcinogenetic effect of ionizing radiation.
Microarray study of sporadic and radiation induced PTC was performed as a part of a international GENRISK-T project. Expression profile of sporadic (cases with PTC born after January the 1st 1986) and exposed to Chernobyl radiation (cases born between April 1968 and April 1986) were compared. Expression of more than 200 genes was different between sporadic and exposed to radiation cases.
Statistical difference in expression profile between these two groups confirming molecular differences between sporadic and radiation induced thyroid cancer.

Criteria and standards in FNB of thyroid cancer

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Ultrasound examination, with application of electronic, high resolution, wide bandwidth, 5–12 (14–18) MHz frequency probes, is at present fundamental imaging examination in diagnostics of morphological lesions in thyroid. Despite of many usable programs as second harmonics, compound ultrasound, color Doppler, power Doppler, 3D, visualization of microcalcifications, elastography, ultrasound contrast agents, do not exist ultrasound criteria enabling for reliable differentiation of thyroid cancers from benign lesions. Thus the important position and significance of FNB guided with ultrasound for subsequent differential diagnostics.
The choice of focal lesions (lesion), visible with ultrasound, for FNB should be based on following ultrasound criteria: echogenicity, borders, distribution of echo in the lesion, chaotic distribution of

microcalcifications, increased vascularization, decreased elasticity or lack of elasticity on elastography, image in 3D of coronal plane. Size of the lesion, halo-sign are not useful in designation of focal lesions in thyroid for FNB, that can be thyroid cancer.
The presentation includes propositions of Polish Ultrasound Society for performance of FNB of abnormal morphological lesions in thyroid gland.

Analysis of genetic predisposition to papillary thyroid cancer

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Introduction: Papillary thyroid cancer (PTC) is usually sporadic cancer. However, it belongs to this kind of solid tumors, where family occurring is more frequent than in the other groups — it is estimated that the PTC risk is five fold higher in the relatives of PTC probands. In contrast to some monogenetic hereditary cancer syndromes, among which the occurrence of PTC is characteristic, genes responsible for familiar PTC are poorly known. Genome wide association studies recently revealed the association of single nucleotide polymorphism (SNP) on chromosome 9 with PTC (Gudmundsson et al, 2009). At the same time the results were published, which showed the association of FOXE1 gene (formerly TTF2, Thyroid Transcription Factor 2) located on chromosome 9 with PTC (Lande et al, 2009).
The aim of our study was to analyze the association of FOXE1 gene with PTC in Polish population. DNA was isolated from 910 PTC patients and 914 controls. Among PTC there were 85,6% women and among controls 82,0%. Median age for PTC group was 53 years and for controls 44 years. rs1867277 polymorphism of FOXE1 gene was analyzed by allelic discrimination technique (7900HT Fast Real-Time PCR System, Applied Biosystems).
Genotype distribution of FOXE1 SNP differed significantly between PTC and controls ($p = 0.00004$). In PTC group the number of AA homozygotes (25.5%) and AG heterozygotes (49.0%) was higher than in controls (18.9% and 45.9% respectively). For the presence of at least one A allele the OR value was significantly increased (OR = 1.6; 95% CI: 1.30–1.96).
Conclusion: We confirmed the association of FOXE1 rs1867277 with PTC in Polish population.
The work was supported by MNiSW grant: N N519 579938.

Expression of age-related genes in thyroid and thyroid neoplasms by oligonucleotide microarray profiling

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Introduction: Differentiated thyroid cancer show age-associated profile of occurrence and aggressiveness of disease. This phenomenon is not unique for thyroid and was described for different malignancies. The biological rationale for the differences in cancer occurrence and aggressiveness related to patient age are poorly understood, despite the fact that the process of aging is quite well understood for different tissue types, eg. fibroblasts.
The aim of the study was to characterize the changes in gene expression in thyroid cancer and normal thyroid samples, associated with the age of cancer diagnosis.
Material and methods: We analyzed samples of papillary thyroid cancer, collected from 83 patients treated at Maria Skłodowska-Curie Memorial Cancer Center and Institute of Oncology in Gliwice. We applied Affymetrix HG-U133A (n = 49) and HG-U133 Plus 2.0 (n = 34) oligonucleotide microarrays. In 21 patients, there was normal thyroid sample from contralateral lobe available for analysis; additionally, 74 samples of normal thyroid from other patients with benign or malignant tumors were collected. Microarray data were preprocessed with RMA algorithm and analyzed with stratification according to the microarray platform used.
Results: We have observed a coordinated pattern of gene expression in a group of transcripts, which was sigificantly associated with age of patient at diagnosis (global test of association, $p = 0.02$). We identified 105 age-correlated transcripts ($p < 0.001$), four of them with False Discovery Rate < 10%. 55 genes showed positive correlation with age, while 50 other transcripts were inversely correlated. Among the identified genes we observed the over-representation of extracellular matrix genes, migration and developmental processes genes. Thyroid peroxidase (TPO) showed an inverse correlation ($R = –0.54$) with patient age.
Conclusions: Age is significantly associated with gene expression in papillary thyroid cancer. The importance of this fact for the biology of thyroid carcinoma, especially the relation to the disease agressiveness demands further study.

Procalcitonin — a new marker for medullary thyroid cancer patients?

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Introduction: Calcitonin (CT) is the best known marker for medullary thyroid cancer (MTC), although it has several limitations. Increased CT concentration is observed also in other diseases. CT is rapidly broken down by serum proteases, which can lead to erroneous results. It has a biphasic and concentration-dependent half-life. There are various immunoreactive isoforms of CT, which could give inaccurate results.
Procalcitonin (PCT), the precursor of CT, is free from these limitations. In contrast to CT, PCT has a concentration-independent half-life and excellent in vitro stability in serum. Increased concentration is observed only in patients with bacterial infections or sepsis and is due to extrathyroid PCT production.
The aim of the study was to check concordance between CT and PCT in MTC patients in different stages of the disease.
Material and methods: Twenty-five patients were enrolled in the study. There were 18 patients with MTC (5 with active — MTC, 13 cured MTC patients) and 7 non — MTC patients (controls). None of our patients had signs of bacterial infections or sepsis. CT was measured by an immunochemiluminometric assay (CLIA) using an Liaison analyzer (DiaSorin Inc, USA). PCT was measured by an immunochemiluminometric assay (Liaison Brahms PCT) using an Liasion analyzer.
Results: PCT and CT levels were higher in all active MTC patients — mean 4.75 ng/mL for PCT and 1220 ng/mL for CT. In all 13 cured — MTC patients and 7 non MTC patients (control group), the levels of both markers were not increased. A 100% concordance of PCT and CT levels was observed among our patients in all clinical stages of the disease.
Conclusion: PCT may be a new surrogate marker for MTC.

Difficulties in pathological evaluation of thyroid carcinomas — results of verification by the Polish Working-Group for Endocrine Tumors

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Introduction: Microscopic pathology of thyroid carcinoma, where proliferative processes may occur concomitantly with functional abnormalities, is classified among particularly difficult specialties of histopathology. The objective of the present study was histological assessment of diagnostically dubious microscopic thyroid tumor preparations based on the results of consultations provided by the Polish Working-Group for Endocrine Tumors to our patients.
Material and methods: A retrospective study included a group of diagnostically complex cases originating from 66 patients treated surgically due to thyroid carcinomas at Department of General Surgery in 2008. The tissue material was represented by hematoxylin-stained microscopic preparations of tissue sections collected from primary tumor foci and lymph node metastases; in selected patients, histopathology was supplemented by immunohistochemistry. The resultant data were analyzed statistically.
Results: Of the total number of 76 patients, in 12 cases the original final diagnosis was changed. 40 patients were originally diagnosed as follicular carcinoma and 8 patients with the diagnosis of papillary microcarcinoma; 12 patients with follicular carcinoma and 1 individual with Hurthle cell carcinoma, 3 patients with medullary carcinoma; 1 with parathyroid carcinoma, 1 with the diagnosis of chronic thyroiditis; 4 patients with follicular adenoma; 2 individuals diagnosed as multinodular goiter, 2 with lymph node metastases of papillary carcinoma and 1 patient each with clear cell carcinoma (metastasizing kidney tumor) and with poorly differentiated carcinoma.
Conclusions: A high degree of differentiation of thyroid tumors is a source of considerable diagnostics problems, even in referral centers of thyroid surgery. Any diagnostic doubts should be consulted by an extensive group of specialists who would take into consideration the clinical symptoms and course of the disease, as well as additional histological and immunohistochemical test results. This help is being provided by the Polish Group of Endocrine Tumors. Only such a management strategy does allow for initiation of an appropriate and properly selected post-surgical treatment.

Follicular lesion in thyroid FNAB — a study of histopathologically verified 129 cases

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Introduction: The term follicular lesion has been coined for some FNAB results years ago, and represents an attempt to specify the diagnostic difficulties which arise with this type of lesion. In the literature there are significant discrepancies in an evaluation of risk of malignancy of these lesions. One of the reasons of these variances is lack of precise cytological criteria and excessive latitude in using already established diagnostic standards by cytopathologists. A fundamental aim of this study is cyto-histological analysis of cases diagnosed in FNAB as follicular lesion depending on the cytological criteria.
Material and methods: From 2002 to 2005 (period I) in our Department follicular lesion (FL) was classified into two categories: neoplasma folliculare (NF) — (cell-rich, monomorphic smears almost entirely consisting of microfollicular structures) and proliferatio follicularis (PF) — (smears which besides microfollicular structures contained other cellular elements and colloid). During this period FL was detected in 290 patients - NF in 72 and PF in 218 cases. During period II (2006–2009) FL (without categorization) was diagnosed in 152 patients. During period I the histopathological verification was possible in 31% patients with FL (90/290) —– in 69.4% with NF (50/72) and in 18,3% with PF (40/218). During period II histopathological verification was possible in 25.7% cases wih FL (39/152).
Results: During period I by postoperative histopathological examination, a neoplasm (with benign and malignant) was diagnosed in 62% (31/50) with NF and 40% (16/40) with PF. Risk of malignancy in group with NF (histopathology verified) was 16% (8/50), whereas with PF was 5% (2/40). During period II by histopathological examination a neoplasm was diagnosed in 30.7% patients — carcinomas were diagnosed in 3/39 cases (7.7%).
Conclusions: Accurate cytological criteria and their strict use essentially affect the postoperative profile of histopathological results. On the basis of our study seems to be important to create subcategories (eg high and low risk) in group of lesions still named as" follicular lesions".

The assessment of the efficacy of radioiodine remnant ablation after radical surgery in patients with differentiated thyroid cancer (DTC)

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Introduction: The efficacy of ^{131}I has been proved in DTC patients (pts) with advanced disease (M1,T4 or N1). However, the effects obtained in subjects with lower disease stage are not so unequivocal. Randomized, prospective studies seem to be extremely difficult due to the necessity of large number of pts and long follow-up. Thus, the retrospective analysis in pts T1b-3N0 radically operated between 1994 and 1997, during the period of limited accessibility to ^{131}I treatment in Poland, was performed. Because the majority of pts underwent complementary ^{131}I therapy, the analysis was focused on relation between the efficacy of ^{131}I and time between surgery and its application. It was assumed that ^{131}I treatment was more effective when applied sooner after the operation.
Material and methods: The analyzed group consisted of 510 pT1b-4N0-1M0 subjects, treated with ^{131}I up to 24 months after radical surgery, selected from 1033 DTC pts diagnosed between 1994 and 1997 (73% with papillary and 27% with follicular thyroid cancer, mean time of follow-up 11,2 yrs). Pts with papillary microcarcinoma not demanding ^{131}I therapy (n = 117), as well as pts not treated with ^{131}I due to lack of ^{131}I uptake after the operation with absent other risk factors (n = 151), pts treated non-optimally (n = 192) and pts with DTC persistent after surgery (n = 63) were excluded. Taking into the consideration the initial stage of disease the analysis was based on comparison between the subjects treated with ^{131}I up to 9 months after surgery and others. Freedom from progression (FFP) and time from ^{131}I treatment to progression were assessed.
Results: In pts T1b-3N0, ^{131}I therapy carried out up to 9 months after surgery was related to significantly lower risk of cancer recurrence (98.4% pts with no recurrence after 10 yrs compared to 93.4%

in subjects treated between 9 and 24 months, p = 0.041). In subjects with more advanced disease (T4 or N1) the frequency of relapses was higher and no significant differences between pts treated up to 9 and 9–24 months were observed.

Conclusions:

1. Evaluation of putative benefits of ^{131}I remnant ablation in low risk DTC patients required the exclusion of these subjects in whom ^{131}I is definitely not necessary.
2. ^{131}I remnant ablation in T1b-3N0M0 patients is related to significant reduction of cancer recurrence dependent on time to its application.

L-thyroxine supressive treatment in patients with differentiated thyroid cancer (DTC): evaluation of our clinical practice

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Introductions: DTC patients need L-thyroxine treatment after total thyroidectomy and subsequent ^{131}I therapy. Until recently, supression of TSH serum level was expected, whereas in the last ten years, with the improvement of DTC prognosis, it is more common to apply incomplete suppression (0,1–0,4 mU/L) or even to treat substitutively DTC patients (0,5–2,0 mU/L). In our centre most of patients were treated with an intention of incomplete TSH suppression.

The aim of the study was to analyze how this intention has been realized and to evaluate if the increase of serum TSH above 2 mU/L is related to a higher risk of DTC recurrence.

Material and methods: The analysis was carried out in the group of 200 DTC patients operated primarily in the Institute of Oncology in Gliwice in 2004–2005 aged 31–63years (median 50 years) among them 95.6% with papillary histotype. At the diagnosis 3% of patients had distant metastases. The initial treatment comprised of total thyroidectomy in 94.6% cases and radioiodine therapy in 99%. We analyzed TSH serum levels during the L-thyroxine treatment, after exclusion of all values of TSH > 20 mU/L due to L-thyroxine withdrawal necessary for diagnostics or radioiodine treatment.

Results: Median serum TSH was below 0,1 mU/L in 71.7% of patients, in 18.5% was between 0.1–0.4 mU/L, whereas in 9.8% was above 0.4 mU/L.

Despite the intention of incomplete suppression of TSH, median TSH was lower than 0.1 mU/L in 67% of patients what fulfills the criteria of total TSH suppression. Only in 14% of patients the increased rate of TSH above 2 mU/L concerned more than 20% of measurements and was not associated with the risk of DTC recurrence. The overall risk of disease relapse was 5% within 5 years of follow-up.

Conclusions: The TSH serum levels obtained during L-thyroxine therapy of DTC patients were slightly lower than desired. On the other hand, the risk of insufficient L-T4 therapy was minimal and was not associated by any increased risk of DTC recurrence.

The treatment of differentiated thyroid cancer (DTC) in children: Evaluation of permanent side effects

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Introduction: DTC treatment in children awakes controversy between proponents of the aggressive treatment who stress the protection from disease recurrence and of less intensive treatment, which carries lower risk of complications. Our own experience points out that the extensive initial therapy consisting of total thyroidectomy combined with appropriate extent of lymphadenectomy and followed by radioiodine therapy is associated with substantial decrease of risk of DTC recurrence.

The aim of this study was to analyze the side effects of combined treatment of DTC in children.

Material and methods: 123 adult DTC patients diagnosed in childhood/adolescence at median age of 14 years (5–18), treated with total thyroidectomy (92%) in different medical centers and radioiodine therapy (91%) in our center. Median time of follow up was 12 years (4–36). Lung metastases were found in 30 patients, but chest X-ray was normal in 97% of patients at the time of the study. Laryngologic examination, evaluation of parathyroid function and gonadotropin levels were carried out during the present study. HRCT and lung function tests were performed in patients with lung metastases and in a selected control group.

Results: Recurrent laryngeal nerve palsy was observed in 18.7% of patients, hypoparathyroidism was found in 20% of patients. There were no signs of lung fibrosis even after repeated radioiodine treatment. Total lung capacity and diffusing capacity was normal in 92.5% and 85% of patients. In 52.5% of patients decrease of peak expiratory flow (PEF) was observed. Serum gonadotropins were normal in all women and 74% of men.

Conclusions:

1. The risk of permanent surgical complications is high in DTC patients operated during childhood/adolescence.
2. Radioiodine therapy of DTC in children does not cause lung fibrosis and does not disturb lung function. The risk of PEF decrease is related rather to the surgical technique applied than to radioiodine therapy.
3. Risk of gonadal insufficiency should be considered in male patients as the permanent complication of radioiodine therapy, especially if repeated radioiodine courses are applied.

Radioiodine remnant ablation in patients with differentiated thyroid carcinoma (DTC): comparison of long-term outcomes of treatment with 30, 60 and 100 mCi**

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The aim of this study is to compare the effectiveness of ^{131}I therapy between three groups of DTC patients who received 30, 60 or 100 mCi

for remnant ablation. The project was designed as a two-stage, prospective randomized clinical trial.
During the initial phase the early effects of the treatment were compared, the next stage presented below concerns the late outcomes. In 1998–1999 in a randomized prospective study the early comparison of treatment with 30 mCi *v.* 60 mCi proved the lower activity to be less effective, whereas in 2002–2003 the comparison between 60 *v.* 100 mCi showed no significant differences.
The second stage of the study comprises the long-term assessment of the course of the disease in study groups. A group of 331 DTC patients (284 women and 23 men) with no clinical signs of persistent disease was analyzed (267 with papillary and 44 with follicular thyroid cancer). 30 mCi of ^{131}I was applied in 83 patients, whereas 60 mCi in 128 and 100 mCi in 100 patients. The follow-up was 2–12 years for subjects treated with 30 mCi and 60 mCi and 2-6 years for the patients treated with 100 mCi of ^{131}I. 6–12 years after the adjuvant ^{131}I treatment the course of the disease and the current clinical state were assessed by radiological examinations and serum Tg concentration (on LT4-suppressive treatment). Local relapse was stated in 2 (2.4%), 4 (3%) and 3 (3%) patients treated with ^{131}I activities of 30 mCi, 60 mCi and 100 mCi, respectively.
Conclusions: In the analyzed group no significant differences in long-term efficacy of radioiodine thyroid ablation using 30, 60 and 100 mCi in low-risk patients were observed. However, it should be emphasized that thus can be also related to the radical surgical approach applied, as well as to the completion of unsuccessful thyroid ablation by the second course of radioiodine administration which was more frequently performed in patients treated with 30 mCi of radioiodine.
**Recipient of "Thyroid Research" award.

Does second opinion on thyroid fine-needle aspiration (FNA) cytology change clinical treatment?

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Introduction: Secondary review of thyroid gland FNA cytologic slides in patients referred from other institutions has been the standard practice at the Institute of Oncology in Gliwice.
The aims of this study were to analyze if our second, additional cytological examination has an important effect on patient care.
Material and methods: All thyroid gland FNAs referred from September to December 2009 to the Department of Tumor Pathology for a second cytopathologic opinion were analyzed. According to Bethesda system FNA results were divided into: non-diagnostic, benign, atypia of undetermined significance, suspicious for follicular or oncocytic neoplasm, suspicious for malignancy and malignant. Final results of our consultation and first initial cytologic diagnosis were compared.
Results: One hundred sixteen patients had a second opinion of their thyroid FNA. Our consultations confirm 61% of initial diagnosis in the doubtful cases. The highest concordance rate was in malignant (Papillary cancer) category — 87,5%, and the lowest in suspicious category — 52%. 11 cases were moved from suspicious category to malignant one. Almost 20% of specimens were classified as non-diagnostic ones.
Conclusions: Second opinion of thyroid FNA is very important, and often changes the diagnosis and finally decision surgical management.

Tracheal reconstruction with the use of radial forearm free flap and biodegradative mesh suspension description of three cases

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Trachea reconstruction, after a resection of a malignant tumor is one of the most difficult treatments. Defects longer than 6 cm cannot be reconstructed with locoregional methods. The main aim of tracheal restoration is to provide a non-collapsible construction with a functional epithelial lining and well vascularized coverage. The authors present three cases of a successful tracheal reconstruction in patients with recurrent thyroid gland cancer infiltrating the trachea. In each case the free radial forearm flap was formed as a tube and suspended to the mesh rings placed outside. Currently all the patients have no problems with respiration. The authors present the stages of resection and reconstruction and achieved effect on videos.

Clinical analysis of urinary iodine excretion in patients with differentiated thyroid cancer (DTC)

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Introduction: To relate urinary iodine excretion to L-thyroxine therapy and doses applied in DTC patients. To analyze risk of stable iodine contamination in patients suspected of DTC dissemination.
Material and methods: The analyzed group included 572 DTC patients who were treated with radioiodine or hospitalized for assessment of its results from April 17 to December 12, 2009 at Institute of Oncology in Gliwice. Iodine urine concentration was analyzed with PAMM (Program Against Micronutrient Malnutrition) method, L-thyroxine therapy and dose, TSH serum level and thyroglobulin level were considered. 545 tests were performed under rhTSH administration and 27 after L-thyroxine withdrawal.
Results: Median L-thyroxine dose was 150 ug/day whereas 24hr median urinary iodine concentration was 127,55 μg/L. Only 1,2% samples showed stable iodine contamination (urinary iodine was $\geq$ 300 μg/L). Urinary iodine did not differ considerably in patients treated after L-T4 withdrawal (in whom median TSH serum level was 33 mU/L) and in patients examined during L-thyroxine treatment (medians were respectively 127.1 and 127.5 μg/L). No distinct relation between urinary iodine and L-thyroxine dose administered was observed. Only in 1 patient, in whom serum level of stimulated thyroglobulin indicated on DTC dissemination, high urinary iodine raised the suspicion of false negative radioiodine scan.
Conclusions: Low risk of distant metastases in DTC patients and of urine stable iodine contamination allow to resign from low iodine diet in patients treated with rhTSH for diagnostic ^{131}I scan or complementary radioiodine therapy.

The diagnostic value of PTH concentration in the needle washout after fine-needle biopsy of foci of unknown origin localized within thyroid gland

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Introduction: Successful parathyroidectomy depends on recognition and excision of all hyperfunctioning parathyroid glands. Ultrasonography (US) is sensitive in detecting foci located within the thyroid gland, but its specificity is not sufficient. Ultrasound guided fine needle biopsy increases the specificity, but cytological material is not always diagnostic.
The aim of the study was to estimate the diagnostic value of PTH concentration in the needle washout after fine-needle aspiration of foci of unknown origin localized within thyroid gland in patients (pts) with hyperparathyroidism (HP).
Material and methods:18 pts were studied (15 females, 3 males); 16 pts with primary (2 recurrent), 2 with secondary HP, presenting with one or more intrathyroid foci on US.
Serum PTH (PTH intact; Immulite 2000), total and ionized calcium, phosphate, alkaline phosphatase concentration were measured in all pts. ^{99m}Tc-sestamibi parathyroid SPECT scintigraphy was performed. Dual tracer parathyroid ^{99m}Tc-pertechnetate/^{99m}Tc-sestamibi planar subtraction scintigraphy was recorded (X-Ring Mediso). Ultrasound guided (AU3 Partner, EsaoteBiomedica; 10 MHz) fine-needle biopsy was performed and sent for cytology. The needle (25G) was washed out with 125 μL (first biopsy) and 400 μL (second biopsy) of 0.9% saline.
PTH concentrations (using the same PTH intact kit) in the washouts were measured. A positive cutoff value for PTH washout concentration was defined as above to the PTH serum level. A preoperative map of the intrathyroid lesion was drawn. The drawing was placed above the patient's head to serve as a guide for the surgeon performing open, focused surgery.
Results: All pts revealed parathyroid lesions. Hyperplasia was found in 11 pts (11/18; 61.1%), adenoma in 6 pts (6/18; 33.3%) and in one case (1/18; 5.6%) parathyroid cancer was suspected in pathology, but no metastatic foci have been diagnosed so far. All but one patient had elevated PTH washout concentrations-sensitivity 94.4%; positive predictive value (PPV) 100%.
Positive scintigraphy (visible parathyroids) was found in 9 pts (9/18; 50.0%), positive cytology (detected parathyroid cells) was confirmed in 12 pts (12/18; 66.7%).
Conclusions: An elevated PTH washout concentration identifies an intrathyroid focus as enlarged parathyroid gland with high PPV and high sensitivity. With this diagnostic technique, minimally invasive surgery can be implemented even in negative scintiscan cases, thus sparing the unchanged thyroid gland.

