end of December 2000 (each patient had made measurement once or two or three times). Semiconductor detectors (with DPD 510 by Scanditronix) were used during *in-vivo* dosimetry. Doses were calculated and measured in (1) the centre of the irradiation field; (2) supraclavicular region; (3) mediastinum; (4) lower edge of the field and (5) neck. Patients were irradiated at various accelerators, most of them at Neptun with photons 9 MeV.

Results: All patients were divided into three groups. The criterion of inclusion was the per cent difference between calculated and measured doses average for all dosimetrical points. The ranges for the groups were: 0-5%, 5-10% and over 10 %. The mean per cent differences in the first group of 43 patients was 3.1%, in second of 27 patients – 6.3%, and in third of 6 patients - 17.6% respectively. There was no clear reason, beside an accidental error why for the certain patient difference was much larger than for the another. Mean difference for all groups was equal to 5.3%.

In the table mean per cent differences between doses calculated and measured and their standard deviations (SD) in the whole group of patients are shown for central axis, mediastinum and supraclavicular region.

central axis		mediastinum		supraclavicular region	
Mean diff.	SD	Mean diff.	SD	Mean diff.	SD
1.5%	4.1%	-0.3%	4.6%	2.0%	5.7%

Conclusion: Mean difference in the whole group of patients shows good agreement between pre-calculated and measured doses, especially for three clinically important regions (table). It is accompanied by low standard deviation which is an indicator of small deviations between doses inside the whole group.

6.
THE TECHNIQUE OF TOTAL BODY IRRADIATION APPLIED IN THE ST. LESZCZYŃSKI MEMORIAL HOSPITAL IN KATOWICE

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At the St. Leszczyński Memorial Hospital in Katowice a modification of *TBI* technique was prepared. For this a special two variant of body frame - one for treatment planning and an another one for treatment delivery - was made. The total dose of 12 - 15 Gy (in lung not more than 9 Gy) was delivered in six fraction of 15 MV photons, produced in Primus linear accelerator, for 3 consecutive days. Patient was treated by a combination of fields: lateral - set at *SSD* of 330 cm and *AP/PA* - set at 135 cm. The dose-rate measured at 10 cm in a water phantom for lateral fields was 4,3 cGy/min., and for *AP/PA* fields 23,6 cGy/min. Lung shields were made from wood alloy and their shape was carried out from computerized tomograph scans (*CT*). For each patient a set of computerized tomograph scans was prepared. Patient during the *CT* was laying in supine position in the body frame made of 1 cm thick plexi plates. On the walls of that body frame a special marks of tin material were inserted. These marks allow to reproduce both - the same patient position during the irradiation and also in the treatment planning system *HELAX.* Position of shields before *AP/PA* fraction was determined by means of *HELAX,* and then shields were fastened to plexi trays inserted in the head of Primus. Lung was also shielded during one lateral fraction and the shape of the shield was carried out on a simulator. The volume between the patient and walls of the body frame was fulfilled by bolus (bags with rice) to get a homogenous dose distribution. The electron boost to the thorax wall (shielded for 15 MV photons) was delivered with a 6 or 9 MeV electron beam.

The percentage deviation of dose, for all 9 irradiated patients, calculated at ten anatomical points representative of the body anatomy, was in the limit -0,4% to +13% (excluded in lung) from the dose delivered to *PC* (reference point: 1/2 *AP* and 1/2 lateral dimension at 1/2 of patient length in irradiation position). The *in vivo* measurements carried out by means of MOSFET detectors confirmed that accuracy.

7.
IMRT – NEW STANDARDS IN TREATMENT PLANNING

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Technological advances in medical imaging have prompted accelerator manufactures to produce more and more advanced treatment delivery systems capable to precise shape the dole distribution.