

AbstractID: 1709 Title: Duplicating a Tandem and Ovoids Dose Distribution with IMRT: a Feasibility Study

Brachytherapy, which plays an important role in the treatment of cervical cancers, is not available at all centers. In the present study, we have investigated whether we can achieve identical pear shaped distribution with similar sharp dose falloff using a sliding-window IMRT. The CT scans of a tandem and ovoid patient were pushed to HDR as well as IMRT TPS after drawing the target, rectum and bladder. This ensured identical structures in both planning systems. A conventional plan (7Gy * 5 fractions) was generated for the HDR. The 150, 125, 100, 75, 50 and 25% isodose curves were drawn on each slice and then transferred to IMRT TPS. A 7-field IMRT plan using 6 MV x-ray beams was generated and compared with the HDR plan using isodose conformity to the target & 125% volume, DVHs and integral dose. The resultant isodose distribution demonstrated good agreement between the HDR and IMRT plans in the 100 & 125% isodose range. Though the dose fall off in the HDR plan was much steeper, it also had the maximum dose substantially higher. IMRT provided uniform coverage to the target. Integral dose for the HDR and IMRT plan for the target, rectum and bladder were found to be 6.69, 1.07 and 1.02 J for HDR while the respective values for IMRT were 3.47, 1.79 and 1.34. Our preliminary results indicate that it is possible to replicate the HDR distribution using a standard IMRT. Radiobiological and patient positioning differences between both the techniques merit further consideration.