314.
HOW THE IMPLEMENTATION OF AN IN-VIVO DOSIMETRY PROTOCOL IMPROVED THE DOSE DELIVERY ACCURACY IN RADIOTHERAPY?

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The aim of this study was to check if the implementation of the institutional in-vivo dosimetry protocol improved the accuracy of the dose delivery in Radiotherapy.

Material and Methods. The dose evaluation was performed for the two groups of patients. First group consisted 812 patients treated from January 1st until June 30th, 2001. Composition of targets was: head and neck – 285 patients, breast - 138, gynaecology – 251 and the lung - 26. The second group consisted 1571 patients irradiated from February 1st, 2002 and included respectively: head and neck - 407, breast - 309, gynaecology – 681 and the lung – 309. Doses were calculated with the use of the Cadplan planning system and measured with semiconductor detectors: PTW Freiberg for photons 6-12 MV, Sun Nuclear Insured for photons 1-4 MV and 15-20 MV. The detectors were placed in a central axis at the entry. The institutional protocol implemented during the period between two evaluated groups of patients required that doses had to be measured during the first week of the treatment. The next measurement was performed in the middle of the radiotherapy course. Additional dose checks were done after any modification of the fields and on the request of the clinician or physicist. All fields were measured excluding the certain specific procedures. Measured doses were recalculated to the reference ICRU point using standard formulas. The following parameters were evaluated: N – the mean number of dose checks per patients, mean difference (in the groups) between measured Dm and calculated Dc doses: R=(Dm-Dc)/Dc*100% and SD – standard deviation (for one measurement).

Results. N= 4.9 vs. 6.0 (for the Ist vs. IInd group). The Mean R was respectively: -1.5% vs. -0.5% for head and neck; 3.4% vs. 2.2% for breast; 3.4% vs. 2.2% for gynaecology and -2.1% vs. 2.5% for the lung. The SD was respectively: 6.1% vs. 5.6% for head and neck; 5.8% vs. 5.4% for breast; 7.4% vs. 6.8% for gynaecology and 6.9% vs. 9.0% for the lung. The Shapiro-Wilk and Kolmogorov-Smirnov tests shoved for not normal distributions. Kolmogorov-Smirnov and Mann-Whitney U tests detected a significant difference between Ist and the IInd groups on the p=0.005 for head and neck, gynaecology and the lung while only at p=0.05 for the breast respectively.

Conclusions. The implementation of the institutional in-vivo dosimetry protocol increased significantly the compliance between measured and calculated doses excluding for the lung region.

315.
OCENA WŁAŚCIWOŚCI DETEKTORÓW PÓŁPRZEWODNIKOWYCH STOSOWANYCH DO DOZYMETRII IN VIVO W ZAKRESIE CHARAKTERYSTYK KĄTOWYCH

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Cel pracy: Stosowane w dozymetrii in vivo detektory półprzewodnikowe charakteryzują się szeregiem właściwości istotnych podczas pomiarów dawki. Poszczególne charakterystyki należy zbadać i uwzględniać przy pomiarach, np. poprzez współczynniki korekcyjne. W praktyce wiąże się to z badaniem właściwości detektorów w szerokim zakresie parametrów. Dlatego zachodzi pytanie: czy wszystkie detektory danego typu posiadają podobne właściwości i czy wobec tego wystarczy przebadać jeden z nich, czy też każdy detektor należy traktować indywidualnie określając jego charakterystyki? Celem tej pracy jest analiza grupy detektorów z punktu widzenia ich charakterystyk kątowych.

Materiał i metodyka: Zbadano detektory półprzewodnikowe typu EDP-20 i EDP-30 firmy Scanditronix używając przyspieszacza liniowego Clinac 2300 firmy