

AbstractID: 11809 Title: Field in filed technique for total body irradiation

Purpose: To evaluate a technique for total body irradiation (TBI) developed and adopted in our institution.

Method and Materials: This technique has left and right lateral opposing field. The patient lies on the couch made by Stylofoam with legs semi-collapsed. The arms are folded and positioned on the chest. Three types of fields are used for this technique, one whole body open field and 2 subfields. One subfield covers from chest to pelvis, and another subfield covers pelvis part. MLCs are only used for the former subfield to cover lung. The source to axis distance (SAD) is set to be 470 cm. The dose rate at the 470 cm SAD of three locations (head, abdomen, and pelvis) had measured directly by Farmer chamber with varying the thickness of solid water in advance. These measurements were performed for the following three reference points in the body, head, abdomen, and pelvis. This procedure enables us to calculate the value of cGy/MU at 470 cm SAD with any depth beforehand. We have implemented this technique to two patients. Both are prescribed 3Gy x 4 fx (BID) = 12 Gy. To evaluate the dose uniformity and to crosscheck the MU number calculated by the above method, Eclipse Ver. 6.5 with AAA 7.5.18 was used to calculate the dose distribution in the patient body.

Results: Average dose at the midline was 11.99 ± 0.84 Gy, error shows 1 standard deviation. The MU difference between MU calculation and Eclipse was less than 4 %. Both cases has mean lung dose of 20% less than the prescription.

Conclusion: It was found that reliable MU and acceptable dose distribution is able to be achieved without any special TBI devices or techniques, such as compensators on the gantry head or couch movement.