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A scoring system for thromboembolic risk assessment in surgery, developed by the Polish Working Group, on the basis of the scoring system developed by Joseph Caprini

Skala punktowa opracowana przez Polską Grupę Roboczą na podstawie skali Josepha Capriniego dotycząca oceny stopnia zagrożenia rozwoju powikłań zakrzepowo-zatorowych w chirurgii

by the Polish Working Group (Polska Grupa Robocza)

Abstract

Background. *Thromboembolic risk assessment is crucial for the appropriate prescription of thromboprophylaxis. Such assessments are facilitated by scoring systems. We aimed to develop a scoring system intended for surgeons, which would allow them to assess this risk in a rapid, reproducible and reliable manner and therefore to use the most effective thromboprophylaxis.*

Material and methods. *The Polish Working Group was established to draw up a scoring system for thromboembolic risk assessment. Joseph Caprini's scoring system was the starting point and model for the Group's efforts, which were supplemented by bibliographical data and the members' own experience. The obtained total score forms the basis for including the patient in a particular risk group, which is associated with a particular thromboprophylaxis regimen.*

Results and conclusions. *The scoring system is a simple tool that could gain widespread acceptance among surgeons representing various specialties. As the scoring system has not been verified in clinical practice, it may only be used supportively for now in the assessment of venous thromboembolism.*

Key words: scoring system, The Polish Working Group, thromboembolic complications, hospitalisation, surgical ward

Streszczenie

Wstęp. *Ocena zagrożenia powikłaniami zakrzepowo-zatorowymi stanowi podstawę odpowiedniej ordynacji profilaktyki przeciwzakrzepowej. Narzędziem ułatwiającym dokonanie tej oceny jest skala punktowa. Celem pracy było przygotowanie skali punktowej adresowanej do chirurgów, która umożliwi szybką, powtarzalną i jednoznaczną ocenę takiego ryzyka oraz zastosowanie najskuteczniejszej profilaktyki przeciwzakrzepowej.*

Materiał i metody. *W celu przygotowania skali punktowej służącej ocenie zagrożenia związanego z ryzykiem wystąpienia powikłań zakrzepowo-zatorowych powołano Polską Grupę Roboczą.*

Punktem wyjściowym oraz wzorem do opracowania chirurgicznej skali punktowej stała się skala Josepha Capriniego. Podczas prac korzystano z danych z piśmiennictwa oraz doświadczenia własnego członków Polskiej Grupy Roboczej. Suma uzyskanych w skali punktów stanowi podstawę włączenia chorych do grupy ryzyka, co wiąże się z zastosowaniem rekomendowanej formy profilaktyki.

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Wyniki i wnioski. *Zaprezentowana skala punktowa może stanowić proste narzędzie powszechnie stosowane przez lekarzy dyscyplin zabiegowych. Skali dotychczas nie sprawdzano w praktyce klinicznej, zatem stanowi ona jedynie formę pomocy w ocenie ryzyka rozwoju żylnej choroby zakrzepowo-zatorowej.*

Słowa kluczowe: skala punktowa, Polska Grupa Robocza, powikłania zakrzepowo-zatorowe, hospitalizacja, oddział zabiegowy

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Introduction

Thromboembolic risk assessment is crucial for the appropriate prescription of thromboprophylaxis. Scoring systems are a rapid and relatively simple method to assess this risk. It seems that the development of a scoring system by the Polish scientific community, which would be specifically intended for Polish surgeons, is extremely important and well justified.

Although thromboprophylaxis has gained the place it deserves in the majority of Polish surgical wards, serious mistakes and acts of negligence continue to be observed in this area in the form of a failure to initiate appropriate forms of thromboprophylaxis in patients found to have significant risk of VTE, including fatal pulmonary embolism (PE). It should be stressed that the acts of negligence and errors in this area mainly consist of insufficient duration of prophylaxis, prescribing inappropriate doses of drugs, and the erroneous assessment of the risk of thromboembolic complications.

It seems obvious that the development of a scoring system that could be used in surgical specialties will enable practicing surgeons to perform a rapid, reproducible, and reliable assessment of thromboembolic risk and to initiate the appropriate and most effective form of thromboprophylaxis recommended by the Polish Working Group.

Material and methods

The Polish Working Group was established to develop a surgical scoring system for the assessment of thromboembolic risk. The Group consisted of the most renowned Polish specialists in the field of venous thromboembolism (VTE) and the most renowned representatives of the Polish surgical community (the names of the experts are listed at the end of the paper). The scoring system proposed by Joseph Caprini was the starting point and model for the development of the surgical scoring system [1].