Usefulness of biomarkers of thyroid neoplasm (RET/PTC-1, RET/PTC-3, AKAP9/BRAF, PAX8/PPARγ, BRAF) in analysis of aspirates from biopsy of thyroid nodules in children

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Introduction: Pathogenesis of thyroid cancer in children is different than in adults and therefore it requires to search the other candidate genes as diagnostic markers of cancer. Preoperative material from fine-needle biopsy (aspirates) of childhood thyroid nodules was studied.
The analysis of usefulness of selected markers of thyroid neoplasm.
Material and methods: Both, RNA (for expression analysis of RET/PTC-1, RET/PTC-3, AKAP9/BRAF, PAX8/PPARγ) and DNA (to detect mutation in BRAF gene) were isolated from thyroid nodules. Total RNA underwent reverse-transcription and polymerase-chain-reaction (RT-PCR) to obtain cDNA and to analyse the expression of markers of thyroid cancer (candidate genes). In all samples the analysis of control genes: GAPDH (for the qualitative and quantitative evaluation of RNA) and thyroglobulin (control marker of thyroid cells) were performed. From the total DNA, the exon 15 of BRAF gene was amplified to investigate the T1799A (V600E) mutation based on PCR-sequencing technique. Aspirates used for studies were in vast majority verified histologically and represented all histological types of thyroid disease.
Results: 119 samples were analysed for the expression and BRAF mutation. Among fusion oncogenes the positive result for RET/PTC-1 was seen in 3 samples of 119 (only in PTC), in 4 samples/119 it was positive for RET/PTC-3 [PTC, follicular adenoma and in 2 aspirates were verified postoperatively as colloid goiters (benign non-neoplastic)]. AKAP9/BRAF was negative in all analyzed aspirates. PAX8/PPARγ was positive in only 1 patient with congenital hypothyroidism and coexisting thyroid nodules in both lobes (histologically dyshormonogenetic goiter). Analysis for T1799A (V600E) BRAF mutation was negative in all, too.
Conclusions:
1. The incidence of RET/PTC rearrangements is in agreement with previous published data and more common RET/PTC-1 rearrangements prove the sporadic nature of this type of thyroid cancer in the studied group.
2. BRAF gene mutation are not responsible for thyroid cancer in the studied children.

Transcriptome of microdissected papillary thyroid cancer cell

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Introduction: The transcriptome of papillary thyroid cancer has been well characterized by microarray studies, however, analysis of gross specimens, with significant contribution of stromal tissue,

lymphocytic infiltrate and normal thyrocytes makes the interpretation of gene expression profile difficult. Until now only scarce data on pure tumor cell populations are available.
Material and methods: Microdissection was performed on tumor fragments taken intraoperatively from papillary thyroid cancer (PTC) and normal thyroid tissue of 26 patients with PTC by PALM laser microdissection system. PTC cells, normal thyrocytes, stromal tissue, lymphocyte infiltrates and medium-sized vessel populations were obtained, in total more than 80 samples. From 41 samples cRNA was synthetised by IVT Express Kit (Affymetrix). Up to now, 27 microarray hybridizations were performed. Quantitative real-time PCR was carried out in 18 independent microdissected samples and 25 macrodissected fragments.
Results: Both RNA and cRNA showed significant degradation. Normalization of highly divergent microarray studies, as those obtained by analysis of pure microdissected populations, was a challenging task. From preliminary data we selected 12 genes to be verified by QPCR performed also in microdissected PTC cell populations, 5 previously known PTC markers, (up-regulated in PTC — FN1, MET, RXRG, ADORA1 and down-regulated TFF3) and 7 new candidates (MPPED2, TACSTD2, KCNJ2, LRP4, EVA1, CDH3, GALE).QPCR confirmed the significant overexpression of 4 known PTC markers, but not ADORA1. MPPED2 was the top gene from our previous ranking of PTC genes performed in silico (Fujarewicz et al, 2007) and QPCR confirmed its down-regulation in PTC. The significant differences were also shown for KCNJ2, TACSTD2 (up-regulated in PTC thyrocytes).
Conclusions: We indicate on the characteristic down-regulation of MPPED2 and up-regulation expression of FN1, MET, RXRG and the down-regulation of TFF3 in PTC thyrocytes.

Disturbances of expression of thyroid hormone receptor TR-beta-1 in human renal cancer

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Introduction: Thyroid hormone receptor beta1 (TR-beta1) is a ligand dependent transcription factor whose activity is regulated by thyroid hormone, triiodothyronine (T3). Untranslated regions (UTRs) of mRNA molecule and miRNAs participate in postranscriptional regulation of expression.
Aim of work to identify and analyze UTRs role in regulation of TRbeta1 in clear cell renal cell cancer (ccRCC).
Material and methods: samples of ccRCC (samples T), control kidney samples (samples C), Caki-2 cell line (derived from ccRCC). Methods: molecular cloning, transfection, real-time PCR, Western-blot, in vitro translation, computational modeling.
Results: We identified one new 3'UTR and multiple new 5'UTRs that differed by their biophysical properties and differently regulated receptor's translation. In T samples disturbances of expression of TRbeta1 protein, UTR variants, hsa-miR-204, iodothyronine deiodinase type 1, and lowered level of T3 were found.
Conclusions: The observed disturbances lead to local tumor hypothyroidism resulting from low level of tissue T3, TRbeta1 and Dio1.
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The risk of inadvertent parathyroid excision during thyroid cancer surgery

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Introduction: The aim of the study was to assess the risk of inadvertent parathyroid excision in patients undergoing primary thyroid cancer surgery.
Material and methods: Thirty-three patients — 30 (91%) female and 3 (9%) male — were operated for thyroid cancer. The operations were performed by a surgical team in accordance with current guidelines. In all cases of thyroid cancer, complete thyroid excision with removal of central lymph nodes compartment were carried out. If indicated, the procedure was extended to involve ipsilateral lymph nodes or other lymph node compartments. Thirty patients underwent primary surgery and 3 were reoperated due to lymph node recurrence. In all patients, careful attention was paid to detect the presence of parathyroid tissue in the pathology specimens.
Results: Pathology results found 26 (79%) cases of papillary carcinoma (PC), 3 (9%) cases of follicular carcinoma (FC), 2 (6%) cases of medullary carcinoma (MC), a single case of lymphoma (3%) and one metastatic lesion (3%). Parathyroid tissue was identified in 6 cases (20%) per 30 primary operations. Not more than one parathyroid was found to be removed at any one time. Evidence of parathyroid tissue was found more frequently in cases of extensive lymph node excision (more than 8) and in specimens of the central compartment and upper mediastinum.
Conclusions: Complete thyroid excision due to cancer carries a substantial risk of incidental parathyroid removal. The risk increases in patients undergoing extensive regional lymph node dissection.

Effects of Fenton reaction on oxidative damage to membrane lipids and nuclear DNA in porcine thyroid potential role in cancer initiation

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Introduction: Oxidative stress participates in all steps of cancerogenesis. The most basic reaction of oxidative stress is Fenton reaction (Fe^{2+} $H_2O_2 \rightarrow Fe^{3+} + OH + OH^-$). Hydroxyl radical (æOH), produced in Fenton reaction, may damage all biological macromolecules, leading to cancer initiation. Of special meaning is Fenton reaction in the thyroid gland, as both H_2O_2 and Fe^{2+} are indispensable for thyroid hormone synthesis. Fenton reaction is used to experimentally induce oxidative damage to biological macromolecules and may serve as experimental model of cancer initiation.
The aim of the study was to evaluate the effects of Fe^{2+} and/or H_2O_2 on the level of oxidative damage to membrane lipids and nuclear DNA in porcine thyroid.

Material and methods: Thyroid homogenates or nuclear DNA isolated from the porcine thyroid were incubated in the presence of either H_2O_2 (0.00001–100 mM) or FeSO4 (1.5-300 μM) or in the presence of those two agents used together, namely $FeSO_4$ (30 μM) + H_2O_2 (in different concentrations) or H_2O_2 (0.5 mM) + $FeSO_4$ (in different concentrations). Concentration of malondialdehyde and 4-hydroxyalkenals (MDA+4-HDA), as an index of oxidative damage to membrane lipids (lipid peroxidation), was measured spectrophotometrically. Concentration of 8-oxo-7,8-dihydro-2-deoxyguanosine (8-oxodG), as an index of oxidative damage to nuclear DNA, was measured by the use of high performance liquid chromatography (HPLC).
Results: Whereas Fenton reaction substrates, used alone, did not affect the level of lipid peroxidation in porcine thyroid homogenates, they did increase the level of oxidative damage to nuclear DNA: the level of 8-oxodG increased significantly when H2O2 was used in the highest concentration (100 mM), and Fe^{2+} did increase in concentration-dependent manner (for concentrations of 300, 150, 30 and 15 μM) 8-oxodG level.
When Fe^{2+} and H_2O_2 were applied together, the level of lipid peroxidation increased significantly and further increase of 8-oxodG level was observed comparing to the effects of particular substrates used alone.
Conclusion: Excess of exclusively one of Fenton reaction substrates is sufficient to induce oxidative damage to nuclear DNA in porcine thyroid. Exposure to iron excess or red-ox imbalance leading to enhanced H_2O_2 formation may potentially contribute to increased cancer risk in the thyroid gland, mainly via oxidative damage to DNA.

Retrospective categorization of diagnoses by ultrasound-guided FNAB of the thyroid gland

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Introduction: Bethesda system outlined the direction of cooperation between doctors in diagnostic process and treatment of thyroid nodules. Would the categorization of diagnoses by ultrasound-guided FNAB facilitate information exchange between specialists? Evaluation of concordance between physicians allocations of cytological diagnoses to proposed diagnostic categories.
Material and methods: The material were 571 cytological diagnoses reached by ultrasound-guided FNAB of the thyroid gland recorded in Correlations Database of the Neoplasm Pathology Department of The Holycross Cancer Centre in years 2001–2007. All the cytological diagnoses were correlated with histopathological diagnoses and were confirmed to be true positive or true negative. The average number of biopsied sites per one cytological report was 1.8 (1–4), and therefore, the average number of cytological diagnoses per one cytological report was 1.8.
Every cytological diagnosis from a single biopsied site was retrospectively assigned to one of the 5 diagnostic categories: A1 category — non-diagnostic aspirate, A2 category — benign lesion, A3 category — follicular neoplasm/oxyphilic tumor, A4 category — suspected for carcinoma/malignant neoplasm, A5 category — carcinoma/malignant neoplasm. Qualification to the above given categories was performed by doctors engaged in the study, including two endocrinologists and two pathologists. Acquired data was subjected to statistical analysis.
Results: Full concordance between allocations of cytological diagnoses to proposed diagnostic categories by all doctors for every cytological diagnosis in every cytological report was achieved in 90% of the reports. Lack of concordance with possible consequences for diagnostic and therapeutic process was revealed in 2.1% of the reports. In 8.2% of the reports, the lack of concordance would not have any influence on future medical procedures. The concordance between allocations to diagnostic categories made by doctors engaged in the study was evaluated with Chi square test, and the following values were recorded ($p < 0.0001$): 96.5% for the pair Endocrinologist 1 Endocrinologist 2, 94.2% for the pair Pathologist 1 and Pathologist 2, 94.4% for the pair Endocrinologist 1 and Pathologist 1, 95.1% for the pair Endocrinologist 2 and Pathologist 1, 96.9% for the pair Endocrinologist 2 and Pathologist 2, 94.2% for the pair Endocrinologist 1 and Pathologist 2.
Conclusions: There was high concordance rate in allocations to diagnostic categories which reached 90% for all FNAB diagnoses evaluated by all 4 doctors and ± 95% for pairs of specialists.

Prediction of the papillary thyroid cancer distant metastases risk by gene expression profiling*

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Introduction: Papillary thyroid cancer, a malignancy of a relatively good-prognosis, presents with distant metastasis in 5–10% patients. The analysis of gene expression by microarray method allows to specify numerous novel molecular markers, potentially associated with the risk of disseminated disease.
The aim of the study was to assess the feasibility of genomic prediction of metastases in papillary thyroid cancer patients.
Material and methods: Gene expression profiling was carried out in 78 PTC samples taken intraoperatively (19 from pts with distant metastases and 59 from pts without dissemination) by HG-U133A ($n = 49$) or HG-U133 Plus 2.0 ($n = 29$) oligonucleotide microarrays. Microarray dataset was pre-processed by GC-RMA method, class prediction was carried out by linear discriminant analysis and support vector machines, with assessment of method accuracy by 0.632 ± ± bootstrap. Quantitative real-time PCR was carried out in a set of 85 PTC samples (18 pts with and 68 pts without distant metastases) by ABI 7900 HT analyzer (Roche Universal probes; with normalization to the panel of reference genes).
Results: In the first step we analyzed whether microarray-based prediction of distant metastases is feasible. By bootstrap-assessment of class prediction accuracy on the subset of best 10 genes, we found out that the negative predictive value (NPV) of the method was high (81%), with much weaker positive predictive value (PPV) of 33%. At least 108 genes were significantly associated with the risk of distant metastases (non-corrected $p < 0.001$, false discovery rate approx. 20%). Each of the genes alone was a weak risk predictor, but the diagnosis could be based on the set of them. We validated the selected genes on an independent set of 85 samples: the index built from 28 microarray-based genes confirmed the initial results, with NPV 85% and PPV 32%. Similar results were obtained by reduction of the classifier size to 10 genes.
Conclusion: Prediction of the low risk PTC is feasible, with clinically relevant negative prognostic value of multi-gene classifier over 80%.
*Recipient of Polish Thyroid Association — Ipsen Award.

Receptor PET scintigraphy with positon-gallium labeled somatostatin analogues in medullary thyroid carcinoma

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Introduction: About 50% medullary thyroid carcinoma patients suffer from hypercalcitoninemia, despite of absence of clinical evidence foci of recurrent/untreated disease. Routine imaging diagnostics, either radiological or based on nuclear medicine techniques, are insufficient to localize cancer foci. In last 3 years a new method in diagnostics of persistent hypercalcitoninaemia emerged: PET scan with positon-gallium labeled somatostatin is analogue.
Initial assessment of usefulness of PET exam with positon-gallium labeled somatostatin analogues for localization of cancer foci in patients with medullary thyroid carcinoma and persistent hypercalcitoninaemia.

Material and method: Group of 21 patients, aged from 28 to 61 years, without radiological symptoms of disease was assessed. During postoperative observation the serum calcitonin level above 300 pg/mL was stated. PET scan was performed with somatostatin analogues, labeled with gallium 68Ga, produced from germanium-gallium generator. Radiotracer activity of 4–7 mCi was administered, the whole body acquisition was performed from base of skull to knee with hybrid scanner PET-CT Philips Gemini 16XL.

Results: In 5 patients (25%) the foci of radiotracer uptake in thyroid bed or lateral neck lymph nodes, invisible in ultrasound or computed tomography, were observed. In one patient there was radiotracer uptake in thoracic vertebral column.

Conclusions: A preliminary assessment of usefulness of PET exam with positon-gallium labeled somatostatin analogues for localization of cancer foci suggests its potential usefulness in patients with medullary thyroid carcinoma and serum calcitonin level above 300 pg/mL.

Original thyroid cancer poster abstracts

Elastography based on tissue Doppler in the diagnosis of thyroid nodules — a pilot study

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Introduction: Aiming at the highest specifity in differentiating benign from malignant thyroid nodules effects in new diagnostics developments. Recent technologies such as elastography enable determination of tissue stiffness difference between focal lesions and surrounding thyroid tissue — the reference tissue. This method is based on quantifying the stiffness of the lesion. The malignant changes show decreased elasticity when compared to adjacent tissue. Tissue Doppler used in Toshiba ultrasound system requires external tissue compression made by the researcher by means of the transducer. Due to individual technique differences, some artifacts interfering the diagnosis may occur during examination.

Design: The aim of the study was to assess a potential role of elastography based on tissue Doppler in the diagnosis of focal thyroid lesions.

In this study, 100 thyroid nodules in 76 consecutive patients were examined (68 women, 15men), using Toshiba Aplio XG ultrasound with linear PLT 1204 BT transducer. Final diagnoses were obtained from cytological and, in 54 cases, histological evaluation. There were 5 cases of papillary thyroid carcinoma, 1 case of anaplastic carcinoma, and 70 benign nodules. After achieving final results all the conducted examinations were reviewed.

Results: Retrospective evaluation study revealed presence of the artifacts causing different outcomes. The results interpretation was more difficult in nodules localized between isthmus and thyroid lobes, in peripheral thyroid and in cases when the lesion and lobe transverse parameters were equal.

Conclusions: Elastographic examination based on tissue Doppler imaging reveal stiffness differences between thyroid lesions and reference tissue. The awareness of the circumstances of artifacts appearing and correct examination technique are crucial for proper results interpretation.

Differentiated thyroid carcinoma diagnosed incidentally in postoperative histopathology

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Introduction: In view of the absence of characteristic clinical presentation that would indicate a neoplastic process in progress, it is often difficult to differentiate between differentiated thyroid carcinoma (DTC) and benign goiter, especially multinodular goiter, and thus DTC is frequently diagnosed only on the basis of postoperative histopathology. Cytological assessment of biopsy specimens or intraoperative evaluation of frozen section in DTC are associated with diagnostic problems, which do not allow in all cases for establishing an appropriate diagnosis of carcinoma, either pre- or intraoperatively. A comparative analysis of occult thyroid carcinoma (OTC) and DTC diagnosed pre or intraoperatively.

Material and methods: The retrospective analysis included 9047 surgical patients treated in a single surgical center due to various types of goiter in the years 1999 2008. The patients were divided into three groups: 399 (4.4%) patients with DTC diagnosed pre or intraoperatively, 507 (5.6%) individuals with occult carcinomas detected only by final histopathology and 8141 (90%) patients with benign goiter. The mean age of the surgical patients was 51ą14 years. The entire group consisted of 87.7% of females and 12.3% of males. The three subgroups were compared with respect to clinical-pathological characteristics, results of intraoperative examinations and employed treatment. A further detailed analysis included the group of individuals with OTC.

Results: Occult thyroid carcinoma was detected in 507 patients. In 372 cases (73.4%), papillary carcinoma was diagnosed, in 68 patients (13.4%) classic follicular carcinoma, in 54 (10.6%) Hürthle cell carcinoma, and in 13 (2.6%) cases poorly differentiated follicular carcinoma. No other histological types of thyroid carcinoma were observed in this subgroup. The mean size of the tumor focus was 16ą18.2 mm (median value — 9 mm), being smaller by 4 mm as compared to the respective value in the DTC group. In 302 (59.6%) cases, the tumor did not exceed 10 mm in diameter. In 68 patients (13.4%), OTC was a multifocal disease. In 10 (2%) cases, histology confirmed metastases to regional lymph nodes. Only 49 patients (9.7%) were classified as clinical stage III and IV (UICC 2002). In 106 (20.9%) patients with OTC, total thyroidectomies were per-

formed, while in 401 (79.1%) cases, thyroid resections were less extensive; of this group, 112 (27.9%) patients required secondary radicalization of the primary subtotal procedure.
Conclusions: Occult thyroid carcinoma is a significant clinical problem; in comparison to preoperatively diagnosed differentiated thyroid carcinoma, upon diagnosis, OTC is characterized by a smaller size of tumor focus, lower aggressiveness of the neoplastic process and a lower clinical stage. In consequence of less extensive primary thyroidectomies, almost 30% of patients with ITC require reoperation.

Diagnostic chip based on enzyme inhibitors — preliminary approach

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Fast development of civilization results also in development of medicine and medical sciences. Studies directed towards production of new efficient drugs and designing of new therapeutic techniques are of high priority all over the world but also are extremely costly. New non-invasive diagnostic methods are becoming of special interest, especially if considering fast, selective and simple procedures. Simple tests improving diagnostics as well as those for home-diagnosis will become soon integral part of prophylactics.
The goal of this study was to construct diagnostic tool helpful in diagnosis of thyroid cancer types. The library of diaryl aminobenzylphosphonates, able to react with proteins and peptides present in homogenates was chosen for this purpose. Esteric groups of these compounds were selected in order to provide color or fluorescence, which are undergoing changes upon reaction with homogenates. Sice proteinous composition (proteome) of thyroid and cancerous tissues is different it should enable to differentiate these tissues because the same library gives different pattern dependent on type of homogenate.
Preliminary results are promising and indicated that components of the library react differently with various homogenates, providing various changes of fluorescence. This was additionally proved by studies of composition of products of these reactions by means of 31P NMR technique.

Incidence rate of thyroid cancer in Olsztyn Region in the years 1993–2008

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Introduction: Olsztyn Region (OR), the area of moderate iodine deficiency, was exposed to one of the highest irradiation doses in Poland during the Chernobyl atomic plant breakdown.
Estimation of thyroid cancer incidence in Olsztyn Region in the years 1993–2008.
Material and methods: Thyroid cancer register was kept in OR from 1993 to 2008. The incidence rate was calculated as the number of newly diagnosed thyroid cancer cases per 100,000 inhabitants in a calendar year considering sex, age group and histopathological diagnosis.
Results: In the years 1993-2008 there were diagnosed 799 new cases of thyroid cancer (678 women, average age 52.5 ± 11.4, and 121 men, average age 54.1 ± 12.6) ; and in age group 0–18 in 12 cases. The women to man ratio was 5.6:1. The incidence rate increased from 1.7 in1993 to 8.37 in 2004, since 2004 IR decreased to 6.3/100 000 in 2008; in women group respectively 3.1 (1993) to 14.8 (2004) and 11.52 in 2008. Papillary carcinoma was the dominating histopathological type (75.9%).
Conclusions:
1. An increasing trend in the incidence rate of thyroid cancer was observed in Olsztyn Region between 1993 and 2004, although decreasing trend was observed to 2008.
2. Thyroid cancer incidence was significantly higher in women than in men.
3. The highest thyroid cancer incidence rate was found for papillary thyroid carcinoma.

