AbstractID: 9013 Title: Implementation of Total Skin Electron Irradiation (TSEI) using High Dose Rate Mode at Siriraj Hospital

Purpose: To implement and commissioning of applied Stanford total skin electron irradiation (TSEI) technique using standard linear accelerator at our institute.
Methods and Materials: Patient was treated in six different upright patient positions using dual angle fields. This study was carried out on Varian 23EX linear accelerator with 6 MeV, 36x36 cm^2 field size at collimator in HDTSe mode at a SSD of 400 cm behind a beam degrader. The dosimetric characteristics were verified experimentally using a parallel plate ion chamber, electron diodes, and TLD-100 chip and rod types. The delivered dose is 36 Gy in 9 weeks. The basic dosimetric parameter consists of beam profile, depth dose curve and electron beam output in the treatment plane. The output and depth dose curve was measured by PTW23343 Markus chamber in solid phantom. Delivered dose from six dual fields technique in treatment position was verified on round phantom by TLD-100.
Results: The uniform vertical profile was obtained for gantry angulations of $\pm$ 17.5 degree above and below horizontal within 10% of the prescribed dose. The depth dose curve shows maximum dose at skin surface. The mean energy is 2.09 MeV with beam degrader 1 cm thick. The dose uniformity from six dual fields on round phantom is within 10%. The average measured skin dose in the anterior and posterior at the level of head, chest and pelvis on rando phantom is within 10% of prescribed point. Total X-ray contamination in the rando phantom is about 1.35% of the delivered dose.
Conclusion: The TSEI technique using six dual fields applied Stanford technique produced a uniformity at the whole patient's surface cannot be better than 15% of the prescribed dose because of variable skin distance, self-shielding, and differences in curvature.