The evaluation of the risk factors, their weight, the degree of danger, and the efficacy of the individual forms of thromboprophylaxis were based on the review of bibliography (following the principles of evidence-based medicine) [2–583] and on the mem-

Wstęp

Ocena stopnia zagrożenia powikłaniami zakrzepowo-zatorowymi stanowi podstawę odpowiedniej ordynacji profilaktyki przeciwzakrzepowej. Narzędziem, dzięki któremu w szybki i stosunkowo prosty sposób można ocenić to zagrożenie, są skale punkowe. Wydaje się, że przygotowanie przez polskie środowisko naukowe takiej skali zaadresowanej do polskich chirurgów jest niezwykle ważne i celowe.

Choć profilaktyka przeciwzakrzepowa uzyskała odpowiednią rangę na większości polskich oddziałów zabiegowych, to jednak stale w tej dziedzinie zdarzają się rażące błędy i zaniedbania polegające na zaniechaniu stosowania odpowiedniej formy profilaktyki przeciwzakrzepowej u chorych, u których stwierdza się poważne ryzyko rozwoju żylnej choroby zakrzepowo-zatorowej ze śmiertelnym zatorem tętnicy płucnej włącznie. Warto podkreślić, że zaniedbania i błędy w tym zakresie polegają głównie na zbyt krótkim stosowaniu profilaktyki, zlecaniu nieodpowiednich dawek leków, a także na błędnej ocenie stopnia zagrożenia rozwojem powikłań zakrzepowo-zatorowych.

Wydaje się oczywiste, że przygotowanie skali punktowej, którą można wykorzystać w dyscyplinach zabiegowych, ułatwi polskim chirurgom praktykom szybką, powtarzalną i jednoznaczną ocenę stopnia zagrożenia rozwojem powikłań zakrzepowo-zatorowych oraz zastosowanie rekomendowanej przez Polską Grupę Roboczą odpowiedniej, najskuteczniejszej formy profilaktyki przeciwzakrzepowej.

Materiał i metody

Do prac nad przygotowaniem chirurgicznej skali punktowej powołano Polską Grupę Roboczą (nazwiska ekspertów podano na końcu pracy) składającą się z najwybitniejszych polskich specjalistów zajmujących się żylną chorobą zakrzepowo-zatorową oraz najwybitniejszych przedstawicieli polskiego środowiska chirurgicznego. Punktem wyjściowym oraz wzorem do opracowania chirurgicznej skali punktowej stała się skala Josepha Capriniego [1].

Oceniając czynniki ryzyka, ich moc, stopień zagrożenia oraz skuteczność poszczególnych form profilaktyki przeciwzakrzepowej wykorzystano dane z piśmiennictwa, czyli

bers' own experience (following the principles of eminence-based medicine). Individual decisions regarding the assignment of specific numbers of points to risk factors and the specific recommendations contained, therefore, an element based on bibliography and an element based on the clinical experience of the Polish Working Group members.

At the plenary meeting of the Polish Working Group, which took place in Warsaw, Poland, the members drew up an outline of the scoring system. Then, through a discussion, which was carried out by means of email, the members and the corresponding members all prepared the final version of the Polish Working Group scoring system presented in this paper.

The individual acquired and congenital risk factors and the individual clinical situations were assigned specific numbers of points. The total score is the basis of classifying the patient in the appropriate risk group, which in turn is associated with using a specific form of thromboprophylaxis recommended by the Polish Working Group.

Results

Venous thromboembolism risk assessment

Each factor represents 1 point:

— age 41–60 years;
— minor surgery (< 60 minutes);
— history of major surgery (< 1 month);
— varicose veins (C_3–C_6);
— history of inflammatory bowel disease;
— leg oedema;
— obesity [body mass index (BMI) > 30 kg/m^2];
— acute myocardial infarction (< 1 month);
— congestive heart failure (exacerbation < 1 month);
— severe lung disease, including pneumonia (< 1 month);
— chronic obstructive pulmonary disease (COPD);
— medical co-morbidities: a bed-ridden patient;
— lower limb in a plaster cast or brace;
— central venous access;
— history of superficial vein thrombosis.

Each factor represents 2 points:

— age 60–74 years;
— major surgery (> 60 minutes);
— arthroscopic surgery;
— laparoscopic surgery (> 60 minutes);
— previous malignancy;
— sepsis (< 1 month);
— morbid obesity (BMI > 40 kg/m^2);
— lower-risk thrombophilia (patients with heterozygous factor V Leiden or prothrombin gene mutation, factor VIII activity exceeding 150%);

zastosowano medycynę opartą na dowodach (*evidence based medicine*) [2–583], a także wykorzystano doświadczenie kliniczne członków Polskiej Grupy Roboczej (*eminence based medicine*). Poszczególne decyzje dotyczące przyporządkowania określonych punktów czynnikom ryzyka oraz konkretne rekomendacje zawierały więc w sobie element oparty zarówno na piśmiennictwie, jak i doświadczeniu klinicznym członków Polskiej Grupy Roboczej.