The prevalence of central compartment of the neck lymph nodes involvement following elective clearance for papillary thyroid cancer

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Introduction: Clinical suspicion of regional lymph nodes involvement is present in approximately 10% of patients with papillary thyroid cancer (PTC). Nevertheless, among the remaining 90% of individuals assessed pre- or intraoperatively as N0, some cases of metastatic lymph nodes from PTC are found on final pathological report. Both quality of life and survival can be influence by eventual nodal recurrence in this group of patients.
To evaluate the prevalence of metastatic lymph nodes in patients with PTC in stage cT1-3N0M0 undergoing elective central compartment lymph nodes clearance.
Material and methods: Clinical database of patients with thyroid cancer undergoing surgery in 2009 was retrospectively analyzed. 48 (77.4%) patients with PTC, with pre- or intraoperatively not suspected lymph nodes were identified (staging: T1 — 50%, T2 — 10.4%, T3 — 39.6%, including Tm — 22.9%). Elective total extracapsular thyroidectomy with one-stage clearance of the central compartment lymph nodes was performed in all patients. The number of excised and metastatic lymph nodes within the surgical specimen were analyzed.
Results: Mean number of lymph nodes within the surgical specimen was 4.5 ± 3.3 (1–17, median 4). Central compartment of the neck lymph nodes involvement was found in 11 (27.1%) patients. Mean number of 1 ± 2 metastatic lymph nodes were identified (0–7, median 1).
Conclusions: More than a quarter of PTC patients with clinically and intraoperatively non-suspected lymph nodes within the central compartment are positive for metastatic nodal deposits in surgical specimen following elective central compartment clearance.

Thyroid fine-needle aspiration (FNA) cytology versus frozen section examination (FS) in the experience of the Surgical Oncology Department

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Introduction: The aim of the study was the histopathological verification of the diagnoses made based upon frozen section examinations (FS) and ultrasound-guided fine-needle aspiration (FNA) cytologies conducted on patients who underwent thyroid surgery. The optimal verification of cytology results is a post-operative histopathology analysis of the tissue previously diagnosed through FNA cytology and FS examination.
Material and methods: The studies were carried out from October 2008 up till November 2009 on a population of 161 female and 42 male patients. The age of the patients varied from 20 to 76 years of age/the average being 36.
This study compiles the results and shows the correlations between cytology, frozen section and histopathology taken from 203 patients treated in our department (17 papillary and follicular carcinomas, 47 follicular and oncocytic tumors and 139 nodular goiters).
Results: Verifying the cytology diagnoses histopathologically and through frozen section results, it was established that in 139 of the nodular goiters 94.2% of the diagnoses were confirmed, in 8 cases/ /5.8%/papillary carcinomas were diagnosed/from which 6 cases were diagnosed through frozen section examinations.
Out of the 47 cases of the pre-operative follicular or oncocytic tumor cytology diagnoses, 10 cases/21.2%/finally proved to be nodular goiters, 32 cases/68%/follicular adenomas and 5 cases/10.7%/follicular carcinomas. In one of the cases, during the frozen section examination, a metastatic papillary carcinoma to the lymph node was identified.
In the 5 cases of pre-operative papillary carcinoma FNA cytology diagnoses, finally 4 cases were confirmed and one case of Hashimoto thyroiditis was identified.
Conclusions: The intra-operative frozen section examination of the thyroid is a fundamental element of surgical management tactics, especially in the case of thyroid cancer. Frozen section of the thyroid is a difficult procedure to carry out, especially in follicular tumors. Hence, in case of any doubts, pathologists should withhold from making a diagnoses until the final histology.

Role of fine-needle aspiration biopsy in diagnosing tumor metastases to thyroid gland — personal observation

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Introduction: Malignant metastases are rarely found in thyroid gland, the incidence reaching approx. 2% of all thyroid malignant neoplasm. They are most often caused by tumors of kidneys, lungs, mammary glands, ovary, colon or by melanomas.
Aim: To evaluate the usefulness of fine-needle aspiration biopsy (FNA) for diagnosing of tumor metastases to thyroid gland.
Material and methods: A total of 15122 patients were operated between 1990 and 2009 for goiters. Malignant neoplasm was diagnosed in 733 (4.8%) patients. Malignant metastases to thyroid gland were detected in 10 patients namely 2 men and 8 women aged 48–89. The group made 1.4% of all patients operated for malignant thyroid tumor. Preoperative diagnostic procedure consisted of thyroid scintigraphy, thyroid ultrasonography and cytology of the material obtained through FNA. In addition, hormonal activity of thyroid gland was examined. The range of operation was established through clinical assessment of the tumor, preoperative cytology and intra-operative histopathology.
Results: Among 7 patients with thyroid metastases from renal clear cell carcinoma, as diagnosed postoperatively, cytology of the thyroid material obtained through FNA revealed follicular tumor in 3 (%), patients, tumor cells in 2 and atypical cells in the other 2. Intraoperative histopathology confirmed the presence of metastasis from renal clear cell carcinoma (1 ×), and indicated thyroid medullary cancer (1 ×), follicular tumor (4 ×) or trabecular adenoma with necrosis (1 ×). Among 2 patients with thyroid metastases from breast cancer, cytology confirmed a metastasis from breast cancer in one (the woman was disqualified for surgical treatment) and indicated follicular tumor in one. Intraoperative histopathology suggested thyroid anaplastic cancer. Examination of biopsy specimen revealed epithelial cells accompanied by cell atypia in one patient with thyroid metastasis from lung cancer. Intra-operative examination also indicated on cellular atypia in the same patient.
Conclusions: Follicular tumor diagnosed by fine-needle aspiration biopsy in patients after treatment for other cancers, especially renal clear cell carcinoma, should make the surgeon alert to the possibility that it may be a metastasis of this cancer to thyroid gland.

Assessment of RET/PTC1 and RET/PTC3 rearrangements in fine-needle aspiration biopsy specimens collected from patients with Hashimoto thyroiditis

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Introduction: RET/PTC rearrangements are the most frequent molecular changes in papillary thyroid carcinoma (PTC). So far, 11 main RET/PTC rearrangements have been described, among which RET/PTC1 and RET/PTC3 are the most common in PTC especially in radiation-induced tumors. Recently, RET/PTC rearrangements have been shown not only in PTC but also in benign thyroid lesions, including Hashimoto's thyroiditis.
The aim of study was an assessment of RET/PTC1 and RET/PTC3 rearrangements in patients with Hashimoto's thyroiditis.
Material and methods: Thyroid aspirates, eligible for the study, were obtained from 26 patients with Hashimoto's thyroiditis by fine-needle aspiration biopsy (FNAB). Each aspirate was smeared for conventional cytology, while its remaining part was immediately washed out of the needle. The cells, obtained from the needle, were used in further investigation. Total RNA from FNAB was extracted by use of an RNeasy Micro Kit, and Reverse transcription (RT-PCR) was done. Quantitative evaluation of RET/PTC1 and RET/ /PTC3 rearrangements by real-time PCR was performed by an ABI PRISM 7500 Sequence Detection System. In the study, PTC tissues with known RET/PTC1 and RET/PTC3 rearrangements served for the reference standard (calibrator), while â-actin gene was used ad endogenous control.

Results: Amplification reactions were done in triplicate for each examined sample. No RET/PTC1 and RET/PTC3 rearrangements were found in the examined samples.
Conclusions: The results of the study indicate that RET/PTC1 and RET/PTC3 rearrangements in Hashimoto's thyroiditis are rather rare events and further investigations seem to be necessary to describe molecular changes, associating Hashimoto's thyroiditis with PTC.

Prognostic value of differentiated thyroid cancer (DTC) lymph node metastases in relation to the extent of surgical treatment**

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The analysis of prognostic significance of metastases to the neck lymph nodes in DTC patients with special emphasis given to central lymph node compartment to evaluate the possibility of reduction of the extent of neck lymphadenectomy depending on stage of disease stage.
Prognostic value of N1 feature was assessed firstly in retrospective group of 1141 DTC patients diagnosed and treated in Gliwice in years 1986–1998, operated in different Polish surgical centers. In the analyzed group metastases to neck lymph nodes were diagnosed in 291 patients (25.5%). Next, the group of 137 DTC patients operated in Clinics of Oncological Surgery in Gliwice in years 2004-2005 (c.a. 60% of all patients operated in these years) was analyzed with aim to search a correlation between pT and N features. In this group metastases to lymph nodes were stated in 36 patients (26%). Statistical analysis was carried out with SPSS 12PL statistical program. Test chi^2, Kaplan-Meier survival analysis and Cox regression were performed.
In the long-therm analysis, the presence of DTC metastases to the neck lymph nodes was correlated with a decrease of both overall survival ($p < 0.0001$) as well as disease free survival. In N1 patients 10 years overall survival was 80.4%, while in N0 patients it was 94.3%. 10 years disease free survival was respectively 45.4% i 86.9%. N1 feature was unfavorable, independent prognostic factor influencing overall survival (RR — 3,1) and disease free survival (RR — 4.5). In group of 137 patients operated in 2004–2005 the risk of metastases increased with tumor size. Increase of risk of lymph nodes metastases was not correlated with multifocal type of tumor growth, however the risk of metastases occurrence was considerably related with extracapsular invasion ($p = 0.000$).
Conclusions: In this analysis statistically significant increase of locoregional relapse risk in case of isolated central compartment lymph nodes involvement in DTC was not observed.
**Recipient of "Thyroid Research" award.

Comparison of results of thyroglobulin (Tg) and Tg autoantibodies (aTg) measurements obtained with TRACE and ECLIA methods in patients with differentiated thyroid carcinoma

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Introduction: The aim of the study was to compare results of Tg and Tg autoantibody determinations obtained with two different IMA technologies (TRACE and ECLIA).
Material and methods: TRACE technology is a immunofluorescent assay in which cryptate europium is used as the tracer. ECLIA technology is a chemiluminescent assay, ruthenium complex is used as the tracer. Tg concentration and level of anti-Tg was measured in 339 serum samples of patients with differentiated thyroid carcinoma.
Results: The range of Tg levels was 0.17–265 200 ng/mL for TRACE and 0.10–56 8210 ng/mL for ECLIA (medians: 0.594 and 0.899 respectively). Both methods were significantly correlated with $r = 0.99$ for all results, 0,88 for samples with Tg < 2 ng/mL, 0.98 for Tg < 10 ng/mL and 0.97 for Tg < 30 ng/mL. The range of aTg levels was: 0––4000 IU/mL, with significantly higher values for ECLIA then TRACE with significant correlation between both methods ($r = 0.80$).
Conclusion: There was a linear correlation between TRACE and ECLIA results. Tg levels obtained by ECLIA are 2× higher, which has to be considered at clinical interpretation.

Compliance of pre and postoperative diagnosis of malignant thyroid neoplasms

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Introduction: Comparison of compliance of pre and postoperative diagnosis in patients treated surgically due to malignant thyroid neoplasms.
Material and method: A preoperative diagnosis was established on the basis of fine needle aspiration biopsy (FNAB). Postoperatively a standard histopathologic assessment was carried out. The final results based on the analysis of both diagnoses.
Results: The study included 58 patients treated surgically due to a malignant tumor of thyroid gland in the period between 2000 and 2009. Full compliance of FNAB and histopathologic examination was found in 38 cases. In 8 cases benign lesions in FNAB while malignant tumors in histopatholgic evaluation were found. Malignant lesions in FNAB but benign in histopathologic examination were noted in 3 patients. Different types of malignant tumors in both examinations were revealed in 3 patients, ambiguous FNAB diagnosis while malignant lesions in histopathologic assessment were noted in 6 cases.
Conclusion: Although full compliance between pre and postoperative diagnosis of malignant tumors occurs in most cases, inconsistency or discrepancy may be found.

Prognostic impact of the doubling time of medullary thyroid carcinoma tumor markers**

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Introduction: Calcitonin (CT) and carcinoembryonal antigen (CEA), are tumor markers useful to follow-up activity in patients treated for medullary thyroid cancer (MTC). Their elevated level precedes morphological localization of the disease. It is estimated that CT serum level of 1000 pg/mL, which is 100 times higher than upper limit of normal value, is produced by 1 mL of tumor volume. In some patients elevated CT serum level remains stable over years, but in others it raises rapidly. The dynamics of tumor markers concentrations in the first years of follow-up can be assessed by the calculation of the time they need to double. In the literature it has been suggested, that CT-doubling time (DT) is the major prognostic factor in patients with MTC.
To evaluate the impact of CEA and CT DT in our patients with MTC.
Material and methods: DT for CT and CEA was calculated using nonlinear regression analysis by fitting single exponential curve to CT and CEA concentration *v.* time. Data from 110 patients hospitalized in years 2004–2005 were analyzed. In 40 patients the markers remained within normal range. Taking into account the lower DT value of one of the marker the remaining 70 patients were divided into Group 1 ($0 < DT < 2$ years; 25 patients) and Group 2 ($DT > 2$ years or $DT < 0$; 45 patients). Overall and disease-free survival were compared using Kaplan-Meier survival analysis.
Results: There were statistically significant differences in overall survival and disease-free survival between these two groups ($p < 0.00001$ and $p < 0.01$, respectively). Group 1 was at greater risk of death and recurrence. After 5 and 10 years after surgery, the survival rate in group 1 was 60 and 22%, respectively, whereas in group 2 — 95 and 82%, respectively. Moreover, all patients with $DT < 0.5$ year (4 patients) died in less than 5 years from surgery.
Conclusions: The calculation of CT- and CEA-DT in patients with MTC has significant prognostic value. In order to achieve adequate precision several measurements are needed, taken over sufficiently long period of time (optimally > 2 years) without therapeutic interventions, which is an inevitable drawback of this method.
**Recipient of "Thyroid Research" award.

Diagnostic performance evaluation of procalcitonin measurments during the follow-up of patients with medullary thyroid carcinoma (MTC)

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Introduction: Calcitonin is the main MTC marker. However, it has limitations: rapid in vitro degradation, a concentration-dependent biphasic half-life, presence of different isoforms and high cost of a single measurement. Procalcitonin, the prohormone of calcitonin, is free of these limitations, but its concentration is influenced by bacterial infections and is currently used only as a sepsis marker.
The aim of the study was to compare the diagnostic performance of measuring the levels of procalcitonin to calcitonin in pentagastrin test with in patients with MTC.
Material and methods: The study covered a group of 41 MTC patients (32 women and 9 men, aged 16-79), after the surgery, during the follow-up. Procalcitonin and calcitonin levels after pentagastrin administration were measured in 0, 3, 5 min. The diagnostic performance of measuring procalcitonin has been compared to calcitonin measurements.
Results: Procalcitonin levels in pentagastrin test were significantly higher in patients with elevated calcitonin level. In 0 min. they ranged 0.11–3.19 ng/mL average 2.27 ng/mL; in 3 or 5 min. 0.13––15.74 ng/mL average 7.45 ng/mL. Calcitonin levels in 0 min. ranged 13.8–518 pg/mL average 149 pg/mL in 3 or 5 min. ranged 35–937 pg/mL average 495 pg/mL. None of the patients. who were considered to be cured and had normal calcitonin levels in 0 min. ranged 6.16–8.07 pg/mL average 6.64 pg/mL in 3 or 5 min. ranged 6.19––9.75 pg/mL average 6.97 pg/mL was found to have elevated levels of procalcitonin while the respective values of procalcitonin in 0 min. ranged < 0.05 — < 0.05 ng/mL average < 0.05 ng/mL; in 3 or 5 min. ranged < 0.05 — < 0.05 ng/mL average < 0.05 ng/mL. Analyze of the results indicates a strong correlation of calcitonin and procalcitonin in the group of patients with increased calcitonin levels.
Conclusions: Measuring procalcitonin levels may be a substitute of calcitonin measurement when the later in not easily available.

Expression of ghrelin and obestatin in human thyroid gland and thyroid tumors

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Ghrelin and obestatin belong to the ghrelin gene derived products. Ghrelin is recognized as a circulating hormone expressed in multiple organs and exerting locally various actions. Expression and the in vitro modulatory effects of ghrelin have been recorded in thyroid gland and thyroid cancer cells, while occurrence and role of obestatin in this endocrine gland remain to be elucidated. In reason of deficiency in knowledge on the obestatin role in thyroid the presented study was performed to compare the immunohistochemical expression pattern of ghrelin and obestatin on human thyroid under physiological and pathological states.
Human thyroid samples were collected from the material obtained at thyreoidectomy performed due to clinical indications. It included 4 cases of normal thyroid tissue derived of healthy area of the gland suspected of collateral malignancy in solitary nodule and, moreover, 7 cases of nodular goiter, 2 cases of papillary cancer, 2 cases of follicular adenoma and one case of mixed medullary and follicular cancer.
Samples were fixed in Bouin fluid, dehydrated and embedded in paraffin. 5 μm thick sections were mounted on SuperFrost/Plus microslides, dewaxed, rehydrated and treated according to standard immunohistochemical procedure. Primary antibodies used in the study were antihuman ghrelin polyclonal serum and antihuman obestatin polyclonal serum (both Phoenix Pharmaceuticals). Immunohistochemical expression of both ghrelin and obestatin was documented in parafollicular and follicular cells and cancer cells. Expression of ghrelin in follicular cells was found mainly in proximity of the neoplastic area. Most often the immunoreactive obestatin was occurred together with ghrelin in the same cells, but the

reaction for obestatin was less intensive and the intensity was different in the particular cells. Differences in the intensity of reaction for obestatin among the cells were observed also in follicular and medullary cancer. At present, it is concluded that obestatin like ghrelin is involved in local regulatory processes in human thyroid and the differences in expression among particular cells may reflect its functional significance.

Radioiodine treatment of advanced differentiated thyroid cancer (DTC)

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Introduction: The key characteristic of DTC that contributes to success of radioiodine treatment in persistent or recurrent disease is its ability to actively transport and accumulate iodine. Traditionally radioiodine treatment is performed after a 4 to 6 week withdrawal of thyroid hormone (LT4). Recombinant human TSH (rhTSH) was developed to provide TSH stimulation without LT4 withdrawal and associated hypothyroidism. Additionally, in patients without or low radioiodine (^{131}I) uptake in cancer foci, pretreatment with 13 cis-retinoic acid (13cis-Roo) has been tested recently. The aim of the study was to evaluate effectiveness of ^{131}I treatment in advanced DTC patients treated according to standard protocol, rhTSH stimulation or 13cis-Roo pretreatment.
Material and methods: During the years 2001–2008 more than 150 patients with advanced DTC have been treated with ^{131}I. The patients were divided into 3 groups: a) 45 patients treated mainly under exogenous stimulation (≥ 3 consecutive treatments were performed with rhTSH stimulation); b) 51 patients treated mainly after endogenous stimulation and c) 53 patients with non-functional metastatic disease treated after preatment with 13cis-Roo and rhTSH stimulation. Response to treatment (radiological and biochemical), disease free survival (DFS) and overall survival (OS) were evaluated.
Results: All patients treated under rhTSH had good TSH stimulation: median 154 mUI/L. 5 patients treated after L4 withdrawal had TSH below 25 mUI/L. The median time of observation for the whole group was 66 (18-134) months. 55 (37%) were lost from observation, 25 (18%) died. In group C, where 35 (66%) were lost from follow-up, only response to treatment was evaluated. Partial response was achieved in 8 (18%), 6 (12%) and 0% patients in group A, B and C. DFS was respectively 37 and 68 months in group A and B and OS 28 and 50 months. Biochemical response was achieved in 27 (60%) and 29 (56%) patients in group B and C respectively.
Conclusions: Radioiodine treatment results in radiological and biochemical response in respectively 15% and 58% of patients. There are no differences in therapeutic effectiveness of radioiodine treatment during endogenous or rhTSH stimulation. In case of non-functional metastases, pretreatment with 13cis-Roo does not induce clinically relevant response.

Pheochromocytomas in the RET protooncogene mutations carriers

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Intraduction: Mutations in the RET protooncogene cause hereditary medullary thyroid cancer, which in some cases coexists with pheochromocytoma and primary hyperparathyroidism as the MEN2A syndrome.
Evaluation of frequency of pheochromocytomas and their clinical course in the RET protooncogene mutations carriers.
Material and methods: 179 patients, among them 109 probands and 70 family members in whom RET germinal mutations were detected. 90 probands had DNA analysis because of diagnosis of medullary thyroid cancer and 19 because of pheochromocytoma. Analyzed DNA was isolated from peripheral blood leukocytes. Exons 10, 11, 13–16 were analyzed by direct DNA sequencing.
Results: The frequency of pheochromocytoma in the mutations carriers was 29% (n = 51). Multiple lesions present at the time of diagnosis or occurring during follow-up were present in 34 cases (66%). In 3 cases malignant tumors were diagnosed. According to the type of mutation pheochromocytomas were present in 1/1 cases with codon 534 mutation, 1/1 cases with codon 609 mutation, 1/3 cases with codon 611 mutation, 2/17 cases with codon 618 mutation, 0/9 cases with codon 620 mutation, 33/66 cases with codon 634 mutations, 0/6 cases with codon 768 mutation, 0/4 cases with codon 790 mutation, 6/30 cases with codon 791 mutation, 0/14 cases with codon 804 mutation, 1/7 cases with codon 891 mutation and 4/14 cases with codon 918 mutation.
Conclusions: Pheochromocytomas are present in about 1/3 of RET mutations carriers, mostly multiple and benign tumors located in adrenal medulla as in the majority of cases. Their frequency depends on the type of mutation and only in patients with codon 634 mutations reaches 50%. The overall frequency in all RET mutation carriers is 29%.

DNA repair genes in the thyroid cell lines and human tumors*

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Free radicals and reactive oxygen species (ROS) participate in physiological and pathological processes in the thyroid gland. Oxidative stress caused by ROS is involved in many types of DNA damage that are associated with the initiation or the progression of numerous human cancers including thyroid tumors. One of the most mutagenic products of oxygen radical forming agents is 7,8-dihydro-8-oxoguanine (8-oxoG).
The aim of the current study was to investigate expression of OGG1 and XRCC1 genes which belong to BER system and take part in the elimination of 8-oxoG from DNA.
We determined OGG1 and XRCC1 expression on both transcript and protein levels (Q-RT-PCR, Western blot) in the thyroid cancer cell lines and a series of human thyroid tumors and normal thyroid tissues. We analyzed expression of these genes in the lines derived

from papillary carcinomas: BCPAP, ONCO-DG-1, TPC-1; follicular carcinomas: FTC-133, FTC-238, CGTH-W-1, ML-1 and non-differentiated carcinoma — 8505C. The normal human thyroid follicular epithelial cells — Nthy-ori 3-1 served as a control. Then, thyroid tumors (42), mostly PTC, and normal thyroid (15), were screened for the expression of above genes.
In all, but one cell line the OGG1 and XRCC1 mRNAs expression was on the level similar to that found in the normal thyroid cell line. Significantly decreased expression of both genes was detected in the TPC 1 cell line. Q-RT-PCR method showed that mRNA expression range was similar in cancer and normal tissues.
Although we found that the expression of OGG1 and XRCC1 genes in the thyroid cancer cell lines and human thyroid tumors do not differ from the expression in the normal thyroid further studies are needed to fully investigate DNA modifications and repair mechanisms in the thyroid tumors development.
*Recipient of Polish Thyroid Association — Ipsen Award.

