

**AbstractID: 1489 Title: Comparison between depth dose penetration and dose profile variation for 6 and 9MeV total skin electron arc therapy**

Total skin electron therapy (TSET) has been used for many years in the treatment of superficial skin cancer like mycosis fungoides. Different treatment modalities have been described in the literature to obtain the large electron fields required. Gerbi et.al.<sup>1</sup> has published a six dual-fields technique using two symmetric 6MeV electron arc beams while the patient lies in a reclined position.

Field flatness, on the patient's skin, and depth dose are critical physical considerations involved in the TSET technique. Electron arc therapy achieves a uniform skin surface dose, variation around 5%, for a single field up to 250cm. However, depth dose penetration has a large variation along the length of the patient, caused by the oblique incidence of the beam. The difference in depth dose along the patient must be considered to select the adequate beam energy to cover the skin disease and avoid local recurrence, even for patients without tumor nodules.

We compared total skin electron therapy using 6 and 9MeV electron arcs implemented on a Varian 2300C/D. Measurements were done with a parallel plate ion chamber and film dosimetry in a flat solid water phantom and a 30cm diameter cylindrical phantom. Comparison between both energies was done analyzing: absolute dose, surface dose profiles, electron arc angle, oblique factors, depth dose distribution for single and total field at the center of the electron arc and at the junction point. In vivo dosimetry using diodes was implemented.

<sup>1</sup>Gerbi, et.al. Int. J. Radiat. Oncol., Biol, Phys. Vol. 17, pp. 397-404(1989).