Na posiedzeniu plenarnym Polskiej Grupy Roboczej, które odbyło się w Warszawie, jej członkowie przygotowali wstępny zarys skali punktowej. Następnie na drodze debaty przeprowadzonej za pośrednictwem poczty elektronicznej członkowie oraz członkowie korespondencyjni przygotowali ostateczny kształt skali punktowej Polskiej Grupy Roboczej prezentowany w tym artykule.

Poszczególnym nabytym lub wrodzonym czynnikom ryzyka oraz sytuacjom klinicznym przyporządkowano odpowiednią liczbę punktów. Ich suma stanowi podstawę włączenia chorego do odpowiedniej grupy ryzyka, co z kolei wiąże się z zastosowaniem rekomendowanej przez Polską Grupę Roboczą formy profilaktyki.

Wyniki

Ocena ryzyka żylnej choroby zakrzepowo-zatorowej

Każdy czynnik oznacza 1 punkt:

— wiek 41–60 lat;
— mały zabieg chirurgiczny (< 60 minut);
— duży zabieg chirurgiczny w wywiadzie (< 1 miesiąc);
— żylaki kończyn dolnych (C_3–C_6);
— choroby zapalne jelit w wywiadzie;
— obrzęki kończyn dolnych;
— otyłość [wskaźnik masy ciala (BMI) > 30 kg/m^2];
— ostry zawał serca (< 1 miesiąc);
— zastoinowa niewydolność serca (zaostrzenie < 1 miesiąc);
— ciężkie choroby płuc, w tym zapalenie płuc (< 1 miesiąc);
— przewlekła obturacyjna choroba płuc (POChP);
— obciążenia internistyczne — chory unieruchomiony w łóżku;
— unieruchomienie kończyny dolnej w gipsie lub ortezie;
— cewnik w żyle centralnej;
— przebyte zapalenie zakrzepowe żył powierzchownych.

Każdy czynnik oznacza 2 punkty:

— wiek 60–74 lat;
— duży zabieg chirurgiczny (> 60 minut);
— zabieg artroskopowy;
— chirurgia laparoskopowa (> 60 minut);
— przebyta choroba nowotworowa;

— family history of deep vein thrombosis (DVT) or pulmonary embolism.

Each factor represents 3 points:

— age 75 years or more;
— major surgery lasting more than 3 hours;
— BMI > 50 kg/m^2;
— history of DVT or PE;
— higher-risk thrombophilia (patients with homozygous factor V Leiden or prothrombin 20210A gene mutation, antithrombin [AT] deficiency, protein C deficiency, protein S deficiency, antiphospholipid antibodies);
— complex thrombophilia (co-existence of genetic defects);
— heparin-induced thrombocytopenia (HIT).

Each factor represents 5 points:

— major lower extremity arthroplasty;
— hip, pelvis, or leg fracture;
— ischaemic stroke (< 1 month);
— multi-organ injury (< 1 month);
— acute spinal cord injury with paralysis (< 1 month);
— DVT or PE during treatment;
— repeat surgery;
— surgery in a patient with active cancer.

Risk factors to be additionally considered in women

Each factor represents 1 point:

— history of intrauterine death;
— history of habitual abortion (> 3);
— premature birth with pregnancy-induced hypertension or history of intrauterine growth restriction.

Each factor represents 2 points:

— hormonal contraception or hormone replacement therapy (HRT);
— pregnancy or postpartum (up to 6 weeks).

Scoring, assignment of the total score to the risk group, and the Polish Working Group recommendations

Below are the total score values/ranges along with the corresponding levels of thromboembolic risk and the recommended measures:

— 0 to 1 (low risk): Early ambulation is recommended;
— 2 (moderate risk): Pharmacological prophylaxis is recommended according to the manufacturer's indications and directions;
— 3 (high risk): Pharmacological prophylaxis is recommended according to the manufacturer's directions. If contraindications to pharmacological prophylaxis are identified, physical prophylaxis is recommended;

— posocznica (< 1 miesiąc);
— duża otyłość (BMI > 40 kg/m^2);
— trombofilia mniejszego ryzyka (heterozygotyczna postać czynnika V Leiden lub mutacji genu protrombiny, wzrost aktywności czynnika VIII > 150%);
— zakrzepica żył głębokich lub zator tętnicy płucnej w wywiadzie rodzinnym.

Każdy czynnik oznacza 3 punkty:

— wiek powyżej 75 lat;
— duży zabieg chirurgiczny (> 3 godzin);
— BMI > 50 kg/m^2;
— przebyta zakrzepica żył głębokich lub zator tętnicy płucnej;
— trombofilia większego ryzyka (homozygotyczna postać czynnika V Leiden lub mutacji 20210A genu protrombiny, niedobór AT, białka C, białka S, obecność przeciwciał antyfosfolipidowych);
— trombofilia złożona (współistnienie genetycznie uwarunkowanych defektów);
— małopłytkowość indukowana heparyną (HIT).