Depressive symptoms, anxiety and quality of life in young adults, treated in childhood due to differentiated thyroid cancer

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Introduction: Differentiated thyroid cancer (DTC) is one of most common epithelial tumors in children. The large disease advancement at presentation, characteristic for DTC in childhood, motivates the intensive multi-modality treatment of this disease. It results in a very good prognosis of DTC in children, significantly better in other common childhood neoplasms. However, the good prognosis context is being realized by the patients even after many years, when they achieve full remission; thus this population is fully prone to the cancer stigma phenomenon. It is especially important, as in opposition to many oncohematological neoplasms, DTC is often occuring in teenagers, with important effect of their own disease perception and emotions influencing the adolescence and personality development.
The aim of the study was to assess the frequency of anxiety and depressive disorders and quality of life in relation to the factors determining the disease course in young adults, in childhood treated due to DTC.
Material and methods: Psychiatric examination was carried out, with detailed assessment of anxiety and depressive symptoms and quality of life assessment in 109 patients, aged 18–38 years, treated or in regular follow-up in Nuclear Medicine and Endocrine Oncology Department between 1987 and 2003. These patients were prospectively assessed (both physical and mental health) between the years 2006–2007.
Results: In 18% of patients we found significant symptoms of anxiety or depressive disorders, requiring therapeutical intervention, while in approx. 40% of patients we found minor symptoms. The results were analyzed in the context of the aggressiveness of the oncological treatment (number of surgeries or ^{131}I treatment courses etc), and disease state at the moment of the examination. We did not found any association between treatment intensity and psychological outcome, with the exception of the number of surgical procedures influencing the depressive and anxiety symptoms.
Conclusions: The aggressive treatment of DTC does not deeply enhance the depressive or anxiety symptoms and does not decrease the quality of life. It does not apply to the surgical treatment, which shall be planned to limit the number of procedures, negatively impacting the final anxiety and depressive status.

Expression of immunity-related genes in thyroid cancer — transcriptome analysis

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Introduction: The expression of genes specific for immune system is an important feature of papillary thyroid cancer (PTC) phenotype. The ability of normal thyrocytes to present antigens via MHC molecules was observed in early 80', only few years later it was confirmed for malignant thyroid cells. Also by the analysis on gene expression level it was observed that immune response genes are the important pattern of variability in the transcriptome of papillary thyroid cancer.
The aim of the study was to charaterize the variability of immune response genes in papillary thyroid cancer in comparison to normal thyroid and other cancers.
Material and methods: We analyzed the dataset consisting of microarray gene expression profiles for 93 PTC, studied by Affymetrix oligonucleotide microarray. Simultaneously, we analyzed 95 specimens of normal thyroid. Separately, the set of other malignancies (medullary thyroid cancer, pancreatic cancer) and benign samples (normal pancreas, chronic pancreatitis) was assessed.
Results: In the first step, we applied unsupervised analysis (singular value decomposition) to identify the major sources of variability in the analyzed dataset of PTCs and normal thyroid samples. This analysis was carried out on the whole set of transcripts, and separately only on transcripts of immunity-related genes. We have confirmed that the variability of gene expression in PTC is highly depending on the immune transcripts, with different patterns, some of them clearly originating from lymphocytes. The results were interpreted in the context of gene expression in microdissection-derived thyrocytes.
Conclusions: In the gene expression profile of PTC, there is a visible lymphocyte infiltration-dependent component, and a separate components probably associated with inherent expression of immune genes in thyrocytes. The discrimination of these components is possible in further genomic studies of separated cellular populations.

Detection of bone metastases in differentiated thyroid cancer

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Introduction: The aim of this study is to optimize imaging procedures in detection of bone metastases in differentiated thyroid cancer patients. In this cancer type elevated markers of bone turnover have not been certified and the diagnosis is established by correlating of clinical suspicion with imaging. The possibility earliest detection of metastases is crucial for minimization of pathological fractures, spinal cord compression and for institution of appropriate therapy. PET with 18-F fluoride is an interesting new option for imaging of bone metastases in thyroid cancer.

Material and methods: Among 1509 investigated patients suffering from differentiated thyroid cancer who had undergone thyroidectomy, 54 patients with elevated thyroglobulin (Th > 2 ng/mL during L-T4 therapy) were selected with bone metastases suspicion. 37 (68.5%) and 17 (31.5%) patients had papillary and follicular carcinomas, respectively. Posttherapeutic ^{131}I whole — body scan, computed tomography or MRI were performed in all patients. Among study group 54 patients, 22 patients with TG higher than 100 ng/mL were carried out with ^{18}F NaF PET.

Results: In 5 of 22 patients bone metastases were diagnosed on the basis of CT or MR. Skeletal system of every patient was divided into 13 segments. The whole-body ^{131}I-scan confirmed bone metastases only in single segments in 2 patients. In both patients the result of 18NaF PET was consistent with ^{131}I-scan though revealed additional bone metastases in 8 segments in those patients. In 3 patients ^{131}I scintigraphy gave negative results while ^{18}NaF PET scans detected bone metastases in 7 bone segments in all of the patients.

Conclusions: Previous methods of bone metastases detection in differentiated thyroid cancer patients are not sufficiently sensitive. Application of ^{18}F NaF PET is a promising alternative for earlier diagnosis of bone metastases in case of patients with elevated thyroglobulin serum level.

CHEK2 polymorphism and its association with occurrence and staging of papillary thyroid cancer

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Introduction: CHEK2 participates in repair of the damaged DNA. It has been associated with the occurrence of various cancers, among them papillary thyroid cancer, with OR = 6.2 (Cybulski and wsp. 2004). In the Polish population three polymorphic CHEK2 variants were described: IVS2+1G > A, 430T > C and more rarely 1100 delC.

Aim of the study was analysis of CHEK2 IVS2+1G > A and 430T > C SNPs in our population of patients with papillary thyroid cancer (PTC) and evaluation of the possible association of CHEK2 with PTC staging.

Material and methods: 701 PTC patients were investigated and compared to the control group of 1106 healthy persons with negative cancer anamnesis (all sites). DNA was isolated from peripheral blood with the Genomic Mini AX Blood kit. RFLP-PCR was conducted for the IVS2+1G > A polymorphism and the allele discrimination PCR by the TaqMan SNP Genotyping Assays was performed for 430 T > C. Age at diagnosis, TNM staging and postoperative stimulated Tg level were analyzed for association with CHEK2 polymorphism as well.

Results: Association of CHEK2 variants with PTC accurence was confirmed. Polymorphism 430T > C was stated in 62 cases PTC (8.8%) and 60 controls (5.4%) ($p < 0,05$). IVS2+1G > A was found in 8 cases (1.59%), and in none control ($p = 0.09$). There was no difference with respect to age or postoperative thyroglobulin level. For 430T > C in 35% of PTC patients higher TNM stage was observed compared to 21% in whom this variant was not present ($p < 0,05$). For IVS2+1G > A there was also a difference in staging, 38% to 21% respectively ($p < 0,05$).

Conclusions: Our study confirms, that CHEK2 SNPs IVS2+1G > A and 430T > C are associated with the appearance of papillary thyroid cancer. Moreover, they are associated with the higher stage of disease at the diagnosis.

Thyroid neoplasms in children and adolescents operated on due to nodular goiter in a single institution within the past 40 years

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Introduction: Objective of the study was a histopathology-based assessment of the prevalence and types of neoplastic thyroid lesions in children and adolescents subjected to thyroidectomies in the years 1969–2009.

Material and methods: The analysis was based on data originating from 366 surgical patients, including 307 girls (83.1%), aged from neonates to 22.19 years lat (mean age 14.39 ± 3.1 years). Children up to 12 years of life accounted for 25.4% (n = 93). Group 1 included 249 patients referred for strumectomies based on clinical assessment and operated on in the years 1969–1997. In the period 1998––2009, thyroid FNAB was performed in 784 cases. A total of 117 Group 2 patients were referred for strumectomies based on clinical assessment and cytology.

Results: Neoplastic thyroid lesions were detected in 105 (29.2%) patients. These lesions were represented by 2 (0.5%) teratomas, 72 (20.2%) adenomas and 31 (8.5%) thyroid cancers. In Group 1 patients, thyroid adenomas accounted for 22.1% (n = 55) *vs.* 16.2% (n = 19) in Group 2, thyroid cancers for 6.4% (n = 16) *vs.* 12.8% (n = 15), and tumor-like lesions and 70.7% (n = 176) *vs.* 70.9% (n = 83). Thyroid cancers were diagnosed in 23 of 307 girls (7.49%) and 8 of 59 (13.56%) boys with nodular goiter. Papillary carcinoma was detected in 80.65% patients (n = 25), follicular carcinoma in 12.9% of

cases (n = 4). Medullary carcinoma as an element of MEN2B was detected in 1 (3.23%) boy, and poorly differentiated carcinoma in 1 girl (3.23%).

Conclusions:

1. In children and adolescents with nodular goiter, a significant percentage (30%) of patients demonstrated benign or malignant neoplastic lesions of the thyroid.
2. Thyroid cancers were diagnosed in 6% of children referred to surgery based on clinical assessment as compared to 12% of children from the group where nodular goiter diagnostic management was extended to include FNAB.

Papillary thyroid cancer now and 10 years ago — the analysis of material of 1st Department of General, Gastroenterological and Endocrinological Surgery Medical University of Wroclaw

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Introduction: Despite of progress in detectability, early diagnostics and treatment of papillary thyroid cancer (PTC) we still observe patients with advanced papillary thyroid cancer. It is often diagnosed only after surgery what causes necessity of second operation. Therefore we ask the question how advanced is the progress in detectability, early diagnostics and treatment of papillary thyroid cancer during last ten years.

Comparison of two periods of the clinic's activity (1998–1999 and 2008–2009) in aspects of detectability, diagnostics and treatment of PTC and patients with all other thyroid pathologies.

Material and methods: We retrospectively analyzed the medical documentations of the patients.

Results: In 1998–1999 668 goiter operations were performed, 17 of them because of thyroid cancer. In 2008–2009 836 goiter operations were performed, 53 because of malignant thyroid tumors. In years 1998–1999 and 2008–2009 the agreement of results of biopsy with final histopathologic diagnosis was observed adequately in 55% and 62% of single thyroid nodules and in 15% and 19% multinodular goiter. The primary total strumectomy was performed adequately in 44% and 67% patients with papillary thyroid cancer, and the second surgery radicalization was performed in 52% and 30%. Total percentage of patients with PTC in 1998–1999 was 1,8%, but in 2008–2009 6%. In 1998–1999 PTC was observed in 85% as a single unilateral lesion localized in one lobe, nowadays 16% of papillary thyroid cancer appears as a multifocal lesion. In 1998–1999 only 20% of patients had fine needle aspiration biopsy ultrasound guided, in 2008–2009 100%.

Conclusions: We observed over 3 times increase of the patients treated in our clinic because of PTC. The percentage of detection of unifocal papillary thyroid cancer didn't change. Nowadays, as 10 years ago, the basic investigation in diagnosis of papillary thyroid cancer is fine needle aspiration biopsy and cytologic smear investigation. We noticed differences in choosing of the nodule which has to be biopsied. We observed decreasing number of late surgical radicalizations after primary operation, and growth of number of primary radical operations.

Thyroid cancer treated in emergency mode — 10 years experience of I Department of General Gastroenterological and Endocrinological Surgery Medical University of Wroclaw

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Introduction: Except of low differentiated cases, which are connected with worse prognosis, also in well differentiated thyroid cancers are very aggressive cases.

The presentation of own experiences in diagnostics and treatment of aggressive cases of thyroid cancer that were treated in emergency mode.

Material and methods: The medical documentations were retrospectively analyzed from the last 10 years.

Results: In 2000–2009 169 patients with malignant thyroid tumors underwent surgery (120 papillary cancers, 22 follicular cancers, 12 medullary cancers, 4 anaplastic cancers, 1 planoepithelial cancer, 1 oncocytic cancer, 5 thyroid's lymphomas and 3 metastatic tumors. There was 1 case of aggressive islet thyroid cancer with anaplastic component. Six patients were treated in emergency mode (islet cancer, 2 follicular cancers, anaplastic, medullary and clarocellular metastatic tumors), women in age of 73–91 admitted to the clinic with advanced respiratory failure symptoms caused by pressure, dislocation or tracheal infiltration. One of the cases was the female individual with very aggressive type of islet thyroid cancer, in whom from the first disease symptoms (hoarseness, tachypnoe) only few weeks passed to thyroid surgery. The next case was a patient with large neoplastic tracheal infiltration that coarctated trachea to 2 mm diameter. In this patient after surgical intervention we diagnosed metastases to thyroid gland from kidney cancer. She underwent nefrectomy 20 years earlier because of renal carcinoma.

None of these patient underwent radical surgical procedure. In two patients we performed tracheostomy. Unfortunatelly two patients died because of acute respiratory and circulatory failure, which appeared just after surgery. In one patient we observed disseminated intravascular coagulation symptoms that coused severe haemorrhage.

Conclusions: Thyroid cancer might progress very aggressively and require surgical treatment in emergency mode. However, during last 3 years we didn't observe thyroid cancer that required treatment in emergency mode.

Expression of LGALS3BP gene in thyroid tissues and peripherial blood lymphocytes as a potential prognostic factor for high malignancy type of papillary thyroid cancer five-year follow up

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Introduction: Although papillary thyroid carcinoma has rather favourable prognosis, we observed some cases that metastasizes and shows recurrence to lymph node in high incidence even after radical surgery. Tumor infiltrating lymphocytes (TIL) are very often identified close to malignant lesions. Lymphocytes infiltrations occur in 25–30% of papillary thyroid cancers. In the thyroid gland, the high expression of galectin-3 has been described in papillary cancer cells. Expression of LGALS3BP is identified in papillary thyroid cancers and in peripherial blood lymphocytes.
For detection of papillary thyroid cancer high malignancy types we estimated correlation between LGALS3BP gene expression in papillary thyroid carcinoma cells and T activated lymphocytes in patients with papillary thyroid cancer and the risk of papillary thyroid cancer recurrence during 5 years postoperative observation.
Material and methods: Galectin-3 mRNA expression was analysed in the peripheral blood lymphocytes from 90 patients; with papillary thyroid carcinoma (30), multinodular goiter (27), and healthy controls (33). We also estimated corellation between level of galectin-3 expression in papillary thyroid cancer and LGALS3BP gene expression in peripherial blood lymphocytes in patients with papillary thyroid cancer (30) and the risk of papillary thyroid cancer recurrence during 5 year observation.
Results: Difference of galectin-3 protein expression in papillary thyroid cancers and multinodular goiters is statistically essential ($p < 0.0001$). We did not notice statistically essential difference between expression of LGALS3BP gene in peripheral blood lymphocytes in patients with and without recurrence of papillary thyroid cancer during 5 years postoperative observation. High level of LGALS3BP gene expression in peripheral blood lymphocytes was observed in 4 patients with recurrent papillary thyroid carcinoma. In all patients with recurrent papillary thyroid cancer we observed very high galectin-3 expression level in papillary thyroid cancer cells.
Conclusion: High level of galectin-3 expression in papillary thyroid cancer might be helpful presurgery diagnostics of papillary thyroid cancer type and evaluation of recurrence risk.

Complementary treatment by ^{131}I at patients with thyroid papillary microcancer

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Introduction: Papillary cancer of thyroid gland is the most common malignant neoplasm of endocrine glands. Standards of the therapy of thyroid papillary microcancer allow the withdrawal from complementary treatment by ^{131}I after thyroidectomy.
Evaluation of effectiveness of therapy at patients affected by thyroid papillary microcancer who underwent total thyroidectomy and complementary I^{131} therapy respectively.
Material and methods: 224 patients were included in the study (221 females and 23 males, aged 24 to 82, average age 57, SD 11.8) with histopathologic diagnosis of thyroid papillary microcancer, post thyroidectomy and complementary ^{131}I therapy, admitted to our department for control examinations in conditions of endogenous TSH stimulation. Examinations performed in clinical department included: serum concentration of thyroglobulin (Tg) and thyroglobulin antibodies (aTg), ^{131}I whole body scan, ultrasonography of the neck and X-ray of chest.
Results: Based on results of control examinations, 90 patients (40%) didn't get satisfactory results and were qualified to subsequent ^{131}I therapy (subgroup A). Effectiveness of complementary ^{131}I therapy was evaluated as satisfactory at 134 patients (60%) (subgroup B). No statistical significant difference was shown by comparison of Tg concentration measured during qualifications to complementary I^{131} therapy between groups A and B ($p = 0.5752$).
During subsequent control examinations mean concentration of Tg in subgroup A was 2.28 ng/mL and it was statistically higher ($p = 0.0004$) than in subgroup B (0.79 ng/mL).
Conclusions: Low stage of papillary thyroid cancer in histopathological diagnosis combined with concentration of thyroglobulin are not sufficient prognostic factors during qualification to complementary ^{131}I therapy and they do not allow predicting the efficiency of that therapy at patients with thyroid papillary microcancer. Complementary ^{131}I therapy is advisable at all patients with thyroid papillary microcancer.

Immunohistochemical characterization of a primary papillary thyroid carcinoma and co-existing thyroid metastases in cervical lymph node

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Introduction: Microscopic pathology of thyroid carcinoma, where proliferative processes may occur concomitantly with functional abnormalities, is still difficult. The objective of the present study was histopathologic and immunohistochemical characterization of a primary papillary thyroid carcinoma and co-existing thyroid metastases in cervical lymph node.
Material and methods: A retrospective study included a group of 83 patients with papillary carcinoma treated surgically at Department of General Surgery in 2007–2009. The tissue material was

represented by hematoxylin-stained microscopic preparations of tissue sections collected from primary tumor foci and lymph node metastases and in all this group histopathology was supplemented by immunohistochemistry. The expression of cytokeratin (CK) 19 and thyroid transcription factor-1 TTF-1 were examined by immunohistochemistry The resultant data were analyzed statistically.
Results: Of the total number of 83 patients with papillary thyroid carcinoma, in 6 cases the original final diagnosis was changed. The group included 77 diagnoses of papillary carcinoma (various types); 4 patients with follicular encapsulated carcinoma; 1 individual with Hurtle cell carcinoma; and 1 clear cell carcinoma. The size of primary thyroid tumor was 4 mm to 50 mm. All papillary carcinomas and metastases (n = 77) showed expression of CK 19. The scores were +++ in 43 primary tumors and all lymph node metastases. TTF-1 positivity was noted in 60 patients. 3 patients with follicular thyroid carcinomas were positive for CK19 and TTF-1.
Conclusions: A high degree of differentiation of morphological types of thyroid tumors is a source of considerable diagnostics problems. We conclude the histological and immunohistochemical test results and characteristic cytokeratin expression profile for thyroid carcinoma can aid in clinicopathological diagnosis of thyroid carcinoma and allows for initiation of an appropriate and properly selected post-surgical treatment.

High serum TSH concentration after rhTSH administration in patients with differentiated thyroid carcinoma (DTC) and irreversible renal failure(RF) — 3 cases study

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Introduction: Some of diagnostic procedures in the patients with DTC, such as ^{131}I whole body scan (WBS) or serum Tg concentration require intensive TSH stimulation achieved by withdrawing of thyroxine therapy or rhTSH administration. We demonstrate 3 cases of coexistence of DTC and irreversible renal failure (RF), in which serum TSH concentration after rhTSH appeared to be extremely high.
Material and methods: Patient 1. Male of 52 years with papillary thyroid carcinoma (PTC), after surgery (VI and IX 2008) and radioiodine treatment (RIT — IV 2009). RF caused by chronic pyelonephritis. Control study performed in IV 2009.
Patient 2. Female of 57 years with PTC, after total thyroidectomy (TT — X 2008) and RIT (I 2009). RF caused by SLE. Control study in VII 2009.
Patient 3. Female of 83 years with follicular thyroid carcinoma (FTC, oxyphilic variant), TT-III 1999, RIT IV 1999 and XII 2004 (thyroid bed recurrence). RF caused by side effect of Y-90 therapy. Control study in VII 2009. In all the patients rhTSH (Thyrogen) were administrated by intra-muscular injections 0,9 mg for 2 consecutive days; serum TSH determinations were performed 1 and 3 days after the second injection. The results were compared with the control group of 217 patients with DTC treated in our Department from VIII 2008 to XI 2009: in 115 of them serum TSH concentration was measured 1 day, in 102 3 days after rhTSH administration.
Results: In the 3 patients with RF serum TSH concentration 1 day after rhTSH administration were: 570; 449 and 658 (mean 559 uIU/ /mL), and after 3 days: 220; 86.6 and 297 (mean 201.2 uIU/mL). Mean results in the control group were, respectively:152.8 uIU/mL (range:25.5–287) and 23,1 uIU/mL (range: 3.6–78.1).
Conclusions: Patients with irreversible renal failure have much higher serum TSH concentrations after rhTSH administration then others. Our observation suggests that the smaller doses of rhTSH may be sufficient in this group of patients.

COX-2 expression in thyroid papillary cancer in material obtained by FNAB**

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Introduction: COX is an enzyme isoform that catalyses the formation of prostanoids from arachidonic acid. An increased COX-2 expression has been implicated in carcinogenesis. Recent studies have shown that COX-2 up-regulation is associated with numerous neoplasms, including skin, colorectal, breast, lung, stomach, pancreas and liver cancers. COX-2 products stimulate endothelial cell proliferation and its overexpression has been involved in the mechanism of decreased resistance to apoptosis. Suppressed angiogenesis, due to a lowered expression of vascular endothelial growth factor, was found in experimental animal studies as a conseqence of null mutation for COX-2 in mices. The role of COX-2 expression remains a subject on numerous studies, but its participation in carcinogenesis or thyroid cancer progression remains unclear.
Material and methods: Patients with cytological findings of papillary thyroid cancer (PTC) were evaluated. After FNAB examination the needle was washed out with a lysis buffer and the obtained material was used for COX-2 expression estimation. Total RNA was isolated (RNeasy Micro Kit), based on modified Chomczynski and Sacchi's method and RT reactions were performed, using a TaqMan Reverse Transcription Reagents Kit. â-actin was used as endogenous control. Relative COX-2 expression was assessed in real-time PCR reactions by an ABI PRISM 7500 Sequence Detection System.
Results and conclusions: Twelve patients with cytological findings of PTC were evaluated. The obtained results were assessed by the ABI PRISM 7500 SDS Software, using the $\ddot{A}\ddot{A}C_T$ method. COX-2 expression was higher in patients with PTC, when compared to macroscopically unchanged thyroid tissue. The primary outcome may indicate COX-2 role in thyroid cancer pathogenesis but the observed variability in results among particular subjects requires additional clinical data and tumor progression analysis.
**Recipient of "Thyroid Research" award.

Biochemical detection of relapse of differentiated thyroid cancer (DTC)

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Introduction: Determination of thyroglobulin (Tg) in serum is a key element in the follow up of DTC patients after thyroidectomy and radioiodine therapy. DTC is characterized with good prognosis- the risk of recurrence is only 5%. This implies that the DTC marker should be highly specific to avoid unnecessary diagnostic

procedures at most patients. Thyroglobulin measurement provides a gold standard, but it may be false negative in presence of anti-thyroglobulin antibodies (TgAb). Further optimalization of Tg measurements is necessary. Ultrasensitive Tg assays did not fulfill this goal due to their poor specificity.
The aim of the study was to analyze Tg and TgAb in serum specimens of DTC patients taken prior to clinical diagnosis of relapse.
Material and methods: The analysis was carried out in the group of 100 DTC patients aged 19–84 years (med. 59 years, F/M:66/34) diagnosed with DTC recurrence in 2007–2009, among them 67.6% with papillary, 14.7% follicular and 17,6% oxyphylic histotype. The initial treatment comprised of total thyroidectomy in 85.7% cases and radioiodine therapy in 83%. At the diagnosis 50% of patients had lymph node metastases and 11% had distant metastases. There were 2 cancer related deaths.
Results: The recurrence was diagnosed after 1.2–123.4 months (median 24 months). 37% patients had more than one recurrence. In 82% locoregional relapse, in 11,8% distant metastases appeared. In 60.4% recurrence was preceded by Tg elevation, in 25.6% there was no increase of Tg serum level (in 13.9% the distinction was not possible).
In 14.7% of patients TgAb were present. In that group 60% patients had indeterminable Tg serum level and high level of TgAb. In 40% relapse was preceded by increase of both Tg and TgAb level. Only in one case DTC progression was concomitted by an elevation of TgAb serum level.
Conclusions: The Tg serum rise constitutes the first symptom of DTC recurrence in 60% cases.

