Original research article

**Dose distribution homogeneity in two TBI techniques—Analysis of 208 irradiated patients conducted in Stanislaw Leszczynski Memorial Hospital, Katowice**

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**Abstract**

**Background**

To analyze and compare dose distribution homogeneity in selected points (especially in the chest wall region) for patients irradiated with two different TBI techniques to achieve a uniform total dose (excluding lungs area) specified in the range of 11.4–14.0 Gy.

**Material and methods**

From August 2000 to December 2009, a group of 158 patients was treated by the use of 15 MV photon irradiation consisting of six fractions: four opposed lateral and two anterior–posterior/posterior–anterior (AP/PA). Patients were irradiated with the fraction dose of 2 Gy twice a day for 3 consecutive days. The prescribed dose to PC point (specified at intersection of the beam axis with the mid-plane of the patient irradiated laterally) was 12 Gy. Since January 2010 until closing the study, another group of 50 patients was treated according to a modified protocol. The treatment was carried out in six lateral fractions only, twice a day, for three following days and a lateral lung shield was used for a part of total irradiation time. The measurements of doses in 20 selected points of patient's body were carried out by means of MOSFET detectors.

**Results**

The modified TBI technique allows to achieve an expected homogenous dose in the points of interest similar to that obtained by using the initial protocol. The calculated and measured in vivo doses met the specified range of 11.4–14 Gy for both applied TBI protocols.

**Conclusions**

Our results indicate that for all patients the homogenous dose distribution in the specified range was achieved.

**Keywords**

TBI; MOSFET dosimetry; Dose homogeneity; VMAT