Każdy czynnik oznacza 5 punktów:

— protezoplastyka dużych stawów kończyn dolnych;
— złamanie biodra, miednicy lub kończyny dolnej (< 1 miesiąc);
— udar niedokrwienny mózgu (< 1 miesiąc);
— uraz wielonarządowy (< 1 miesiąc);
— ostry uraz rdzenia kręgowego z porażeniem (< 1 miesiąc);
— zakrzepica żył głębokich lub zator tętnicy płucnej w trakcie leczenia;
— reoperacja;
— zabieg chirurgiczny u chorego z aktywną chorobą nowotworową.

Czynniki ryzyka, które należy uwzględnić u kobiet

Każdy czynnik oznacza 1 punkt:

— wewnątrzmaciczne obumarcie płodu w wywiadzie;
— poronienia nawykowe (> 3) w wywiadzie;
— przedwczesny poród z nadciśnieniem indukowanym ciążą lub wewnątrzmaciczne zahamowanie wzrostu płodu w wywiadzie.

Każdy czynnik oznacza 2 punkty:

— antykoncepcja hormonalna lub hormonalna terapia zastępcza (HTZ);
— ciąża lub połóg (do 6 tygodni).

Punktacja i przyporządkowanie uzyskanej sumy do grupy ryzyka oraz rekomendacje Polskiej Grupy Roboczej

Jeśli suma uzyskanych punktów mieści się w przedziale przedstawionym poniżej, to ryzyko rozwoju powikłań zakrzepowo-zatorowych ocenia się jako:

— 4 or more (very high risk): A combination of pharmacological prophylaxis and intermittent pneumatic compression of the legs is recommended.

In each case, before the initiation of thromboprophylaxis, the presence of contraindications should be checked. If contraindications to pharmacological prophylaxis exist, the use of physical methods is recommended [62, 66–73, 75–92, 193, 199, 204, 328–333, 361–365, 392, 401, 415, 487, 488, 491, 506–509, 512].

It is recommended that prolongation of primary thromboprophylaxis be considered in selected patients until 28 days post-discharge with the use of once-daily subcutaneous low-molecular-weight heparin (LMWH), in patients following surgery for cancer or following a surgical procedure associated with a high risk of VTE, unless it is associated with an unacceptably high risk of haemorrhagic complications [152, 170].

Pharmacological prophylaxis is defined as the use of unfractionated heparin [19–21, 45, 54, 74, 181–183, 191, 200, 201, 259–261, 389, 467, 489, 492–494, 558], LMWH [23–42, 45, 54, 63–65, 74, 300–301, 304, 325, 344, 345–351, 366–371, 374–375, 382–384, 427, 431, 442, 448, 450–456, 458–463, 471, 474–476, 561–562, 565], pentasaccharides [91, 106, 292, 351–356, 423], oral direct inhibitors of factor Xa and factor II [573–583], according to the label.

The use of acetylsalicylic acid or other antiplatelet drugs is not recommended in the prophylaxis of VTE [93–104, 194, 294].

Discussion

The assignment of an appropriate number of points to risk factors or clinical situations always raises certain controversies [2–17]. They stem, for instance, from quite an arbitrary division of surgical procedures relative to their duration. It seems, however, that the method of assigning specific numbers of points to specific durations of surgery is justified and reflected by the clinical experience of the Polish Working Group members and bibliographical data [7–12].

A similar situation exists in relation to the remaining risk factors and their scoring [2–22]. The Polish Working Group members realise that the adopted scoring may be contested and may arouse minor controversies. At the same time, however, it is the simplest and the most rapid tool for a reliable and reproducible global assessment of thromboembolic risk. This has great practical implications. The scoring system may be used in clinical practice and in litigation. It is common knowledge that the question of using or, rather, failing to use thromboprophylaxis is increasingly the subject matter of various legal actions against doctors.

— 0–1 (małe ryzyko) — rekomenduje się wczesne uruchomienie chorego;
— 2 (umiarkowane ryzyko) — rekomenduje się stosowanie profilaktyki farmakologicznej zgodnie ze wskazaniem i zaleceniem producenta;
— 3 (duże ryzyko) — rekomenduje się stosowanie profilaktyki farmakologicznej zgodnie z zaleceniem producenta. W razie stwierdzenia przeciwwskazań do profilaktyki farmakologicznej zaleca się stosowanie profilaktyki metodami fizykalnymi;
— 4 i więcej (bardzo duże ryzyko) — rekomenduje się łączenie profilaktyki farmakologicznej i przerywanego pneumatycznego ucisku kończyn dolnych.

W każdym przypadku przed zastosowaniem profilaktyki przeciwzakrzepowej należy przeanalizować obecność ewentualnych przeciwwskazań. W przypadku przeciwwskazań do profilaktyki metodami farmakologicznymi zaleca się wykorzystanie metod fizykalnych [62, 66–73, 75–92, 193, 199, 204, 328–333, 361–365, 392, 401, 415, 487, 488, 491, 506–509, 512].