Does the suppressive treatment of L-thyroxine impair heart function in young patients with differentiated thyroid cancer (DTC)?

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Introduction: DTC patients need L-thyroxine treatment after total thyroidectomy and subsequent ^{131}I therapy. Insufficient L-tyroxine treatment has been reported to be related to the higher risk of recurrence, especially if TSH levels maintain over 2 mU/L. However the degree of TSH suppression required is a matter of consideration in the light of the risk of possible cardiovascular side effects. The aim of the study was the evaluation of the long term suppressive L-thyroxine treatment on cardiovascular system of patients diagnosed with DTC when < 18 years of age.
Material and methods: The analysis was carried out in 111 adult patients diagnosed with DTC at the mean age of 15 years (7–18), after total thyroidectomy (92%) and radioiodine treatment (91%), treated with suppressive doses of L-thyroxine for 12 years on average (4–32). We analyzed TSH serum levels examined during the L-thyroxine treatment and excluded all values > 20 mU/L on L-thyroxine withdrawal necessary for diagnostics or radioiodine treatment. Patients were evaluated by physical examination, ECG, echocardiography and lipid profile. Patients were subdivided into three groups on the basis of the geometric mean of their TSH levels during the whole follow-up: group 1, full suppression, TSH < < 0,1 mU/L (56%), group 2, incomplete suppression, TSH 0.1 0.4 mU/L (33%); group 3, lack of suppression, TSH > 0.4 mU/L (11%).
Results: Attributes of non-efficient L-thyroxine substitution (TSH > > 2 mU/L in more than 20% of measurements) were found in 20,7% of patients. Analysis of BMI association with TSH serum level was not significant. Mean level of cholesterol was respectively: 172.86, 177.0, 171.67 mg/dL; HDL cholesterol — 55.81, 54.38, 56.67 mg/dL; LDL cholesterol — 102.65, 112.54; 108,6mg/dL; triglycerides — 69.91, 77.81; 63.0 mg/dL. There were no statistically significant differences between the groups.
Mean left ventricular mass was normal: in group 1: 140.3 g and 174.5 g, in group 2: 148.9 g and 183.5 g; in group 3: 159.6 g and 215 g. In ECG only one case of tachycardia was found.
Conclusions: Despite long term suppressive or semi-suppressive L-thyroxine therapy there were no significant symptoms of cardiovascular system impairment in our young DTC patients.
Also at appropriate follow up of patients, the risk of insufficient L-thyroxine treatment was low.

Correlation of metallothionein expression with antigen Ki-67 in benign and malignant thyroid lesions

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Introduction: Thyroid nodules appear in 4–8% of adult population, among them thyroid neoplasms are found in less than 5%. Preoperative diagnosis of thyroid neoplasms is difficult, particularly follicular tumors (npl. folliculare). Up to now there is no possibility, based on preoperative fine needle biopsy to differentiate follicular adenoma from follicular carcinoma, so there is a need to look for new biochemical markers.
Metallothioneins are group of proteins represented by 4 isoforms. They occur in both healthy and neoplasmatically transformed tissues. Expression of these proteins can be observed in nucleus and cytoplasm of the cells. Expression of antigen Ki-67 is observed in nucleus of dividing cells. It was shown that index of Ki-67 and Metallothioneins often correlates with progression of neoplasmatic process and that these proteins could be used as prognostic markers. The aim of this work was to analyze the relationship between expression of MT and Ki-67 and histological type of lesion in studied thyroid tumors.
Material and methods: Immunohistochemical (IHC) tests were performed on paraffin sections of 86 thyroid lesions: 62 cancers (34 papillary carcinoma, 16 follicular carcinoma, 9 medullary carcinoma, 3 undifferentiated carcinoma), 16 adenomas and 8 goiters. The presence of MT and Ki-67 was detected in immunohistochemical tests by use of monoclonal antigens (DAKO, Denmark). Intensity of MT expression was evaluated in light microscope using semi quantitative IRS scale. Intensity of Ki-67 expression was evaluated in light microscope using semi quantitative scale taking into account number of positive cell nuclei.
Results: Statistic analysis revealed statistically significant increase of MT expression in follicular carcinoma in comparison to follicular adenoma and lack of correlation between intensity of Ki-67 expression and lesion's type.

Conclusions: Differences in expression of Metallothioneins may be useful in differentiation of follicular carcinoma and follicular adenoma.

The application of SPECT/CT scintigraphy with MIBI-Tc99m and a comparison with the subtraction method in the diagnostics of nodular goiter in the thyroid

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Introduction: The diagnostics of the thyroid cancer is based mainly on fine needle aspiration biopsy (FNAB) performed under ultrasonography guidance. In case of a not conclusive FNAB, or due to any other reasons which make the decision process difficult, the patient is followed up or is encouraged to undergo surgery treatment although there is not clear evidence data to support the existence of a malignant lesion. An additional method to clarify this issue may be scintigraphy with an oncophilic tracer such as MIBI-Tc99m. The aim of the study is to evaluate the usefulness of SPECT/CT scintigraphy with MIBI-Tc99m and to compare it with the subtraction method in the diagnostics of thyroid nodular goiter in cases which are difficult from the diagnostic point of view.
Material and methods: The study comprises 18 patients with a non-conclusive FNAB in the thyroid. In 2009 there were 22 double (early and delayed) acquisitions performed with SPECT/CT: 16 using MIBI-Tc99m wash-out method, and an additional 6 planar studies where the subtraction method was applied with Tc99m and MIBI-Tc99m. In case of planar studies, the acquisition rules and software processing was the same as for parathyroid scintigraphy: the tumor/background ratio in early and delayed images was calculated and the wash-out ratio was estimated. In software processing of SPECT/CT scintigraphy, the uptake in the thyroid nodule was related to the uptake in the heart.
Results: Abnormal results were obtained in 10 patients and normal in 8 cases. 3 patients with a normal result underwent surgery and had a benign histopathology after the operation. One patient with an abnormal scintigraphy had normal histopathology. Out of 16 studies, in 14 wash-out was observed from the lesion. Two patients with tracer accumulation are still followed-up, since one does not agree to surgery and one has contra-indications for surgery. It was noticed that the images obtained with the wash-out method were clearer and easier to read.
Conclusions:
1. Thyroid scintigraphy performed with oncophilic tracers may be helpful for clinicians.
2. The wash-out method performed in SPECT/CT with MIBI-Tc99m seems to be better for diagnostic purposes than the traditional MIBI-Tc99m/Tc99m subtraction.

The occurrence of malignant thyroid lesions in patients after radioiodine treatment due to benign thyroid diseases

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Introduction: Radioiodine treatment (RT) of benign thyroid diseases is a well-known, safe and effective treatment method. In the group of patients after radioiodine treatment who remained in our long-term follow-up, sporadic cases of malignant thyroid lesions occurred.
The aim of the study is to analyze the frequency of occurrence of malignant thyroid lesions in patients after radioiodine treatment.
Material and methods: The group of 4314 patients were treated with radioiodine in the years 2000–2008. They remained on follow-up for 1–8 years. During the routine checking procedure a fine needle biopsy aspiration (FNAB) of the thyroid (or neck if needed) was performed, based on ultrasonography or clinical examination (if a new palpable nodule occurred). Patients with pathological FNAB were analyzed and histopathology-reviewed.
Results: In 12 out of 4314 cases (0.3%) suspicious lesions were found in FNAB. Lesions in the thyroid were found in 9 patients (8 F, 1 M), aged 46–73 (av. 56 yrs.) and followed up for 3–57 months after RT. In the remaining 3 cases, metastases in the lymph nodes were found in FNAB due to other cancers.
Papillary cancer was found histopathologically in one patient with a toxic nodular goiter (TNG) after 39 months and in one patients with Graves-Basedow (GB) disease after 48 months since RT.
In one patient with GB 28 months after RT, Huerthle adenoma was proved histopathologically. In two cases with TNG 4 and 3 months after RT, in whom FNAB revealed suspicious cells, the histopathology examination showed benign lesions. Two patients did not agree to surgery: one with a suspicion of papillary cancer, TNG 33 months after RT; the other with suspicious cells in FNAB, TNG 38 months after RT. A follicular tumour was suspected in two cases. There is no data about the first one, with TNG 35 months from RT. In the other case, GB 26 months from RT, the patient was not qualified to surgery due to a diagnosis of lung cancer.
Conclusions: Although malignant thyroid lesions in patients after RT due to benign thyroid diseases are seldom detected, a periodical clinical and ultrasonographic evaluation is recommended.

Case report of the woman with papillary thyroid carcinoma, which was thyreological diagnosed because of presence CHEK2 mutation in genetic examinations

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CHEK2 gene encodes the CHK2 protein which is kinase involved in DNA repair process. By activating a lot of cell substrates, it can

regulate the cell cycle, demonstrates suppressive effects as well as participates in the senescence and apoptosis processes. Mutations in CHEK2 gene are associated with the increased risk of numerous cancers. The case described is of a woman with the missense mutation that results in the substitution of isoleucine for threonine at position 157. This variant of the mutation increases the risk of papillary thyroid carcinoma two times. It is also associated with a twofold increased risk cancers of: kidney (10%), colon (10%), ovary (10% — G1), 1,6-times increased risk of prostate cancer (8% of all of them and 12% of familiar ones) and 1.5-times increased risk of breast cancer (7%). The screening procedures were initiated in the carrier who revealed papillary thyroid carcinoma. Genetic screening of the family diagnosed her daughter as the carrier of this mutation. Until now no active cancer disease has been recognized in the daughter. On the example of presented case we discuss indications for screening in cases of positive family history. The group especially predisposed seem to be patients with at least two coexisting carcinomas. Having diagnosed the mutation, it is necessary to do genetic screening of family members. Continuous oncologic observation of the carriers of CHEK 2 mutation is essential.

Ethically-economic aspects of thyroid biopsy observation from local center

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Introduction: Usually ethical analysis of medical procedure includes estimation of risk/benefit ratio and cost/effectiveness ratio, eventually also criteria of selections and/or determination the order of procedure and also possible potential effects of interactions on psyche in individual and social dimensions, taking also into consideration human dignity and public perception. Presented analysis concerned mainly cost/benefit, but it takes also into consideration other aspects in full version.

Early diagnosis of thyroid cancer is essential for effective treatment and because of it life saved procedure. 40 000 PLN (10 000 Euro) it is a relatively high for one diagnosis of thyroid cancer. However, even in an area of relatively low morbidity, it is probably only a little more than you have to spend for the detection of colon cancer by colonoscopy (10 000 PLN estimates MZ) or breast cancer through preventive mammogram (20 000 PLN), and costs much less than the detection one kidney cancer (150 000 PLN) or prostate cancer (more than 200 000 PLN).

Material and methods: From 2007 to 2009, we have performed 1836 ultrasound guided fine needle aspiration biopsies (US-FNAB) of focal lesions in thyroid, in accordance with recommendations of the Polish Society of Endocrinology. All results with suspicion of malignancy are verified in the Institute of Oncology in Gliwice.

Results: In the area of our department with about 300 000 people, in period of 3 years 5 new thyroid cancers were detected in 1836 US-FNAB and 79 suspicions not confirmed (specificity 95.5%). By the relative low incidence the cost of operating the BACC to detect one cancer was 40,878 PLN

Conclusion: US-FNAB is effective method of discovering of thyroid cancer even in areas with low morbidity.

Morphological diagnostics of solitary cystic thyroid nodules

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Introduction: Solitary nodules of thyroid gland occur in 22–43% of nodular forms of goiter. Among all solitary thyroid nodules malignant tumours present in 12–17% and cystic changes in 15–35% of cases. Morphological diagnostics of solitary cystic thyroid nodules (SCTN) is often problematic.

Analysis of effectiveness of different methods of morphological diagnostics of SCTN especially cytological examination of tissue compound and cystic fluid from fine needle aspiration biopsy (FNAB) and frozen section examination.

Material and methods: Analysis of results of morphological diagnostics of SCTN of 75 patients was made. Among all cases SCTN in 6(8%) of male and 69(92%) of female patients were presented. Median age of patients was 40.2 years (from 15 to 78 years). FNAB under USG guidance was used in all patients. Complete aspiration of fluid from cyst was made and residual tissue component of nodule was aspirated. Intraoperative frozen sections examination was used.

Results: Concordance of results of cytological examination of material of FNAB and result of final histological examination was found in 75%. Frozen section examination at suspicion on thyroid cancer (cytology and/or USG) was made in 40 patients. Results of frozen section examination in 97.5% were concordant to results of final histological examination. Among all cases of SCTN by final histological examination were revealed: colloid goiter in 32 (42.7%), adenoma in 37 (49.3%), thyroid cancer in 6 (8.0%) cases.

Conclusion: Cytological examination of tissue component and fluid obtained by FNAB before surgery and intraoperative frozen section examination is effective method of morphological diagnostics of SCTN. Among all cases of SCTN colloid goiter and adenoma predominated, thyroid cancer was diagnosed only in 8.0% of patients.

Does differentiated thyroid cancer (DTC) staging change within the last ten years?

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Introduction: The aim of the study was to compare the stage of thyroid cancer at diagnosis in patients from Silesian district in years 1999 and 2008.

Material and methods: The analyzed group consisted of Silesian district patients with thyroid cancer (taking into account administrative reorganization as well), who were noted by Department of Tumor Epidemiology in years 1999 and 2008. From group of 186 patients who entered on record in 1999, 167 were qualified for this analysis. Similarly, from 238 patients registered in 2008 finally 226 were considered. The following factors were analyzed: sex, age at diagnosis, histotype of thyroid cancer and DTC staging according to TNM system (2002).

In 1999 there were 137 females (82,04%) and 43 males (19,03%) with thyroid cancer. Age at the diagnosis was 5–81 years. Median age was 52 years. In 2008 there were 183 females (80.97%) and 43 males (19.03%) with thyroid cancer diagnosed at 14–80 years of age. Median age was 51 years.

Results: In year 1999 there were 167 patients registered, 119 (71%) with papillary thyroid cancer (PTC). In year 2008, 197 (87%) patients with PTC were diagnosed ($p < 0,0001$). Relations between age and sex were similar in these years. The disease staging is shown below: 1999: pT1a 24 (14.81%), all pT1 73 (45.6%) pT2-pT3 48 (29.59%) pT4 12 (7.41%) Tx 29 (17.9%); 2008: pT1a 52 (23.21%), all pT1 128 (57.14%) pT2-pT3 75 (33.49%) pT4 4 (1.79%) Tx 17 (7.59%). Statistically significant decrease of pT4 patients was observed in 2008.

Conclusions:

1. In 2008 the contribution of papillary histotype to all thyroid cancer patients (87%) is significantly higher than in 1999.
2. There is some increase in frequency of patients diagnosed with papillary microcarcinoma, which is however statistically insignificant. Fortunately, the percent of patients diagnosed with pT4 disease is significantly lower in 2008 than 1999.

Incidence of other malignant neoplasms in patient with thyroid carcinoma

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Introduction: The enlargement of incidence of other malignant neoplasms in patient with thyroid carcinoma is a subject of extensive debate and controversy. Many studies have shown that thyroid carcinoma are common among women with breast cancer.

The aim of this study was to demonstrate the frequency of other malignant neoplasms in patient with thyroid carcinoma and analysis of morbidity structure in comparison with epidemiology data.

Material and methods: Our study encompasses survey of 801 patients with thyroid carcinoma treated in our center between 1999––2009. There were 80% of women — 641 patients and 20% of men — 160 patients.

We analyzed retrospectively medical documentation of patients who received other malignant neoplasms with thyroid carcinoma. Patients who received both diagnoses were identified and percentage morbidity rate were calculated and comparised with epidemiology data.

Results: Among 801 patients with a diagnosis of thyroid carcinoma there were 64 patients with coincidence of other malignant neoplasms — 50 women, 14 men. The structure of morbidity of other malignant neoplasms were comparised with epidemiology data which are in parentheses. We observed the following cancers in group of women: breast cancer — 30% (21.3%), colorectal cancer — 4% (10.2%), lung cancer — 2% (7.7%), endometrial cancer — 8% (6.7%), cervical cancer — 16% (6.4%), ovarian cancer — 8% (5.7%), kidney cancer — 6% (2.6%), pancreatic cancer — 2% (2.6%). In group of men: colorectal cancer — 7% (11.1%), prostate cancer — 28.5% (9.0%), laryngeal cancer — 14,2% (3.8%), kidney cancer 7.1% (3.7%).

Conclusions:

1. The structure of morbidity with other malignant neoplasms in group of patients with thyroid carcinoma is different than structure of morbidity in epidemiology data.
2. The incidence of breast cancer, kidney cancer, cervical cancer, endometrial cancer, ovarian cancer in group of women and laryngeal cancer, prostate cancer, kidney cancer in group of men were significantly higher than the expected incidence in epidemiology data.
3. It seems to be necessary for active searching for other malignant neoplasms in group of patients with thyroid carcinoma.

Analysis of NDRG2 mRNA expression in primary papillary thyroid carcinoma and in its metastases to regional lymph nodes

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Introduction: At present the attention of researchers is focused on NDRG2 (N-Myc downstream-regulated gene 2) as a new gene candidate in the development and progression of papillary thyroid carcinoma (PTC). NDRG2, together with NDRG1, NDRG3 and NDRG4 are the members of NDRG family, a new class of genes inhibited by N-Myc oncogene.

The aim of the present study was to assess NDRG2 mRNA expression in primary papillary thyroid carcinomas and their metastases to regional lymph nodes.

Material and methods: Postoperative tumors tissues and macroscopically unchanged thyroid tissue, as well as macroscopically changed lymph nodes of 16 patients with PTC were examined. Metastases of PTC to regional lymph nodes were confirmed histopathologically in 8 cases. Quantitative evaluation of NDRG2 mRNA expression was performed using real-time polymerase chain reaction (real-time PCR).

Results: Mean values of NDRG2 mRNA expression in the tissues of primary tumor were statistically significantly lower compared to the level of NDRG2 mRNA expression in macroscopically unchanged thyroid tissue ($p < 0.0001$). The comparison of the mean values of NDRG2 mRNA expression between the primary tumor and its metastases to regional lymph nodes did not demonstrate any statistically significant differences ($p > 0.05$). Positive correlation was observed between NDRG2 mRNA expression in primary tumor cells and NDRG2 mRNA expression in metastases of that cancer to lymph nodes ($RS = 0.7857$; $p < 0.05$). Factors such as: age, sex, tumor stage in TNM system were of no significance in the assessment of NDRG2 mRNA expression ($p > 0.1$).

Conclusion: The results of our study demonstrated decreased level of NDRG2 mRNA expression in PTC when compared to macroscopically unchanged thyroid tissue which may point to the potential role of NDRG2 gene in the development and progression of the cancer in question.

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The analysis of transcriptome of medullary thyroid carcinoma

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Introduction: The analysis of medullary thyroid carcinoma (MTC) transcriptome by gene expression profiling encounters difficulties related to the lack of comparable normal tissue. Para-follicular C cells are embedded in thyroid parenchyma and are not easily accessible to RNA isolation in quantities sufficient for analysis. To omit this difficulty we compared gene expression pattern of MTC to a wide collection of different thyroid specimens to obtain transcripts specific only for MTC.

Material and methods: Microarray analysis was carried out by HG-U133A arrays (Affymetrix) in 40 MTC samples: 20 tumors and 20 corresponding normal tissues and compared to 70 different thyroid tumor and normal samples (52 papillary, 12 follicular and 6 anaplastic thyroid cancer cases). Statistical comparisons were performed by BRBArray Tools 3.5.0. An independent set of 17 MTC with paired normal tissues and 17 PTC samples were used for QPCR validation.

Results: We found 2266 significant genes ($p < 0.001$) distinguishing MTC from other type of thyroid tumors. Among of them there were genes characteristic for MTC: RET and CALCA. Up to now, 12 genes were verified by QPCR: EEF1A2, GRP, NEFL1, SCG2, SCG3, SST, TFF1, TFF3, CALCA, CALCB and chromogranin A and B (CHGA, CHGB). Comparison of gene expression profile between hereditary and sporadic MTC did not reveal distinct differences. Concerning type of RET mutation we were able to select 441 genes ($p = 0.006$) differentiating samples with C634R mutation from samples with other RET mutations.

Conclusion: We present the gene expression signature of medullary thyroid cancer, selected by the degree of differences in RNA level, not by previous knowledge on its origin, and useful for further analysis of its transcriptome.

Prospective analysis of ^{131}I treatment in patients with papillary microcarcinoma operated by subtotal thyroidectomy

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Introduction: Differentiated papillary thyroid carcinoma accounts for > 80% of all thyroid cancers. The best prognosis is observed in papillary micocarcinoma.

The aim of study: To evaluate indications for adjuvant treatment of ^{131}I in patients with papillary thyroid microcarcinoma.

Material and methods: In the years 2003–2008 we included 124 patients after obtaining informed consent. They were randomly allocated to complementary ^{131}I treatment with activity of 60 mCi or to control group not treated by radioiodine after thyroid surgery. In both groups, we evaluated the levels of thyroglobulin (Tg) and a-Tg antibodies during L-thyroxine withdrawal, ultrasonography, ^{131}I scintigraphy 12 months post radioiodine therapy. The median observation was 54 months.

Results: In the radioiodine-treated group one patient experienced complications in the form of post ^{131}I therapy thyroiditis, requiring the use of steroids, antibiotics and NSAIDs. Post ^{131}I therapy in one patient we detected metastases to mediastinal lymph nodes by whole-body scan. There was no recurrence in either group of patients. In the treated group the mean concentration of thyroglobulin post ^{131}I therapy was 0.2 ng/mL in comparing to 3.7 ng/mL in the control group. The mean volume of thyroid tissue remaining after treatment was significantly lower than in the control group and it was 0.51 ml in the treated group and 2.82 ml in the control group. Radioiodine neck uptake was less than 0.5% in 80% of patients in ^{131}I treated patients. In the control studies carried out 24 months after enrollment the median serum thyroglobulin level was 0.4 ng/mL during L-T4 therapy in the study group and in the control group.

Conclusion: Complementary radioactive iodine treatment does not confer significant additional benefit in patients with papillary thyroid microrcarcinoma after subtotal thyreoidectomy.

The role of gallium-68 labelled somatostatine analogue PET-CT (68Ga-DOTA-TATE PET-CT) in diagnosing of patients with disseminated medullary thyroid carcinoma (MTC)

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Introduction: Calcitonin is a very sensitive marker of MTC. High concentration of basal or pentagastrin stimulated calcitonin in patients with MTC is a signal of recurrence or metastatic disease. Detection of metastatic foci remains a diagnostic and therapeutic challenge.

