

AbstractID: 1166 Title: Clinical implementation of Total Skin Electron Therapy using 16-field technique

Clinical implementation of total skin electron beam therapy using 16-field technique with plastic-degraded 6 MeV electron beam was presented. A rotational platform was employed to allow patient in standing position toward and away from the beam with four platform angles at two complementary gantry angles of field size $36 \times 36 \text{ cm}^2$ (FigA). The setup was optimized for room space, dose distributions in both vertical and lateral directions, and a reasonable 1-hour for treatment delivery time. Comprehensive beam dosimetry, including Bremsstrahlung radiation, was explored. Dose calibration of the system is performed at gantry 0° and SSD=100 cm. MU calculations for prescribed dose at the patient's reference point were made using the dose ratios as measured at SSD=361 cm and the calibrated at SSD=100 cm, corrected for patient's AP/PA separation. To further compensate the dose at the some obese patients, the optimized gantry angles of 64.5° and 113° were varied $\pm 5^\circ$, respectively, resulted in vertical distributions shown in FigB. The absolute dose distribution of the system was verified with both TLD and Kodak EDR2 films using an Assembled Phantom (FigC). We found the absolute doses over the skin in agreement within $\pm 5\%$, and dose distribution, except for inner surfaces of the limbs, has homogeneity $\pm 8.7\%$. We also have developed a TSET dose model to quantify the 16-field irradiation doses on the skin surface (FigD). Dose verified using 15 TLD's was in agreement with the model predictions within $\pm 6\%$. Supplementary boost to the vertex, shoulder, arms, and feet will be discussed.