Rekomenduje się rozważenie przedłużenia pierwotnej profilaktyki przeciwzakrzepowej u wybranych pacjentów do 28 dni po wypisie ze szpitala z zastosowaniem heparyny drobnocząsteczkowej podawanej podskórnie 1 raz na dobę, u pacjentów po zabiegu operacyjnym z powodu nowotworu złośliwego lub zabiegu z zakresu chirurgii wysokiego ryzyka rozwoju żylnej choroby zakrzepowo-zatorowej, o ile nie wiąże się to z niemożliwym do akceptacji wysokim ryzykiem powikłań krwotocznych [152, 170].

Za profilaktykę farmakologiczną uznaje się stosowanie heparyny niefrakcjonowanej [19–21, 45, 54, 74, 181–183, 191, 200, 201, 259–261, 389, 467, 489, 492–494, 558], heparyn drobnocząsteczkowych [23–42, 45, 54, 63–65, 74, 300–301, 304, 325, 344, 345–351, 366–371, 374–375, 382–384, 427, 431, 442, 448, 450–456, 458–463, 471, 474–476, 561–562, 565], pentasacharydów [91, 106, 292, 351–356, 423], doustnych bezpośrednich inhibitorów aktywnego czynnika X i czynnika II [573–583], zgodnie z zarejestrowanymi wskazaniami.

W profilaktyce żylnej choroby zakrzepowo-zatorowej nie rekomenduje się stosowania kwasu acetylosalicylowego i innych leków przeciwpłytkowych [93–104, 194, 294].

Omówienie wyników

Przyporządkowanie odpowiednich punktów czynnikom ryzyka czy sytuacjom klinicznym zawsze może budzić pewne kontrowersje [2–17]. Wynikają one na przykład z dość arbitralnego podziału zabiegów chirurgicznych ze względu na czas trwania. Wydaje się jednak,

Of the risk factors representing 1 point, central venous access and varicose are subject to the greatest controversy [3, 4, 45]. According to the current American College of Chest Physicians (ACCP) recommendations [45], the presence of a central venous catheter is not an indication for routine thromboprophylaxis. The Polish Working Group members have reached a consensus, however, that maintenance of catheters in central veins or the presence of varicose veins slightly increase thromboembolic risk, hence the inclusion of these risk factors in the one-point group. At the same time, the presence of any of the above factors as the only risk factor (yielding a total score of 1) does not constitute a recommendation for thromboprophylaxis, which is in line with the current ACCP recommendations.

None of the risk factors assigned 2 or 3 points arouses controversy.

Repeat surgery as a risk factor assigned 5 points may raise certain doubts. The Polish Working Group members, analysing their own clinical experience and the relatively scarce bibliography [1, 7, 10, 11], have concluded that repeat surgery is a very important factor that increases thromboembolic risk.

The risk factors applicable to women only do not arouse any significant controversy.

While analysing the Polish Working Group's recommendations, it should be emphasised that its members have considered it appropriate to use the recommended drugs in accordance with their approved labels and the manufacturer's recommendations, which are based on phase-III clinical trials. If any indication of a given drug is not approved, this means that no relevant trials have been conducted in this indication, and it is therefore difficult to predict the therapeutic efficacy of the drug in a given clinical setting. It should also be noted that off-label use of a drug or use of the drug against the manufacturer's recommendations may be harmful to the patient and therefore dangerous to the doctor. This applies both to the efficacy and the safety of a given product. It is therefore very important that the surgeon is familiar with the detailed characteristics of the drugs he or she uses.

The recommendation to combine pharmacological with physical methods of thromboprophylaxis in cases associated with the highest thromboembolic risk seems obvious and understandable [1, 19, 20]. It should be noted that the authors of this paper have concluded that combining physical with pharmacological methods increases the effectiveness of thromboprophylaxis.

The recommendations include novel anticoagulants: oral direct inhibitors of factor Xa and factor II [573–583]. In light of the phase III clinical trials, the use

że zastosowana metoda przyporządkowania odpowiedniej punktacji do czasu trwania zabiegu chirurgicznego jest zasadna i ma odzwierciedlenie w doświadczeniu klinicznym członków Polskiej Grupy Roboczej oraz w danych z piśmiennictwa [7–12].

Podobnie dzieje się także z pozostałymi czynnikami ryzyka i ich punktacją [2–22]. Członkowie Polskiej Grupy Roboczej zdają sobie sprawę, że przyjęta punktacja może być kontestowana i może być także źródłem niewielkich kontrowersji. Jednocześnie stanowi ona najprostsze i najszybsze w użyciu narzędzie rzetelnej i powtarzalnej globalnej oceny skali zagrożenia powikłaniami zakrzepowo-zatorowymi. Fakt ten ma duże znaczenie praktyczne. Skalę punktową można wykorzystać w praktyce klinicznej, a także w spornych przypadkach w celach prawnych. Wiadomo, że problematyka stosowania lub częściej niestosowania profilaktyki przeciwzakrzepowej coraz intensywniej pojawia się w różnego typu sprawach sądowych z udziałem lekarzy.