The aim of the study was to present the examples of the use of 68Ga-DOTA-TATE PET/CT examinations in diagnosis of patients with MTC and concomitant elevated serum calcitonin concentration.

Material and methods: Initially the study involved 8 patients with MTC and elevated basal or stimulated calcitonin in which earlier diagnostic imaging was negative for metastasis: neck ultrasound, chest and mediastinal CT scan, liver MRI, bone scintigraphy, and ^{18}F-FDG-PET. A total body scan was performed using 68Ga-DOTA--TATE PET/CT. Two patients with positive diagnostic imaging test were referred to surgery including resection of cervical lymph nodes with histopathological examination for assessment of metastases.

Conclusions: On the basis of presented cases we conclude that — PET/CT scan with somatostatin analogue labeled with gallium (^{68}Ga-DOTA-TATE PET/CT) may be useful in the diagnostic imaging of patients with disseminated MTC.

Analysis of ultrasound images of thyroid cancers of diameter less then 15 mm for selection of Fine Needle Aspiration for patients with multinodular goiter*

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Introduction: The aim of the study was discovery the most characteristic ultrasound features of the small cancer lesions differentiat-

ing these lesions from other benign nodules of the multinodular goiters.

Material and methods: All Fine Needle Aspirations (FNA) of the thyroid performed by the author from 2007 to 2009 were analyzed. There were 15 130 FNA overall. ALL FNA were performed with use of the same ultrasound apparatus with linear 10 MHz probe, with option of Color-Doppler. There were 2-6 FNA/patient performed (mean 2.4). Each nodule was measured and recorded on the disc of the ultrasound apparatus in JPG format. There were 3 independent pathologist examining all lesions. There were 146 cancers discovered with 110/146 (75%) lesions of the diameter less than 15 mm included for the current analysis. Diameter, echogenity, clear borders, shape, presence of calcifications and hypoechogenic halo were analyzed.

Results: Diameter of the cancer lesions: less than 5 mm (mean 0.46). 5 (4.5%); 5–10 mm (mean 7.42) — 51 (46.4%); 10 — 15 mm (mean 12.2 mm) — 54 (49.1%). Echogenity : hypoechogenic — 45 (41%); mixed — 56 (51%); hyperechogenic — 9 (8%). Clear margins: clear margins — 53 (48%); partial or moderate distict margines — 30 (27%); obscured margins — 27 (25%). External borders of the nodules (only for nodule with clear or partially clear margins): smooth — 53 (48%); irregular — 21 (19%). Hyperechogenic (with calcifications): 17 nodules (central 9, peripheral — 8) Hypoechogenic (halo): 17 nodules (15.4%) (10 with diameters 5–10 mm; 12 with diameters 10–15 mm).

Conclusions:

1. In ultrasound vast majority of cancers are small lesions and have diameter of less than 15 mm.
2. 92% cancers were hypoechogenic or mixed nodule.
3. Small thyroid cancers are characterized of no ultrasonic features differentiating them from benign nodule In selection for FNA 4. FNA should be performed in as many nodules as possible, including non-dominant nodule.

*Recipients of Polish Thyroid Association — Ipsen Award.

Applying unsupervised analysis to interpret the variability of gene expression in the set of follicular tumours

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Introduction: Gene expression in follicular tumors may underlie the differences in their biological aggressiveness and in clinical course of a disease among patients with follicular adenomas and carcinomas. The relative rarity of this tumor and subjectivity of histopathological diagnosis make this disease relatively hard to be analyzed in molecular studies. In our analysis, we used the microarray technology and attempted to analyse the data using unsupervised methods that don't use *a priori* histopathological distinction between carcinoma and adenoma.

The purpose of the study is to find and interpret the sources of gene expression variability in follicular tumors by analysing the microarray data with unsupervised method — Singular Value Decomposition (SVD).

Material and methods: We analyzed 45 microarrays (21 samples of follicular carcinoma and 24 samples of follicular adenoma) which were obtained in ZMNiEO laboratory in Gliwice. The tissue samples were obtained in Gliwice and in collaborating institutes in Germany. We performed the preprocessing of the data and then the SVD analysis. To interpret the SVD results we used the gene signature database MSigDB (Molecular Signatures Database, Broad Institute, MIT) and the set of microarrays obtained from a set of various tissues and organs of human (made available by GNF Institute, Genomics Institute of the Novartis Research Foundation).

Results: The main source of variability, described by the first mode of SVD analysis is responsible for 16% of variance in the data. This variability probably refers to the difference between transcriptome of thyrocyte and expression profile typical for immune cells. Expression of genes of immune response is related to 1st and 4th characteristic modes. In 2nd, 5th and 6th modes we identified significant differences among genes of cell proliferation. The 2nd mode is also clearly dependent of mitochondrial genes expression, what can be related to the proportion of oxyphilic cells.

Conclusions: The main variability in the dataset is related to the expression of genes of immune response. The important component of gene expression variability in follicular tumors is also the degree of proliferation what can be related to the kinetics of tumor growth. Further studies are necessary to analyze how expression of those genes is related to the invasiveness of the tumors.

Skip metastases in papillary thyroid carcinoma —incidence and impact on surgery

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Introduction: The aim of the study was to assess the incidence of skip metastases in regional lymph nodes of patients with papillary thyroid carcinoma.

Material and methods: Thirty-three patients — 30 (91%) female and 3 (9%) male - were operated for thyroid cancer. The operations were performed by a single surgical team in accordance with applicable current guidelines. In all cases of thyroid cancer, complete thyroid excision with removal of central lymph nodes compartment were carried out. If indicated, the procedure was extended to involve ipsilateral lymph nodes or other compartments.

Results: Pathology results found 26 (79%) cases of papillary carcinoma, 3 (9%) cases of follicular carcinoma, 2 (6%) cases of medullary carcinoma, a single case of lymphoma (3%) and one metastatic lesion (3%). Twenty-three patients with papillary carcinoma underwent primary surgery, and 3 were reoperated due to lymph node recurrence.

The 23 papillary tumors were staged as follows: T1 — 15 (65%), T2 — 26 (26%), T3 — 2 (9%).

In 14/23 (61%) of patients with papillary carcinoma, lymph node metastases were found during primary surgery. Lymph node metastases were found in 5/15 (33%) of patients with T1, 4/6 (67%) of patients with T2, 2/2 (100%) of patients with T3. In 5/23 (22%) of patients with no evidence of metastases in central lymph node compartment, metastases were present in the lateral or mediastinal lymph nodes (skip metastases). The latter were found in 1/5 (20%)

patients with T1, 3/4 (75%) of patients with T2 and 1/2 (50%) of patients with T3.
Conclusions: Papillary thyroid carcinoma has a high rate of regional lymph node metastases, independently of tumor size. The rate of lymph node metastases found in this study is particularly high. The presence of skip metastases regardless of T staging indicates that special care must be taken to monitor the lateral and mediastinal lymph node compartment in papillary carcinoma at any stage.

Analysis of usefulness of PTH concentration measurement in the material obtained during fine needle aspiration biopsy of neck focal lesions in the identification of parathyroids

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Primary hiperparathyroidism frequently causes significant diagnostic problems with visualization of the glands that are the source of overproduction of parathormone (PTH). The aim of the investigation was to assess the usefulness in localization of the changed parathyroid glands of the measurement of PTH concentration in the material obtained during fine needle aspiration biopsy of focal lesions in the neck.
The PTH concentration (FNAB-PTH) was assessed in the material obtained from 23 patients by flushing the needle after the preparation of a microscopic smear. The examination was performed in patients with biochemically proven hyperparathyroidism and also in patients with incidentally found focal lesion that was suggestive in US for parathyroid gland. The results were correlated with biochemical indexes of hyperparathyroidism, the output of scintigraphic imaging, the outcome of FNAB and also with the results of histopathological examination.
It was found that mean PTH concentration in the material obtained during FNAB of lesions that were parathyroids was 4530 pg/mL (the lowest concentration was 1218 pg/mL) and several fold higher than the mean concentration of PTH in the material obtained from the thyroid lesions (the control group) that equaled to 19.0 pg/mL (the highest concentration 43.05 pg/mL). High PTH concentration was also observed in the case of non-diagnostic cytological smear. None false positive result of PTH measurement in material from biopsy needle was observed.

The incidence and characteristics of thyroid focal lesions in patients with thyroid hemiagenesis

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Introduction: Thyroid hemiagenesis (TH) is an inborn anomaly, resulting from one thyroid lobe developmental failure. The research showed that subjects with TH, despite clinical euthyroidism, present significantly higher TSH values in comparison to those with properly developed thyroid gland. Permanent exposure to high TSH concentration, which is one of the most potent thyroid growth-promoting factors, may result in nodular goiter development. Latest scientific communications also indicate that initial TSH concentration is an independent risk factor for detection of malignant lesion in the thyroid. Similarly, initial TSH value in patients with thyroid cancer, positively correlates with its clinical stage. What is surprising, the risk increases along with TSH even within reference ranges.
The aim of the study was to assess the incidence and describe characteristics of thyroid focal lesions in patients with TH.
Material and methods: The studied group consisted of 47 subjects with TH. In patients, thyroid ultrasound examination together with fine-needle aspiration biopsy and cytological diagnostics of detected focal lesions, were performed.
Results: Thyroid ultrasound examination revealed the presence of focal lesions in 26 (55%) patients, while in 16 (34%) multifocal changes were detected. In 25 (53%) patients, lesions were predominantly solid. Each of detected lesions were larger or equal to 6 mm. In 11 (23%) patients, the diameter of largest lesion was between 6-10 mm. In the remaining 15 (32%) patients, the lesions found were larger or equal to 11 mm. The cytological examination of specimens obtained by fine-needle aspiration biopsy revealed presence of benign lesions (cysts, colloid and hyperplastic nodules) and in two cases - oxyphilic nodules. Thyroidectomy was recommended to 6 patients.
Conclusions: Due to high prevalence of thyroid nodular disease together with increased TSH concentration, in the light of latest scientific communications, subjects with TH are at higher risk of developing thyroid cancer. In spite of the fact that in the studied group no patient was diagnosed with malignant lesion, thyroid nodular disease often accompanied TH and detected lesions were frequently multifocal, solid and of size exceeding 11 mm.

Animal model of the papillary thyroid carcinoma induced by BRAFV600E mutation — preliminary

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Introduction: The oncogenic transversion BRAFT1799A is the most common mutation, described in about 45% of papillary thyroid carcinoma (PTC). Presence of this mutation both in the papillary microcarcinomas and the advanced stage of PTC or in dedifferentiated carcinomas arised from PTC indicates that BRAF mutation is not sufficient to develop aggressive phenotype of carcinoma. Probably it predisposes tumor cells to acquisition of additional mutations and in this way activates more aggressive signaling pathways.
Aim of the study: Obtaining of the mouse model of the BRAFT1799A induced papillary thyroid carcinoma for the analysis of BRAFT1799A influence on the carcinoma phenotype
Material and methods: Mutated human BRAF gene (pMEV-2HA plasmid; Biomyx) with the bovine thyroglobulin promoter (obtained by courtesy of Prof. Dumont) was injected into the pronucleus of one-cell mouse embryos (FVB/N strain). Detection of PTC was carried out histopathologically. The expression of the mRNA transgene was analyzed by the automatic sequencing.
Results: As a result of microinjection we obtained 6 founders in which the presence of injected transgene was detected on the DNA level, but on the mRNA level the expression was seen only in two cases. The histopathological analysis revealed in these two lines of

transgenic mice tumors with features typical for human PTC: enlarged overlapping nucleus with irregular shapes, visible pseudoinclusions and grooves; predominance of follicular cells
Conclusions: The mouse model of papillary thyroid carcinoma induced by mutation BRAFT1799A will be used to analyze global gene expression profile and its relation to different factors of clinical and histological significance.

The analysis of value of ultrasound-guided fine-needle aspiration biopsy (US-FNAB) of thyroid nodules patients with nodular goiter

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Introduction: Ultrasound-guided fine needle aspiration biopsy (FNAB) plays a crucial role in the diagnosis of thyroid nodules. In the case of nodular thyroid lesions the preoperative performance BAC makes possible the estimation of the change and stating precisely the range of the thyroid resection.
The aim of study: The analysis of concordance the FNAB with histopathologic postoperative results.
Material and methods: Authors put the retrospective analysis of 219 patients at whom nodular lesions of the thyroid (183 female and 36 male) were diagnosed. US-FNAB was performed on all 219 patients under echo-guidance in accordance with the standard technique. Each patient had the supplied documentary evidence of ultrasonographic research and full clinical diagnostics. All patients had complete ultrasound and clinical diagnosis.
Results: In all cases diagnosed postoperatively as cancers the cytological diagnostic obtained from US-FNAB were: cancer or oxyphylic tumor. The comparative analysis of pre- and postoperative results showed the entire agreement of results in 79%.
Conclusions: US-FNAB is a valuable method in the pre-operative assessment of thyroid nodules in order to select patients for surgery.

Advantages and disadvantages of 3D ultrasound of thyroid nodules including thin slice volume rendering**

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Introduction: Despite numerous studies and the development of guidelines on the diagnosis and treatment of thyroid nodules, the management of thyroid carcinoma has yet to be optimized. An optimal management strategy for thyroid incidentalomas could be developed using an evidence-based approach in which systematic evaluation of obtained data, stored in national databases, would be used. A new imaging modality — 3D ultrasound has not been studied for potential diagnosis and storage of thyroid nodules volumes yet.
To assess the advantages and disadvantages of 3D gray-scale and power Doppler ultrasound, including thin slice volume rendering (TSVR), applied for evaluation of thyroid nodules.
Material and methods: The retrospective evaluation by two observers of volumes of 71 thyroid nodules (55 benign, 16 cancers) was performed with a new TSVR technique.
Results: Multiple logistic regression analysis (area under ROC = 0.87) demonstrated that independent risk factors of thyroid cancers identified by 3D ultrasound include:
ill-defined borders of the nodule on MPR, a lobulated shape of the nodule in the c-plane on TSVR, a density of central vessels in the nodule within 1–25% or 76–100% of area of the nodule on TSVR. Combination of features provided sensitivity 100% and specificity 60–69% for thyroid cancer.
Calcification/microcalcification-like echogenic foci on 3D ultrasound proved not to be a risk factor of thyroid cancer.
Storage of the 3D data of the whole nodules enabled subsequent evaluation of new parameters and with new rendering algorithms. Kappa statistics showed at least moderate agreement between the observers.
Conclusion: 3D ultrasound is a practical and reproducible method for the evaluation of thyroid nodules. 3D ultrasound stores volumes comprising the whole lesion or organ. Future detailed evaluations of the data are possible, looking for features that were not fully appreciated at the time of collection or applying new algorithms for volume rendering in order to gain important information. 3D ultrasound data could be included in thyroid cancer databases. Further multicenter large scale studies are warranted.
**Recipient of "Thyroid Research" award.

Urinary iodine excretion in patients with differentiated thyroid cancer (DTC) treated with recombinant human TSH

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Introduction: Low iodine diet has not been routinely administered in Polish DTC patients, due to the moderate iodine deficiency in our patients. Now, when iodine deficiency has been compensated, the question of low iodine diet arises again. The data on iodine excretion in DTC patients are necessary.
Aim of the study was to analyze urinary iodine concentration in patients with differentiated thyroid cancer treated at the Institute of Oncology in Gliwice
Material and methods: The analyzed group consisted of 572 DTC patients (444 females and 101 males) who were treated from April 14 to December 12, 2009 at Institute of Oncology in Gliwice. Concentration of iodine in urine was assessed with PAMM method (Program Against Micronutrient Malnutrition) based on measurement of Sandell-Kolthoff reaction kinetics. This method is based on spectrophotometer analysis of catalytic properties of iodine in reaction Ce(IV) and As(III). Patients were administered L-thyroxine in doses assuring incomplete TSH suppression (median: 150 ug/day) and investigated before rhTSH administration.
Results: The age range of analyzed group of patients was 10–87 years. Median age of both females and males was 51 years. Concentration of iodine in urine ranged between 10.1–395.2 ng/L. In both males and females median urinary iodine was the same (127.55 ng/L). The following distribution of urinary iodine concentration was observed:

1) < 100 ng/L 29.72% 2) 100–150 ng/L 35.84% 3) 150–200 ng/L 24.83% 4) 200–300 ng/L 8.39% 5) > 300 ng/L 1.22% Urinary iodine < 200 ng/L was observed in over 90% of patients and this cut-off was chosen for reference range.
Conclusion: In DTC patients treated with thyroxine with intention of TSH suppression the urinary iodine concentration does not exceed 200 ng/L in 90,4% of patients.

Analysis of the results of histopathological examination of the thyroid gland after reoperations caused by thyroid cancer diagnosed after strumectomy

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Between 2003 and 2009, 76 patients were diagnosed with thyroid cancer after strumectomy performed most frequently because of the multinodular goiter.
Strumectomy was performed in our Department and other neighbouring hospitals.
In the present study we analyzed the results of histopathology performed after reoperation. The analysis included patients with differentiated thyroid cancer. In 5 patients (6.5%) cancer was confirmed in postoperative mass. In 3 patients papillary carcinoma was diagnosed in excised tissue. In 2 out of these patients it was diagnosed in both lobes. There were no metastases to lymphatic nodes observed during reoperation of papillary thyroid cancer cases. Two patients were diagnosed with foci carcinomatosi after diagnosis of follicular cancer. One of them was also diagnosed also with metastases in lymphatic nodes.
Conclusions: Multifocal differentiated thyroid cancer is rare, but may occur even in cancers with the diameter below 2 cm.

New ultrasound techniques in visualization of microcalcifications in diagnostics of focal lesions of thyroid gland

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Introduction: Microcalcifications may be visible on gray-scale ultrasound. Microcalcifications in thyroid nodule increase the probability of cancer about 3 times, calcifications increase about 2 times. Microcalicifications are considered a specific feature of thyroid cancer (85.8–95%) but with low sensitivity (29–59%).
Harmonic imaging, compound ultrasound, 3D ultrasound with thin slice rendering and new programs, that due to application certain filters, enable to separate microcalcifications echos are new ultrasound techniques that improve visualization of microcalcifications. Techniques that improve visualization of microcalcifications potentially could increase sensitivity in diagnostics of thyroid cancer. Evaluation of usefulness of new ultrasound techniques in visualization of calcification/microcalcification-like echogenic foci (CAL) in diagnostics of focal lesions of thyroid gland.
Material and methods: Retrospective analysis of ultrasound images of 99 dominant thyroid nodules (81 benign, 18 cancers) verified by FNB and/or surgery. CAL was evaluated with application of 3D ultrasound with implementation of new thin slice rendering method, with harmonic imaging and compound ultrasound and with application of new technique of microcalcification mapping MicroPure.
Results: CAL in 3D ultrasound in MPR presentation were 81–88% sensitive and 38–44% specific for thyroid cancer. In thin slice rendering sensitivity was 88–94% and specificity 22–25%. On multiple logistic regression analysis CAL proved not to be a statistically significant factor of thyroid cancer.
Correlation of ultrasound with application of new gray-scale techniques and MicroPure with pathology examination after thyroidectomy revealed that most of CAL were the presentation of inspissated colloid and only a small percentage was due to microcalifications, calcifications and or fibrosis.
Conclusion: In 3D ultrasound microcalcifications are not a valid risk factor of thyroid cancer.

Application of Random Forests technique for discrimination of histological types of thyroid tumor

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Introduction: Statistical analysis of DNA microarray data is a basic tool for recognition of patterns in gene expression.
Multigene molecular classifiers can be applied for support of histopathologic diagnosis but at the moment there is no agreement what techniques can be used for that purpose. Different methods of artificial intelligence are characterized by high diversification of parameters, what is more, they give significantly different gene sets. Random Forests have an advantage over other methods — they deal well with large data sets and have a good accuracy of classification in comparison to other algorithms.
The goal was to determine the quality of classification with Random Forests for prepared set of thyroid samples.
Transcriptome was analyzed with oligonucleotide Affymetrix DNA microarrays in the laboratory of Nuclear Medicine and Endocrine Oncology Department, Institute of Oncology, Gliwice.
Material and methods: There were chosen 30 representative samples of papillary thyroid cancer, 30 samples of medullary thyroid cancer, 30 follicular tumor samples and 30 normal benign thyroid samples. Methodology of Random Forests is based on the algorithm proposed by Breiman and Cutler (2001) and the analysis was performed in Bioconductor environment. Unsupervised analysis was performed by Shi and Horvath (2006).
Results: Both unsupervised and supervised analyses were compared with results coming from other classification methods run on the same data set. Unsupervised analysis easily distinguished all 4 classes. By means the supervised technique was performed as a selection of gene classifiers for two class comparisons. The accuracy of classification was determined. A trial of minimization of the list of genes that distinguish the classes in each of comparisons was performed. Lists of genes describing the differences were interpreted in the biological function context.
Conclusions: Random Forests is an useful technique of selection of multigene sets classifying different histological types of thyroid tumors.

Diagnostic cytology of poorly differentiated thyroid carcinoma

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Introduction: Uniform histological criteria for the diagnosis of poorly differentiated thyroid carcinoma (PDTC) were proposed in 2007. Cytological diagnostic criteria of this entity are still a subject of ongoing discussion.
Aim of the study: To determine cytological features most commonly found in fine-needle aspirates of PDTC.
Material and methods: Routine HE-stained cytological preparates from 6 cases of PDTC diagnosed and treated in HCC in years 2000––2008. Histopathological specimens from postoperative specimens did not contain differentiated or anaplastic carcinomatous components.
Thirty six cytological features were evaluated in a single, most representative specimen from every case. The features were selected on the base of literature reviev and contained general information like: cellularity, background and architectural patterns as well as specific information including type, size and cytological details of cells.
Results: The following of the analysed cytological features: high cellularity (6/6), lack of colloid (6/6), bloody background (5/6), three-dimensional structures (6/6), rather monomorphic population of small/medium-sized cells (6/6), well-defined cohesion (6/6), scant cytoplasm (6/6), oval/round nuclei (6/6), lack of well-defined atypia (6/6) were present in nearly all (5 to 6 per 6) evaluated smears. Other features were sparser and were usually observed in no more than half of the cases.
Conclusions:

1. The above outlined cytological presentation of PDTC distinguishes it from other patterns observed in thyroid gland cytology.
2. The nine cytological features are not specific enough for unequivocal and unquestionable diagnosis of PDTC derived from thyroid follicular cell.
3. The features seem to be of no use in differential diagnostics of so-called follicular neoplasm or aspirates from parathyroid gland as well as in diagnostics of some medullary carcinomas and metastases.

Psycho-oncological care over patients suffering from differentiated thyroid cancer — identification of crucial points of intervention

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Introduction: Differentiated thyroid cancers (DTC) are cancers with relatively good prognosis, however the stigma of cancer and necessary diagnostic and therapeutic procedures are not only a relevant source of distress for the patients but also increase the distress by causing normal imbalance.
Aim of study: Creating a cohesive scheme of psychological care for DTC patients involving the most essential points of possible intervention in the course of diagnostics, treatment and control examinations.
Material and methods: A population of DTC patients from the Department of Nuclear Medicine, Institute of Oncology in Gliwice have been studied. Evaluation of their psychological health, including psychiatric assessment, the quality of life and the comprehensive psychological assessment was performed. Life satisfaction was measured with the Life Satisfaction Scale — SWLS (E. Diener et al, the Polish adaptation by Z. Juczyński), level of hope with Cantrilla Ladder, a Property of Health Behaviours (Z. Juczyński), Draw a Person Test (DAP) and QLQ-c30 questionnaire form were used. A psychological interview was carried out in a subgroup of patients.
Results: The crucial areas of possible psycho-oncological intervention were identified. The most common psychological disorders co-occurring with cancer are depression, anxiety and adaptive disorders. The psychological interview indicates on the need of better information policy in the scope of both the illness and the treatment methods. The frequency of distress among DTC patients is high enough to implement effective selection tools for better recognition of their psychological problems. Distress Thermometer (DT), a short scale recommended by American Cancer Society and National Comprehensive Cancer Network (NCCN), may serve for this goal.
Conclusions: The interdisciplinary team providing care of DTC patients should integrate their efforts in both the somatic sphere as well as the psychological one. A differential diagnosis between symptoms of hormonal disorders and co-occurring negative emotions accompanying cancer disease, such as fear, sadness and anger is necessary

Phenotype of exon 10 RET gene mutations carriers

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Mutations in exon 10 of RET gene are not very often and phenotype of these mutations is not well defined. In our center 40 patients with medullary thyroid cancer (MTC) with exon 10 mutations were diagnosed (14 probands and 26 family members). MEN2a syndrome was diagnosed in 1 family with 611 codon mutation (3 pts), in 3 families with RET620 (10 pts) and in 2 RET618 carriers. The strict criteria of familial medullary thyroid cancer (FMTC) were fulfilled in 2 families (respectively 4 and 10 carriers of RET618).
Median age of MTC diagnosis in probands was 35 years (20–52) and in their family members was 30 years (17–62). In 22 probands relatives thyroidectomy was performed. Prophylactic thyroidectomy, performed in 9 patients with normal basal calcitonin level reveled C-cell hyperplasia in 8 pts and MTC in one person. In all patients with elevated basal calcitonin MTC was diagnosed. Biochemical remission of disease was stated in 5 probands and 17 relatives (55% of operated pts), persistent hypercalcitoninemia was observed in 3 probands and 3 family members and dissemination of disease was diagnosed in 7 pts.
Pheochromocytoma was diagnosed in 7 pts, in all of them after thyroidectomy. In 4 cases adrenal tumor was bilateral and synchronous. Up to now parathyroid adenomas were not observed in our group of patients.

Conclusions:
1. In the analyzed exon 10 RET mutation carriers MTC was diagnosed not earlier then in the age of 20 years and pheochromocytoma in the age of 29 years.
2. When prophylactic thyroidectomy is carried out at normal basal Ct level, the risk of MTC is 10% in our group of exon 10 RET carriers.
3. The risk of pheochromocytoma is evaluated with 17% up to 40 years of age.

Scale of differences between transcriptomes of papillary thyroid carcinoma and normal thyroid — analysis of gene expression profile

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6th Framework Programme Defining the genetic component of thyroid cancer risk at low doses Genrisk-T nr 036495

Introduction: Microarray research helps to understand crucial molecular mechanisms related to differences between subtypes of carcinomas. However, in the practical use huge differences in gene expression profile e.g difference in expression between papillary thyroid carcinoma and normal thyroid, make the bioinformatical analysis very difficult.
The aim of the study was creating and using bioinformatics algorithms to estimate differences between PTC and normal thyroid quantitatively and qualitatively.
Material and methods: We analyzed two sets of PTC and normal thyroid samples arrayed in Department of Nuclear Medicine and Endocrine Oncology, Centre of Oncology, Gliwice. One set contains samples coming from Ukrainian children (36 PTC and 43 normal thyroids), another one coming from patients treated in Centre of Oncology in Gliwice (69 samples).
Results: First step of analysis was comparison of gene expression profiles in PTC and normal thyroid samples in GC-RMA preprocessed set. Then, influence of preprocessing methods on results was estimated: the least difference between PTC and normal thyroid was observed using methods based on global expression scaling, but on the other hand quantile normalization methods reduced amplitude of differences. Subsequently, we created a new preprocessing algorithm, tested on a set containing several histological types of thyroid carcinomas, then used on set contains PTC and normal thyroid samples. In further work methods of gene set analysis to estimate difference between PTC and normal thyroid qualitatively will be used.
Conclusions: Differences between PTC and normal thyroid are huge, related to at least 20% of all transcripts. Most of differentiating genes (about 90%) are genes with large and medium variation. As the technical aspects strongly influence the degree of observed differences, the analytical methods shall be further optimized.

Evaluation of specificity of potential papillary thyroid cancer (PTC) marker genes FN1, KRT19, DPP4, MET and CDH3

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Introduction: Papillary thyroid carcinoma (PTC) is found in approx. 80% of patients with thyroid malignant tumors. Results of fine-needle aspiration biopsy (BAC) are specific for PTC in 69–94%. Should the diagnosis be doubtful (tumor or benign lesion), differences in gene expression may help to obtain more precise differential diagnosis. However, specificity of the proposed tumor markers is rarely evaluated. The genes under discussion include fibronectin gene 1 (FN1), keratin gene 19 (KT19), dipeptidyl peptidase gene IV (DPP4), proto-oncogene gene MET (MET) and cadherin gene 3 (CADH3).
Material and methods: The study referred to 120 patients treated between April 2008 and December 2008 for malignant thyroid tumors (20 papillary thyroid carcinomas) or benign lesions (80 proliferative nodules, follicular lesions, colloidal nodules). Diagnosis was unequivocal by BAC in 20 patients. Tumor fragments were collected during thyroid surgery. The specimen was divided into two portions of which one was referred to histopathological examination and the other to molecular analysis. Expression of FN1, KRT19, DPP4, MET and CDH3 was analyzed by real time Q-PCR. Gene expression was standardized against reference index obtained from geometric average of the expression of three selected control genes EIF3S10, HADHA and UBE2D2.
Results: A significant change in gene expression was observed for all of them when papillary thyroid cancer was compared to normal thyroid. The greatest differences were observed for genes FN1 (increase in the expression 74 ×), CDH3 (34 ×), DPP4 (11 ×), KRT19 (8 ×) and MET (7 ×). The differences were statistically significant ($p < 0.001$).
Conclusions:
1. QPCR allows to examine many genes at the same time, hence it can potentially be used to support cytological diagnostics for thyroid nodules.
2. Careful evaluation of specificity of each candidate gene must precede any attempt to use it in practice.

The influence of presence distant and/or regional nodal metastases on frequency of complete remission at patients with differentiated thyroid carcinoma (DTC)

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Introduction: The presence of regional nodal and/or distant metastases has influence on results of treatment at patients with differentiated thyroid carcinoma (DTC).
Aim of the study was to evaluate the frequency of complete remission at patients with DTC depending on presence in lymph nodes and/or distant metastases.

Material and methods: 102 patients (82 females, 20 males) aged 20–86 with N1 or M1 (according to TNM staging) after thyroidectomy and ^{131}I therapy among 625 patients with DTC treated in our Department. Patients were divided in 3 groups: I group — TxN1M0, II group — TxN0M1 and III group — TxN1M1.
The documentation was analyzed by classifying the complete remission patients without presence radioiodine uptake in neck and pathological lesions in the whole body ^{131}I scintigraphy scan after six month of ablation therapy, with negative serum thyroglobulin in the absence of anti-thyroglobulin antibodies, ultrasound image of the neck was normal. We compared frequency of complete remission in 3 group patients.
Results: We recognized complete remission in 57 patients (82.6%) in the I group (TxN1M0), 4 patients (28.6%) in the II group (TxN0M1) and 6 patients (31.6%) in the III group (TxN1M1).
Conclusions:
1. The highest percentage of complete remission observed in patients with lymph nodes but without distant metastases (I group).
2. In case of presence distant metastases there was not statistically significant difference in the percentage of complete remission between patients with or without the presence of metastases in lymph nodes.

The clinical course of poorly differentiated thyroid carcinoma (insular carcinoma) — own observation

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Introduction: Poorly differentiated thyroid carcinoma (PDTC, insular carcinoma) occurs rarely. It is described with more aggressive behavior, poorer prognosis, higher mortality than well differentiated thyroid carcinoma (WDTC).
The aim of the study was to evaluate the clinical course of patients with PDTC in addition to frequency, clinical stage at the time of diagnosis and possibility of radical surgical resection, necessity and kind of complementary treatment, occurrence of distant metastases and survival of patients.
Material and methods: The study involved 14 patients diagnosed and treated of PDTC between 2000 and 2009 (9 females, 5 males), aged 38 to 78 years.
The medical records of patients with PDTC were analyzed to estimate assumed parameters according to the purpose of the study.
Results: PDTC was diagnosed in 14 among 801 patients with thyroid carcinoma (1.75%). Clinical stage (UICC 2002) at the time of diagnosis — 3 patients: $pT_{1-2}N_{o-x}M_x$ (21.5%). 10: $pT_{3,4}N_{x\,o\,1}M_{x-1}$(71.4%). 1 was unresectable: $T_xN_1M_1$ (7.1%). Total thyroidectomy was achieved in 9 patients (64.3%). 4 patients (28.6%) received non radical surgery. Complementary radioiodine treatment was given 12 patients (85.8%). Radiation therapy of the neck was applied to 7 patients. palliative radiotherapy of the brain to 1 patient; chemotherapy to 1 patient. Distant metastases to the lung and to the brain at the diagnosis were observed in 2 patients (14.3%). During follow-up of 3-62 months lung metastases were observed in 4 patients (28.6%). 3 patients were observed above 5 years as disease-recurrence free (21.5%). But in one patient after 5 years and 2 months distant metastases were diagnosed. 3 patients died after 2–30 months (21.5%). 2 patients were lost for control. in the remaining 6: follow-up lasted < 5 years.
Conclusions: Poorly differentiated thyroid carcinoma is still a challenge both for the pathologists and the clinicians. Infrequent prevalence, more aggressive course and poorer prognosis constitute the major problem for the clinicians.

Follicular tumors and oxyphilic tumors of thyroid gland in own experience

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Introduction: One of the main indications for surgical treatment in patients with thyroid diseases is thyroid cancer. Basic operation in case of thyroid cancer consists of total removal of the gland. If follicular tumor or oxyphilic tumor is diagnosed, at least, total thyroidectomy should be undertaken as objective cytological examination does not allow to distinguish between benign and malignant tumors.
Purpose of the study was to evaluate the incidence of cancer in patients qualified for surgical treatment when follicular or oxyphilic tumor has been diagnosed by cytological examination.
Material and methods: A total of 3013 patients were operated between 2005 and 2009 in the Hospital for goiters, including 152 (5.1%) with thyroid cancer.121 (4.0%) patients showing follicular tumor by preoperative cytology and 57 (1.9%) patients with oxyphilic tumor were qualified for operation. In most cases, the minimal extent of surgery consisted of total removal of the lobe with isthmus on the lesion side. The other lobe was removed totally or subtotally depending on individual assessment of malignant tumor risk.
Results: The extent of operation in 41 (72.0%) patients with oxyphilic tumor, diagnosed preoperatively, included total removal of the lobe together with isthmus or bilateral lobectomy. Similar type of operation was performed in 78 (65.0%) patients with follicular tumor. Histopathology on the operative material showed cancer in 10 (17.5%) patients referred to operation for oxyphilic tumor diagnosed by cytology. Among them, eight had papillary thyroid cancer and two had medullary thyroid cancer. In follicular tumor group, cancer was detected in 20 (16.5%) patients,-papillary type in eight, follicular in nine and medullary in three.
Conclusions: The percentage of cancer among follicular and oxyphilic thyroid tumors referred to the surgery ranged between 16.5 and 17.5%. The range of operation in such cases should consider cytological findings, ultrasonography and clinical risk factors evaluated both before and during the operation.

Assessment of PIK3CA gene expression in papillary thyroid cancer

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Introduction: PIK3CA gene mutations are present in the majority of cancer cells. PIK3CA mutations and amplifications were also confirmed in papillary, follicular and anaplastic thyroid cancers. Still, the data on PIK3CA disturbances in papillary thyroid cancer (PTC) are rather inconsistent.
The aim of the study was an assessment of PIK3CA gene expression in PTC.

Material and methods: Twelve cases of papillary thyroid cancer were analyzed. Thyroid aspirates, eligible for the study, were obtained from patients by fine needle aspiration biopsy (FNAB). Each aspirate was smeared for conventional cytology, while the remaing part of aspirate was immediately washed out of the needle. The cells, obtained from the needle, were used in further investigation. Total RNA from FNAB was extracted by use of an RNeasy Micro Kit, based on modified Chomczyński and Sacchi's method. Total RNA was reversely transcribed into cDNA and investigated by Real-Time Quantitative PCR (RQ-PCR). Beta-actin gene was used as endogenous control. The relative expression of PIK3CA gene was assessed, using the ABI PRISM 7500 SDS Software.
Results: So far, PIK3CA expression in PTC has hardly been investigated. In the present study, an elevated level of PIK3CA gene expression was confirmed in PTC. Thus, PIK3CA gene may play a significant role in the pathogenesis of this cancer type. Furthermore, PIK3CA gene overexpression levels were individually diversified, what may have resulted from its association with different genetic and clinical prognostic factors. Further studies on this possible relationship would be appropriate.

The recurrent goiter beyond the typical lateral lobes localization — the analysis of over 60 cases

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Introduction: The recurrent goiter is an important clinical problem among patients who have been operated due to benign lesions. An atypical localization of recurrent goiter — nearby hyoid bone — poses additional difficulties as there are no data available on the clinical significance of such lesions.
The aim of this study was to analyze if this unusual localization of recurrence is related to any significant differences in the clinical course and if it significantly increases the risk of thyroid neoplasm.
Material and methods: The outcomes of ultrasound (US) and cytological examinations of 62 patients, presenting with a goiter recurrence localised as a focal lesion near hyoid bone, were analyzed (mean age: 59.4 ± 12.4 years). The analysis included the period from the operation to the lesion-revealing US, the lesion's volume, presence of ultrasound features of malignancy, the volume of residual thyroid tissue in the thyroid bed, the changes in volumes of examined structures and the outcomes of cytological examinations.
Results: The mean period from the surgery to the US confirming the lesion presence was 16 years, the mean volume of lesion was 2.17 cm^3, the mean period of observation was 3.2 years (ranging from 1 to 10). Fine needle aspiration biopsy was performed in 47 (76%) focal lesions. The cytological result was never suspicious or malignant. In 38% patients in whom control US was done within the observation period the lesions enlarged by 20% or more, in 21% of them — by 50%, and in 15% — by over 100%. The category of cytological result didn't imply any significant change even in the case of significant isolated increase in volume of the lesion near hyoid bone.
Conclusions: The focal lesions near hyoid bone, revealed in patients operated previously for benign goiter, are not related to increased risk of thyroid neoplasm and their enlargement does not imply their malignancy.

The use of transervical approach with elevation of the sternal manubrium for surgery of mediastinal ectopic goiter, mediastinal parathyroid tumors and the mediastinal metastases of the thyroid cancer

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Introduction: The mediastinal tumors (parathyroid tumors, ectopic goiter and metastatic nodes and the benign thymic lesions) are difficult for surgical treatment with no standard approach of operation.
Aim of the study: Presentation of the operative technique and results of resection of upper mediastinal parathyroid tumors, ectopic goiter and metastatic nodes and the benign thymic lesions through the transcervical approach with elevation of the sternum.
Material and methods: 26 patients were operated on from 1.1.2006 to 31.12.2009. Operations were performed through the collar incision, with elevation of the sternal manubrium with use of the mechanical sternal retractor without opening of the mediastinal pleura and without any mediastinal and pleural drainage. In patients with exceptionally extensive malignant metastatic thyroid cancer lesions open median sternotomy approach was used.
Results: The transcervical approach was used in 12 patients with metastatic mediastinal lymph nodes, in 2 patients with the parathyroid lesions (mediastinal adenoma 1, metastatic parathyroid cancer 1), in 8 patients with ectopic mediastinal goiter. In 4 other patients median sternotomy approach was necessary to obtain complete resection of the whole cancer lesions. A pathology of the metastatic thyroid lesions included papillary cancer in 9 patients, the medullary cancer in 2 patients and the oxyphylic cancer in 1 patients. The complete (R0) resection was achieved in all benign tumors and malignant tumors. The diameter of the completely resected tumors was 1–9 cm (mean 5.3 cm). Operative time was 30–150 min. (mean — 78 min). There was one conversion for thoracotomy (due to adhesions) and one reoperation (transcervical revision with left videothoracoscopy) for bleeding and no other complications (morbidity 3.8%). Postoperative hospital stay was 3–7 days (mean 4–3 days).
Conclusions:

1. Transcervical approach enables complete resection of the benign tumors and early stage malignant metastatic thyroid cancer tumors.
2. More extensive lesions require open operative approach through the median sternotomy.

Gene expression profile of follicular adenoma in comparison to other endocrine adenomas

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Introduction: The transition of an endocrine cell into benign (adenoma) and/or malignant tumor (carcinoma) is the subject of intensive research. In some endocrine glands (pituitary, parathyroids) malignant transformation is an extremely rare phenomenon while it is relatively frequent in follicular thyroid cells. Molecular mechanism underlying these differences may be better understood when adenomas and carcinomas arising in various types of endocrine cells will be compared by their gene expression profile.

The aim of our study was to compare the gene expression profile of three groups of adenomas of endocrine tissue: thyroid follicular adenomas, parathyroid adenomas and pituitary adenomas.

Material and methods: We applied human reference expression microarray (HumanRef-8, Illumina Inc.) to analyze gene expression profile in selected samples. Total RNA was extracted from tissue using RNeasy Mini Kit (Qiagen). cDNA synthesis was performed with T7 Oligo (dT) primer, then purified using Illumina Total Prep Amplification Kit. Next, cRNA was hybridized to HumanRef-8 arrays (Illumina). This study was done in pituitary and parathyroid adenomas, in thyroid adenomas gene expression profiling was done by Affymetrix HGU133A.

Results The data were analyzed both by unsupervised PCA and supervised analyses. All three groups of adenomas formed distinct clusters. The supervised comparison allowed to specify genes characteristic for two-way comparisons and, finally, revealed 227 genes which were differently expressed in all three groups of adenomas analyzed.

Conclusions: Gene expression profile analysis enables better characterization of similarities and differences between thyroid adenoma and parathyroid and pituitary adenomas, essential both for their better diagnostic characteristics and for therapeutic-directed research.

Case reports

Case of a patient with acromegaly and a disseminated follicular thyroid carcinoma

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The aim of this work is to present a diagnostically challenging case of a co-occurrence of acromegaly with follicular thyroid carcinoma.
Case description: A 59-year-old male, post total thyroidectomy performed in 2005, and histopathologically confirmed metastases of the follicular thyroid carcinoma to the lungs, was admitted to the Clinic in April of 2006 for complementary ^{131}I treatment. Acromegaly, diagnosed in 1995, was treated in 1996 by the trans-sphenoidal surgery. In December of 2005 a relapse of the pituitary adenoma was shown on MRI, what correlated with the increased blood levels of hGH (25.0 ng/mL) and IGF-1 (762.0 ng/mL), and the lack of inhibition in the OGTT. Treatment with Sandostatin LAR was begun with the dose of 20 mg/month, and continued with 30 mg/ /month. The biochemical control of acromegaly was achieved — present concentration of hGH — 2.2 ng/mL, and IGF-1 — 315.8 ng/ /mL. On neck ultrasound the volume of thyroid remnants was 2.4 ml, with a radioiodine uptake of 13% over the neck. The pre-therapeutical whole-body scintigraphy revealed numerous conjoined hot spots of ^{131}I accumulation in the lungs and in thyroid remnants. In May and November 2006 the patient received treatment with ^{131}I (a total of 250 mCi). The post-therapeutical scintigraphy (WBS) of November revealed a complete ablation of thyroid remnants and decrease in the number and intensity of the isotope hot spots in lungs as compare to WBS of May 2006. Laboratory tests confirmed lowering of thyroglobulin concentration in blood serum from the initial value of 362.0 ng/mL to 103.0 ng/mL. Since the endogenous TSH stimulation did not produce levels higher than 25.0 I^{v}U/mL, in the years 2007, 2008 and 2009 the patient was qualified for therapy with ^{131}I aided by rhTSH, achieving a reduction of the Tg levels to 15.2 ng/mL under TSH suppression and 318.1 ng/ /mL after rhTSH stimulation. A WBS done in 2009 revealed a weak uptake of the marker in the superior mediastinum and bilaterally in the lung parenchyma. CT of the chest revealed fibrosis in the supradiaphragmatic left lung segments with no infiltrative changes. The mediastinal and hilar lymph nodes were not enlarged. The patient remains under the care of the Endocrinology Clinic of CMUJ in Kraków.
Conclusions: We believe that patients with a nodular goitre of the thyroid and acromegaly should be monitored carefully by means of the fine needle biopsy, and treated with rhTSH after surgery of the pituitary gland.

Solitary metastasis of the clarocellular renal carcinoma to the thyroid gland — case report

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Introduction: The renal carcinoma accounts for about 3 percent of all cancers with the 30 percent occurrence of the distant metastasis at the beginning of the diagnosis. It is estimated that the 5 years survival rate in IV0 stage of the renal carcinoma is about 10 percent. It is also noted that the prognosis is better for patients with solitary metastasis to the lung or bones and also in the rare cases of the single metastasis to the brain or liver. The literature analysis of the unusual cases of the renal carcinoma with incidental metastasis to the thyroid gland suggests their similar prognosis.
Case description: 60 years old male with familiar incidence of the bladder and colon cancer. The renal tumor and thyroid goiter were diagnosed in the imaging studies (CT and USG) performed at the age of 55. The 4 centimeter clarocellular renal carcinoma without renal capsule infiltration (II0 stage according the Fuhrman classification) was found in the histopathology examination performed after the left nefrectomy. Two and a half years later patient was operated due to the euthyroid multinodular goitre. The whole right and partial left lobe resection was performed. In the histopathology examination the single 7 millimeter metastasis of the clarocellular renal carcinoma was found in the totally removed right lobe. Up to now no other lesions suspected of the malignant character were found in the performed examinations (abdomen USG, thoracic CT, bone scintigraphy with 99mTc-MDP, PET with 18F-FDG, gastro and colonoscopy).
Conclusion: It is suggested to take into consideration the possibility of the distant metastasis to the thyroid gland during the clinical staging of the clarocellular renal carcinoma.

Coincidence of the clarocellular renal and follicular thyroid carcinomas: case report

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Introduction: The coincidence of two or more malignances occurs in the small percentage of the patients (about 3 percent) and is

mostly seen in the lung, bowel, prostate, bladder and skin cancers. In spite of the similar natural history of the clarocellular renal and follicular thyroid carcinomas (among other metastases to the lung and bones through the bloodstream) there were only a few cases of the coexistence of these two malignances described. The new methods of the systemic therapy for renal cancer which were introduced in the last years brought only limited improvement in the prognosis for patients with disseminated disease (10 percent in the five-year survival rate). The prognosis for the patients with the disseminated follicular thyroid cancer is better which among other accounts for the possibility of the radioiodine therapy delivery.