Z grupy czynników ryzyka, którym przyporządkowano 1 punkt, największe kontrowersje budzą cewnik w żyle centralnej i żylaki kończyn dolnych [3, 4, 45]. Według aktualnych zaleceń *American College of Chest Physicians* (ACCP) [45] obecność cewnika w żyle centralnej nie stanowi wskazania do rutynowego stosowania profilaktyki przeciwzakrzepowej. Członkowie Polskiej Grupy Roboczej na drodze konsensusu uznali jednak, że utrzymywanie cewników z żyłach centralnych lub obecność żylaków kończyn dolnych zwiększają nieznacznie ryzyko rozwoju powikłań zakrzepowo-zatorowych, stąd przypisano ich obecności 1 punkt. Fakt wystąpienia któregoś z wymienionych czynników jako jedynego (globalna punktacja 1) nie stanowi jednocześnie według niniejszych rekomendacji wskazania do zastosowania profilaktyki przeciwzakrzepowej, co zgodne jest z aktualnymi zaleceniami ACCP.

Wśród wymienionych czynników ryzyka, którym przypisano 2 i 3 punkty, żaden nie budzi kontrowersji.

Reoperacja jako czynnik ryzyka, któremu przypisano 5 punktów, może budzić pewne wątpliwości. Członkowie Polskiej Grupy Roboczej, analizując własne doświadczenie kliniczne oraz stosunkowo skąpe dane z piśmiennictwa [1, 7, 10, 11], uznali reoperację za bardzo istotny czynnik zwiększający ryzyko wystąpienia powikłań zakrzepowo-zatorowych.

Czynniki ryzyka stwierdzane jedynie u kobiet nie budzą większych kontrowersji.

Analizując rekomendacje Polskiej Grupy Roboczej, warto podkreślić, że jej członkowie uznali za właściwe stosowanie leków zgodnie z rejestracją i zaleceniami producenta, które opierają się na przeprowadzonych badaniach klinicznych trzeciej fazy. Jeśli któryś z leków

of these products in line with the approved indications arouses no controversy. However, due to their price, the use of rivaroxaban or dabigatran in Poland is very limited.

It is obvious that despite the advent of effective novel anticoagulants (the considerable cost of which discourages doctors from prescribing them), LMWHs remain the principal agents used in thromboprophylaxis in surgery. It is therefore very important that the surgeon is familiar with their clinical characteristics. This information can be found, for instance, on www.thrombosis.pl.

Of note is the fact that the Polish Working Group experts recommend that prolongation of primary thromboprophylaxis be considered in selected patients until 28 days post-discharge with the use of once-daily subcutaneous LMWH, in patients following surgery for cancer or following a surgical procedure associated with a high risk of VTE, unless it is associated with an unacceptably high risk of haemorrhagic complications. This recommendation is based on the results of clinical trials in oncological and general surgery.

Again, it is noteworthy that the Polish Working Group members do not recommend the use of acetylsalicylic acid or other antiplatelet drugs in the prevention of VTE.

The Polish Working Group experts hope that the presented scoring system will be a simple tool that will be commonly used in clinical practice by Polish practitioners. In order to simplify and facilitate the use of the scoring system, the development of an electronic version, including one for mobile phones, has been planned. The authors hope that this electronic application for the scoring system will reduce the number of mistakes and errors, which unfortunately are so common in Polish hospitals [43, 44].

The members of the Polish Working Group would like to emphasise that the proposed update of the scoring system originally developed by Joseph Caprini has not been verified in clinical practice, so it should only serve as a guide rather than being obligatory for practitioners in the assessment of VTE risk.

Members of the Polish Working Group

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nie jest zarejestrowany w danym wskazaniu, oznacza to, że nie wykonano odnośnych badań klinicznych dotyczących tego wskazania i trudno przewidzieć, jaka będzie skuteczność terapeutyczna danego leku w konkretnej sytuacji klinicznej. Warto podkreślić, że zastosowanie danego preparatu niezgodnie z rejestracją czy zaleceniami producenta może być groźne dla pacjenta, a tym samym dla lekarza. Dotyczy to zarówno skuteczności, jak i bezpieczeństwa danego preparatu. Dlatego tak ważna jest znajomość szczegółowej charakterystyki poszczególnych leków wchodzących w skład armamentarium chirurga.

Wydaje się oczywiste i zrozumiałe rekomendowanie łączenia metod farmakologicznych i fizykalnych profilaktyki przeciwzakrzepowej w przypadkach największego zagrożenia powikłaniami zakrzepowo-zatorowymi [1, 19, 20]. Warto podkreślić, że autorzy artykułu uznali, że takie postępowanie zwiększa efektywność profilaktyki przeciwzakrzepowej.