Case description: 64 years old female after total thyreoidectomy due to the follicular carcinoma was referred for the radioiodine ablation. The status post right nefrectomy and disseminated metastases to the lung and bones in course of the clarocellular renal cancer were found in her medical history. The accumulation of the delivered radioiodine not only in thyroid bed but also in the metastases which were visualized previously in other imaging studies, was visualized in scintigraphy. The radioiodine ablation therapy was given two times in doses 85 and 117 mCi (in 8 months interval) with partial morphological and functional regression of metastatic lesions (by SPECT/CT). The achieved radioiodine treatment effect suggests the dissemination of the follicular thyroid carcinoma instead of the previously suspected dissemination of clarocellular renal carcinoma.

Conclusions: The outcome of the described recalls on the necessity of careful differential diagnosis and search for second neoplasm also in cases of disseminated renal carcinoma.

A case of Hodgkin lymphoma of the thymus imitating retrosternal goiter retrospective analysis of the diagnostic process

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Hodgkin's lymphoma is the most frequent lymphoid proliferation in the mediastinum. Symptoms and radiological findings are nonspecific. These tumors must be considered in case of thymus involvement in order to avoid a surgical treatment which could lead to many complications.

We report a case of primary Hodgkin's lymphoma of thymic origin in a 27-year-old woman. She presented with a dyspnoe and chest pain. Chest radiography showed an anterosuperior mediastinal mass and echocardiography revealed a mass compressing right pulmonary artery and right ventricle. Ultrasound examination revealed enlarged left lobe of the thyroid, localized partially substernally Fine needle aspiration (FNA) was not diagnostic.

Thoracic computed tomography revealed heterogeneous tumor staying in connection with thyroid and the diagnosis of substernal goiter was suggested. The scintigraphy did not confirmed substernal goiter. Due to increasing compressive symptoms caused by tumor the patient was referred to surgical treatment.

A cervicotomy was performed which did not revealed goiter so consecutive sternotomy was performed revealing large intramediastinal cystic mass which was resected. The definitive histologic study revealed a Hodgkin's lymphoma classified as a nodular sclerosing type, which was confirmed by the immunohistochemistry.

The patient received postoperative treatment based on chemotherapy and radiotherapy. The response was very good with a complete remission without recurrences after a follow up of 3 years.

Differentiated thyroid cancer in pregnant women — clinical dilemmas

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A papillary carcinoma is the most common histological form of differentiated thyroid cancer, while follicular carcinoma is the second most common.

In pregnant women a decision about a surgical treatment of differentiated thyroid cancer is set on basis of the term of pregnancy, size and dynamics of tumor growth and patients attitude. The most advantageous period for surgery is the 2nd pregnancy trimester. The surgery of papillary carcinoma and follicular thyroid tumor can be postponed to postnatal period if a patient accepts such scheme of treatment. Disadvantageous influence of pregnancy on the course of differentiated thyroid carcinoma was not proved, moreover there are no differences in prognosis between women who underwent a surgery during pregnancy in comparison to the group operated after delivery.

In case of papillary thyroid carcinoma or follicular tumor diagnosed during pregnancy, which surgical treatment was postponed to a postnatal period, administration of L-thyroxin to obtain a TSH suppression to values of 01–0,5 mU/L and maintenance of fT4 at the upper range is recommended.

A case of 23-year old pregnant patient suffering from papillary thyroid cancer is presented below.

The patient being in the 4th week of pregnancy noticed a tumor on the right side of the neck. She visited a physician after three months thyroid ultrasound examination was performed, after the next month FAB of tumor in the right thyroid lobe was performed. In cytopathologic report big groups of follicular thyroid cells were observed that suggested a papillary carcinoma. The patient visited the PAM Endocrinology Clinic being in the 27th week of pregnancy. In physical examination a significant anomaly was observed: composed tumor in right thyroid lobe being 3cm in diameter. In laboratory tests: TSH 1,37 uIU/mL, fT4 0,969 ng/dL, fT3 2,37 ng/dL, total and ionized calcium concentration, CEA antigen, antithyreoglobulin and antimicrosomal antibodies ratios within the normal range. USG of thyroid gland revealed: in right lobe a focal, solid lesion of heterogeneous echostructure, with calcifications, of blurred uneven borders, crossing the upper contour of right thyroid lobe, being 34 × × 31 × 17 mm in size, in color Doppler intensified vascularization within the lesion. Because of the pregnancy period 3rd trimester and after the conversation with a patient and the child's father a surgical treatment was decided to be performed after delivery.

L-thyroxine was administrated to the treatment in initial dose of 75 ug/day, increasing then to 100 ug/day.

A patient had control ultrasound examination of thyroid gland and thyroid tests in the Endocrinology Outpatient Clinic every 3–4 weeks performed. In 37th week of pregnancy during a control ultrasound examination of thyroid gland, a tumor increase of 5 mm in longitudinal dimension was observed. The patient came to Endocrinology Outpatient Clinic 3 weeks after delivery and was directed to the surgery ward.

During the presentation authors present a histopathology examination and the whole body iodine scintigraphy results.

Treatment with Sorafenib in advanced thyroid cancer a case report

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Papillary thyroid cancer (PTC) usually gives a good prognosis. The treatment including total thyroidectomy and complementary ^{131}I therapy allows to achieve complete remission in 90% patients. However, in 10% subjects with metastatic disease, the prognosis is poor. In the group of patients with disease progression and no ^{131}I uptake searching for new therapeutical modalities comprising antiangiogenic agents and tyrosine kinase inhibitors is necessary.
Thalidomide inhibits angiogenesis by the influence on vascular endothelial growth factor (VEGF) and basic fibroblast growth factor (bFGF). Its immunomodulatory effect is due to repression of COX-2 and other cytokines. Sorafenib inhibits many targeted enzymes and intracellular tumor factors, such as: VEGFR-2, VEGFR-3, PDGRF, CRAF, BRAF, V600E BRAF, c-KIT, FLT-3. High frequency of BRAF mutations in thyroid cancer supports sorafenib administration in PTC treatment.
The study presents a case of 55-year old male with advanced PTC/ /pT3mNxMo/diagnosed in 1993, treated with antiangiogenic factor (thalidomide) and multikinase inhibitor (sorafenib). Primary treatment: total thyroidectomy and ^{131}I ablation led to complete remission. In 2000 surgery due to local recurrence as well as lymph node metastases was performed. In 2006, because of increasing serum thyroglobulin level distant lung metastasis was diagnosed and operated. In 2007 another foci in CNS and vertebral column without ^{131}I uptake were stated. Further progression (bone, CNS and pterygoid muscle) was confirmed by PET/CT. The patient underwent neurosurgical metastasectomy twice, palliative CNS and vertebra's radiotherapy. Liver metastases were diagnosed in 2009. Treatment with increasing doses of thalidomide (up to 800 mg/d) was administered for 3 months with a good tolerance. The therapy was withdrawn due to cancer progression. Next sorafenib (800 mg/d) was given for 16 weeks. Radiological examination performed after 16 weeks confirmed stable disease, whereas 2 months later (after sorafenib withdrawal because lack of treatment possibility) further progression was observed.

PDS gene analysis in family with Pendred's syndrome associated with thyroid papillary cancer

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Pendred's syndrome is an autosomal recessive disorder characterized by sensorineural deafness, euthyroid or hypothyroid diffuse goiter and a positive perchlorate test and it is caused by PDS (7q13) gene mutation (SLC26A4). In the course of Pendred's syndrome thyroid cancer was observed, particularly the follicular type. No PDS gene mutation characteristic for developing thyroid cancer in these patients was described. We present clinical and molecular genetics studies in a family with Pendred's syndrome, in whom one affected individual developed papillary thyroid cancer.
Two out of five children were affected and displayed the classic Pendred's syndrome triad. Because of an enlarged multinodular goiter, patients were operated on and histopathological findings showed papillary thyroid cancer in a boy and multinodular goiter in a girl. Patient with thyroid cancer was treated by total thyreoidectomy with lymphadenectomy followed by ^{131}I therapy and suppressive L-thyroxine therapy.
DNA was isolated from whole blood in all members of family described. All exons and exon-intron boundaries of the PDS/SLC26A4 gene were amplified by PCR and sequenced.
The PDS gene analysis in this family revealed a transition of G to A in the splice donor site of intron 8 (IVS8+1G > A). The two affected individuals were homozygous for this mutation, whereas both parents and one unaffected daughter were heterozygous for it. The remaining two unaffected individuals have no PDS gene mutation.
It seems evident that patients with Pendred's syndrome coexisting with thyroid solitary nodule or multinodular goiter shoud be operated on because of the possibility of malignancy. The question remains whether the specific PDS gene mutation exists, which may predispose to the development of thyroid cancer.

Familial case of oxyphilic thyroid neoplasm GRIM-19: gene analysis

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Introduction: Familial pattern of oxyphilic thyroid tumor (fOTT) is rare. Environmental and genetic factors are the underpinnings of the oxyphilic lesion. GRIM-19, a candidate gene located on chromosome 19p13.2, is responsible for mitochondrial metabolism and cell death and may play a role in the development of this tumor. It is indicated by excessive number of mitochondria found in this type of thyroid tumor and mutations in GRIM-19 gene, detected in some sporadic cases of Hürtle cell tumor.
Patient's report: A 10-year old prepubertal boy was admitted to the hospital because of a positive family history for oxyphilic thyroid carcinoma (OTC) (mother — OTC, Hashimoto's thyroiditis and endometrial adenocarcinoma). He had a goiter (II°) with multiple nodules in both lobes, clinical and hormonal euthyroidism, and waa negative for antithyroid antibodies. The dominant nodule (2.6 × × 1.7 × 2.6 cm), solid and hypoechogenic on ultrasound, was localized in the right lobe. A similar but smaller nodule was present in the left lobe (LL). Cytological evaluation of the material from biopsy showed a suspicious lesion. A right lobectomy with the isthmus, along with the removal of the nodule in LL, was performed. Histopathological examination showed an oxyphilic adenoma and a macro- and microfollicular colloid goiter. He was substituted with

L-thyroxine. Few years later the reoperation of the LL was performed.

Aim of the study: Analysis of selected neoplastic markers in tumor 's tissue and peripheral blood.

Material and methods: Sequence analysis of GRIM-19 on DNA from blood was performed by PCR amplification of all exons and sequencing techniques and GRIM-19 gene expression on RNA from blood was performed by RT-PCR. Biomarkers of thyroid cancer from tumor's tissue (FNAB) were analyzed by gene expression analysis (RT-PCR).

Results: Biomarkers analysis in tumor's tissue was positive for galectin 3 and cytokeratin 19. Sequencing of GRIM-19 DNA showed no abnormalities, however gene expression analysis showed a bigger product (~1100 bp) than expected.

Conclusions:

1. Multifocal thyroid nodular lesions in a boy below 10 yrs of age may indicate the inherited pathology.
2. GRIM-19 gene expression abnormality can influence the functionality of the encoded protein.

Difficulties in diagnosis and therapy of the patient with chronic autoimmune thyroiditis and the coexisting thyroid nodule

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Patient's Report: 15-year-old girl was admitted to the Department with suspicion of thyroid nodule. Focal lesion was detected on ultrasound of the neck done after the neck trauma (with a ball). On clinical examination she was euthyroid with a palpable nodule in the upper pole of the right lobe of thyroid. Laboratory tests (thyroid hormone levels, TSH, antithyroid antibodies: ATPO and ATG) were normal. Thyroid ultrasound showed the solid-cystic lesion with a diameter of 1.3 × 0.4 cm (longitudinal projection) with otherwise hypoechogenic remaining thyroid gland. Scintigraphy was normal and fine-needle aspiration biopsy (FNAB) was non-diagnostic. 8 months later she was admitted to the Department again for control tests. The lesion (unechogenic) was similar in size (1.2 × × 0.5 cm). Thyroid hormones, TSH and ATPO were normal, whereas ATG titer was positive (87 IU/mL). FNAB was again non-diagnostic. 2 years later she was admitted again to the ward (in the meantime she was in ambulatory care and received 50 ug of L-thyroxine daily). On clinical examination the palpable nodule was still present in the right lobe and its diameter was 1.0 × 1.1 × 0.5 cm on ultrasound. Thyroid hormones, TSH and ATG were normal whereas ATPO was positive (67 IU/mL). During FNAB of unechogenic lesion 0.2 mL of fluid was obtained. The cytological result of the aspirated material was as follows: atypic cells; based on cytology the papillary thyroid carcinoma should be suspected; histopatological verification is obligatory. Based on the patient's history, clinical examination and cytology the surgical treatment was advocated (right lobectomy with isthmus). 2 months later she was operated on. The histopathological (intra- and postoperative) examination showed features of chronic lymphocytic thyroiditis (Hashimoto thyroiditis; HT).

Conclusion: HT shares common cytological features with early papillary thyroid carcinoma and therefore the false positive cytological result in terms of PTC is possible in a course of HT.

Thyroid lesion as first manifestation of Hodgkin's lymphoma

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Introduction: Lymphomas account for less than 5% of malignant lesions diagnosed in the thyroid. Vast majority of them are B-cell non-Hodgkin's lymphomas, developing in the course of autoimmune thyroiditis, while Hodgkin's lymphoma, primarily localized in the thyroid, is a very rare finding.

Case report: 23-year-old woman was referred to the endocrine outpatient clinic for further diagnostics, with suspicion of thyroid cancer. On thyroid ultrasound examination, a large, hypoechogenic lesion, localized at the border between left lobe and isthmus, was visualized. Unilaterally, enlarged, round and hypoechogenic lymph nodes were found, suggesting metastatic lesions. On thyroid scintiscan, a large cold nodule was found and its localization corresponded to the lesion revealed during thyroid ultrasound. Thyroid hormonal function was normal and thyroid autoantibodies were negative. Fine-needle aspiration biopsy of the thyroid and lymph nodes, was twice non-diagnostic. Eventually, third biopsy allowed to detect carcinomatous cells of undetermined origin. The clinical picture, together with result of cytological examination, prompted us to refer the patient for immediate total thyreoidectomy and lymphadenectomy. On histopathological examination, extralymphatic Hodgkin's lymphoma of the thyroid was diagnosed. The patient was subsequently referred to the department of hematology for chemiotherapy and radiotherapy. The patient's observation period has now reached one year. She is still followed-up in the endocrine outpatient clinic, reached remission and remains euthyroid on substitutive dose of L-thyroxine.

Conclusions: Despite extremely rare occurrence, Hodgkin's lymphoma ought to be considered in differential diagnosis of malignant lesions diagnosed in the thyroid.

Metastases of breast cancer to the thyroid gland in two patients — a case report

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Introduction: Metastatic cancer is rarely found in the thyroid (only 2–3% of malignant tumors found in this gland), primary sources usually including breast, kidney and lung tumors.

Patients: Two cases of advanced breast cancer with thyroid metastases in female patients are presented. Similarities between these two cases included: 1) postmenopausal age, 2) diagnosis based on result of FNAB (multiple groups of cells with epithelial phenotype

strongly implying metastasic breast cancer), 3) thyroid function overt hyperthyroidism in the first woman and subclinical hyperthyroidism in the second one, 4) presence of nodular goiter in clinical examination, 5) presence of multiple nodular solid echogenic lesions with calcifications in both thyroid lobes in US, 6) negative anti-thyroid antibodies. The main difference was the time of establishing diagnosis; in the first woman before mammectomy, parallel to diagnostics of breast tumour, in the second woman 4 years after mammectomy, during metastatic phase of the disease (with right pleural effusion and lung metastasis). In the first case mammectomy was followed by thyroidectomy in two weeks. The second patient was disqualified from thyroid surgery, due to systemic metastatic disease.

Conclusions:

1. Fine needle aspiration biopsy of the thyroid gland should be obligatorily performed in patients with breast cancer and nodular goiter, even without any clinical data of metastatic disease.
2. Clinical assessment of cytological findings is of critical value.
3. In the case of multinodular goiter, accompanying metastatic neoplastic disease, the biopsy of a greater number of lesions should be considered.

A case of a patient with secondary hyperparathyroidism and thyroid cancer

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A young woman with thyroid cancer and hypercalcemia due to adenomas of the parathyroid glands was successfully treated in 2007/ /2008. Total thyroidectomy was performed and two adenomas were removed. PTH level dropped from 2500 pg/mL to 11 pg/mL.

Columnar cell variant of papillary thyroid carcinoma in ovarian struma — case report

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Introduction: Ovarian struma is a rare type of mature teratoma composed predominantly of mature thyroid tissue, which can present malignant transformation characteristic for normal thyroid.
Case: A 37-year old patient with an ovarian tumor underwent surgery. Postoperative examination revealed two cystic tumors measuring 3 and 4 cm. The smaller one was diagnosed as benign serous cyst and the larger as malignant ovarian struma with columnar cell variant of papillary thyroid carcinoma.
The patient was subsequently treated with total thyroidectomy and ^{131}I therapy. After 10 months of observation there was no evidence of recurrence or metastases.
Conclusion: Columnar cell variant is extremely rare type of papillary thyroid carcinoma with aggressive biologic behavior and its presence in ovarian struma has not yet been described in the literature.

Other thyroid-related abstracts

Identification of immune markers (CD54, CD95, CD134, CD152) on the thyroid follicular cells in patients with immune and non-immune thyroid diseases using cellular culture

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In the pathogenesis of Graves; disease an important role play proinflammatory cytokines. They influence on immune system and also on destination cells by induction of antiapoptotic molecules expression causing resistance of thyrocytes to apoptosis - the programmed cells death, coursed by CD 95.

The aim of the study was to detect the expression of CD 54, CD 95, CD 134, CD 152 in the thyroid tissue in patients with Graves disease (GD) and patients with non-toxic nodular goiter (NTNG) during the cellular culture with or without cellular stimulators. Investigated thyroid tissue was cleaned and then mechanically and enzymatic fragmented using collagenase with HBSS. The obtained suspension of cells was passed through the nylon- filter. The culture of thyroid cells was led in 50 mls phials containing: RPMI 1640, 10% FBS, HEPES buffer, L-the glutamine, penicillin and streptomycin. After isolation of thyrocytes (3 × 105) the culture was managed into 6-pit plates through the period of 5 days. TNF-alpha; IL-1beta; and INF-gamma were added. Identification of CD 54, CD 95, CD 134, CD 152 markers on thyrocytes, before and after use of cellular stimulators was performed using flow cytometry on apparatus Coulter XP.

The analysis of CD 54, CD 95, CD 134, CD 152 markers expression on thyrocytes showed their elevation in patients with GD in comparison to group of patients with NTNG. During the cellular culture percentage of cells with CD 95 expression significantly decreased. Application of cellular stimulators led to the increase of the expression of CD54 and CD134 molecules, while CTLA-4 was unchanged in Graves patients.

In conclusion, changes of the expression of CD 54, CD 95, CD 134 molecules on the thyroid follicular cells suggest the different degree of the activation and stimulation of the cells during the development of the pathological process within thyroid gland

The contribution of Pro12Ala PPAR-gamma gene polymorphism to Graves orbitopathy

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Introduction: Peroxisome proliferation-activated receptors-gamma; (PPAR-gamma;) are involved in adipogenesis as well as in immunoregulation and inflammation control. Orbital fibroblast differentiation to adipocytes is a PPAR-gamma; dependent process essential for pathogenic tissue remodeling in Graves orbitopathy (GO).

We studied the occurrence and possible associations of the Pro115Gln and Pro12Ala in the PPAR-gamma;2 gene with clinical manifestation of GO.

Material and methods: The Pro12Ala and Pro115Gln polymorphisms were examined using PCR-RFLP technique with restriction enzymes: HpaII and HincII, respectively, in 202 Graves disease patients. There were 168 patients with GO and 34 subjects without eye changes. Patients with GO were grouped according to the stage of the disease severity.

Results: Ala allele and (Pro12Ala + Ala12Ala) genotype decreased the risk of OT by a factor of 3.33 and 3.45 ($p = 0.0002$, 95% CI: 0.16–0.59 and $p = 0.001$, 95% CI: 0.13–0.63, respectively). Moreover, the Ala12Ala genotype was not observed in the group of patients with GO. The patients heterozygous at this polymorphic site were significantly more frequent in a group without GO as compared to GO group (38.2% *v.* 18.5%, $p = 0.01$, 95% CI: 0.17–0.81). However, this polymorphism was not associated with a GO stage. The Pro115Gln mutation was not found in any of subjects examined.

Conclusions: We found that the Ala variant in Pro12Ala polymorphism was associated with decreased risk of GO and might be considered as a protective factor.

Thyroid dysfunctions in children detected in mass screening for congenital hypothyroidism

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Introduction: To determine the prevalence of primary congenital hypothyroidism (CHT) and isolated hyperthyrotropinemia (IHT) in newborns selected in mass screening for CHT and to analyze the causes of permanent CHT and IHT.
Material and methods: Of 233,120 neonates born in the Małopolska province in the period 2000-2006, mass screening selected 118 children suspected of CHT. Serum TSH and fT4 levels were determined during 1st confirmation of diagnosis (118 newborns) and re-evaluation (48 children); the patients were subjected to thyroid ultrasonography and/or thyroid scintiscan performed in 47 and 30 children, respectively.
Results: Of 118 children selected in mass screening, 1st confirmation of diagnosis indicated thyroid dysfunction in 71: CHT in 63, and IHT in 8. Permanent CHT after 1st confirmation or re-evaluation was noted in 36 children: thyroid dysgenesis in 25 (aplasia in 9, hypoplasia in 3, sublingual ectopy in 13), dyshormonogenesis in 9, unknown etiology in 2. Transient CHT affected 19 children with normal thyroid. Permanent IHT was detected in 8 children: 6 with Down s syndrome, one with multiple congenital defects and another one with unidentified cause. The prevalence of CHT was 1:3,700 (permanent 1:6,476, transient 1:12,269) and of permanent IHT — 1:29,140.
Conclusions:
1. 1st confirmation indicates the diagnosis of CHT or IHT in 60% of children. Permanent forms are diagnosed in 62% of these children.
2. Permanent CHT is twice as common as transient CHT. Developmental thyroid defects are responsible for 69% of permanent CHT cases.
3. IHT is usually permanent and affects children with Down's syndrome or congenital malformations.

Evaluation of the results of IL-6 levels in patients with Graves-Basedow disease without active ophthalmopathy

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Introduction: Cytokines are peptides and small proteins, affecting cell functions through specific receptors and conditioning their interaction. In response to the stimulus they are rapidly synthesized and released in very small quantities. Elevated levels of cytokines are observed in autoimmune thyroid disease.
The objective of this study was to estimate the IL-6 levels in blood of patients with Graves-Basedow disease without active ophthalmopathy.
Material and methods: The study covered 35 persons with Graves-Basedow disease. In none of the patients features of active ophthalmopathy were observed. The control group was 14 healthy persons. IL-6 was determined by ELISA Bender MedSystems.
Results: In patients with Graves-Basedow disease, the mean value of IL-6 was 2.61 pg/mL, SD 0.93 pg/mL. For the control group the mean value was 2.13 pg/mL, and SD 0.83 pg/mL, $p > 0.05$. (According to the producer normal values: mean 1.3 pg/mL, and SD 3.2 pg/mL)
Conclusion: There is no significant difference in the concentrations of IL-6 between patients with Graves-Basedow disease without active ophthalmopathy and the control group.