W rekomendacjach pojawiają się nowe leki przeciwzakrzepowe: doustne bezpośrednie inhibitory aktywnego czynnika X i czynnika II [573–583]. W świetle przeprowadzonych badań klinicznych trzeciej fazy stosowanie wymienionych preparatów zgodnie z zarejestrowanymi wskazaniami nie budzi kontrowersji. Jednak ze względu na cenę szerokie zastosowanie kliniczne rywaroksabanu czy dabigatranu w Polsce jest bardzo ograniczone.

Jest oczywiste, że obecnie pomimo pojawienia się efektywnych, nowych leków przeciwzakrzepowych (zbyt wysoka cena zniechęca do ich zalecania) podstawowymi preparatami stosowanymi w profilaktyce przeciwzakrzepowej w dyscyplinach zabiegowych pozostają w Polsce heparyny drobnocząsteczkowe. Dlatego tak ważna jest dla lekarza praktyka znajomość ich charakterystyki klinicznej. Można ją znaleźć między innymi na stronach internetowych www.thrombosis.pl.

Warto podkreślić, że eksperci Polskiej Grupy Roboczej rekomendują rozważenie przedłużenia do 28 dni pierwotnej profilaktyki przeciwzakrzepowej u wybranych pacjentów po wypisie ze szpitala z zastosowaniem heparyny drobnocząsteczkowej podawanej podskórnie raz na dobę, u pacjentów po zabiegu operacyjnym z powodu nowotworu złośliwego lub zabiegu z zakresu chirurgii wysokiego ryzyka rozwoju żylnej choroby zakrzepowo-zatorowej, o ile nie wiąże się to z niemożliwym do zaakceptowania wysokim ryzykiem powikłań krwotocznych. Rekomendacja ta opiera się na wynikach badań klinicznych z zakresu chirurgii onkologicznej oraz chirurgii ogólnej.

Warto ponownie podkreślić, że członkowie Polskiej Grupy Roboczej w profilaktyce żylnej choroby

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zakrzepowo-zatorowej nie rekomendują stosowania kwasu acetylosalicylowego i innych leków przeciwpłytkowych.

Eksperci Polskiej Grupy Roboczej mają nadzieję, że prezentowana skala punktowa będzie stanowić proste narzędzie stosowane powszechnie w praktyce klinicznej przez polskich lekarzy praktyków. Aby ułatwić i uprościć używanie skali, zaplanowano przygotowanie jej w wersji elektronicznej, możliwej do wykorzystania nawet w telefonach komórkowych. Autorzy mają nadzieję, że tego typu elektroniczna aplikacja skali punktowej zmniejszy liczbę pomyłek i błędów — niestety tak powszechnych w polskich szpitalach [43, 44].

Członkowie Polskiej Grupy Roboczej pragną podkreślić, że proponowanej aktualizacji skali punktowej Josepha Capriniego dotychczas nie sprawdzano w praktyce klinicznej, a zatem stanowi jedynie formę pomocy, a nie zalecenia czy obowiązku stosowania przez lekarzy praktyków w ocenie ryzyka rozwoju żylnej choroby zakrzepowo-zatorowej.

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Skala punktowa dotycząca oceny stopnia zagrożenia rozwojem powikłań zakrzepowo-zatorowych w chirurgii opracowana przez Polską Grupę Roboczą na podstawie skali Josepha Capriniego

Imię i nazwisko pacjenta:

Każdy czynnik to 1 punkt:

- Wiek 41–60 lat — 1 ☐
- Mały zabieg chirurgiczny (trwający krócej niż 60 minut) — 1 ☐
- Duży zabieg chirurgiczny w wywiadzie (w ciągu ostatniego miesiąca) — 1 ☐
- Żylaki kończyn dolnych (C_3–C_6) — 1 ☐
- Choroby zapalne jelit w wywiadzie — 1 ☐
- Obrzęki kończyn dolnych — 1 ☐
- Otyłość (BMI > 30 kg/m^2) — 1 ☐
- Ostry zawał serca (w ciągu ostatniego miesiąca) — 1 ☐
- Zastoinowa niewydolność serca (zaostrzenie w ciągu ostatniego miesiąca) — 1 ☐
- Ciężkie choroby płuc, w tym zapalenie płuc (w ciągu ostatniego miesiąca) — 1 ☐
- Przewlekła obturacyjna choroba płuc (POChP) — 1 ☐
- Obciążenia internistyczne — unieruchomienie w łóżku — 1 ☐
- Unieruchomienie kończyny dolnej w gipsie lub ortezie — 1 ☐
- Cewnik w żyle centralnej — 1 ☐
- Przebyte zapalenie zakrzepowe żył powierzchownych — 1 ☐

Każdy czynnik to 2 punkty:

- Wiek 60–74 lat — 2 ☐
- Duży zabieg chirurgiczny (trwający dłużej niż 60 minut) — 2 ☐
- Zabieg artroskopowy — 2 ☐
- Chirurgia laparoskopowa (zabieg trwający dłużej niż 60 minut) — 2 ☐
- Przebyta choroba nowotworowa — 2 ☐
- Posocznica (w ciągu ostatniego miesiąca) — 2 ☐
- Duża otyłość (BMI > 40 kg/m^2) — 2 ☐
- Trombofilia mniejszego ryzyka (heterozygotyczna postać czynnika V Leiden lub mutacji genu protrombiny, wzrost aktywności czynnika VIII > 150%) — 2 ☐
- Zakrzepica żył głębokich lub zator tętnicy płucnej w wywiadzie rodzinnym — 2 ☐

Każdy czynnik to 3 punkty:

- Wiek powyżej 75 lat — 3 ☐
- Duży zabieg chirurgiczny (trwający dłużej niż 3 godziny) — 3 ☐
- BMI > 50 kg/m^2 — 3 ☐
- Przebyta zakrzepica żył głębokich lub zator tętnicy płucnej — 3 ☐
- Trombofilia większego ryzyka (homozygotyczna postać czynnika V Leiden lub mutacji 20210A genu protrombiny, niedobór AT, białka C, białka S, obecność przeciwciał antyfosfolipidowych) — 3 ☐
- Trombofilia złożona (współistnienie genetycznie uwarunkowanych defektów) — 3 ☐
- Małopłytkowość indukowana heparyną (HIT) — 3 ☐

Każdy czynnik to 5 punktów:

- Protezoplastyka dużych stawów kończyn dolnych — 5 ☐
- Złamanie biodra, miednicy lub kończyny dolnej (w ciągu ostatniego miesiąca) — 5 ☐
- Udar niedokrwienny mózgu (w ciągu ostatniego miesiąca) — 5 ☐
- Uraz wielonarządowy (w ciągu ostatniego miesiąca) — 5 ☐
- Ostry uraz rdzenia kręgowego z porażeniem (w ciągu ostatniego miesiąca) — 5 ☐
- Zakrzepica żył głębokich lub zator tętnicy płucnej w trakcie leczenia — 5 ☐
- Reoperacja — 5 ☐
- Zabieg chirurgiczny u chorego z aktywną chorobą nowotworową — 5 ☐

Czynniki ryzyka, które należy uwzględnić u kobiet.
Każdy czynnik to 1 punkt:

W wywiadzie:

- wewnątrzmaciczne obumarcie płodu — 1 ☐
- poronienia nawykowe (> 3) — 1 ☐
- przedwczesny poród z nadciśnieniem indukowanym ciążą — 1 ☐
- wewnątrzmaciczne zahamowanie wzrostu płodu — 1 ☐

Każdy czynnik to 2 punkty:

- Antykoncepcja hormonalna lub hormonalna terapia zastępcza (HTZ) — 2 ☐
- Ciąża lub połóg (do 6 tygodni) — 2 ☐

Ocena ryzyka rozwoju powikłań zakrzepowo-zatorowych

0–1 punktów: małe ryzyko
Rekomendacje: wczesne uruchomienie chorego

2 punkty: umiarkowane ryzyko
Rekomendacje: zastosowanie profilaktyki farmakologicznej zgodnie ze wskazaniem i zaleceniem producenta

3 punkty: duże ryzyko
Rekomendacje: zastosowanie profilaktyki farmakologicznej zgodnie z zaleceniem producenta. W razie stwierdzenia przeciwwskazań do profilaktyki farmakologicznej zaleca się stosowanie profilaktyki metodami fizykalnymi

≥ 4 punktów
Rekomendacje: łączenie profilaktyki farmakologicznej i przerywanego pneumatycznego ucisku kończyn dolnych

Punktacja i przyporządkowanie uzyskanej sumy do grupy ryzyka oraz rekomendacje Polskiej Grupy Roboczej

W każdym przypadku przed zastosowaniem profilaktyki przeciwzakrzepowej należy przeanalizować ewentualne przeciwwskazania. W przypadku przeciwwskazań do profilaktyki z wykorzystaniem metod farmakologicznych zaleca się stosowanie metod fizykalnych.

Rekomenduje się rozważenie przedłużenia do 28 dni pierwotnej profilaktyki przeciwzakrzepowej z zastosowaniem heparyny drobnocząsteczkowej podawanej podskórnie 1 raz na dobę u wybranych pacjentów po wypisie ze szpitala oraz u chorych po zabiegu operacyjnym z powodu nowotworu złośliwego lub zabiegu z zakresu chirurgii wysokiego ryzyka żylnej choroby zakrzepowo-zatorowej, o ile nie wiąże się to z nieakceptowalnie wysokim ryzykiem powikłań krwotocznych.

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Uwaga! Literatura przedmiotu znajduje się w artykule *Skala punktowa opracowana przez Polską Grupę Roboczą na podstawie skali Josepha Capriniego dotycząca oceny stopnia zagrożenia rozwoju powikłań zakrzepowo-zatorowych w chirurgii*, Acta Angiologica 2011; 17: 49–74.