AbstractID: 10616 Title: Validation of a Conversion Method of Low Dose Rate to Pulsed Dose Rate Intracavitary Brachytherapy Prescription for the Treatment of Cervical Carcinoma

Purpose: To report on a retrospective clinical dosimetry analysis of the conversion of the low-dose rate (LDR) to pulsed dose rate (PDR) intracavitary brachytherapy (ICBT). **Methods and Materials**: A tool was developed that converts an LDR prescription to PDR. This method incorporates the differences between LDR (^{137}Cs) and PDR (^{192}Ir) radial dose functions and includes perturbation factors of the different ICBT applicators as derived from MCNP Monte Carlo simulations. Absolute dwell time per PDR source position is calculated and entered into the Nucletron Plato TPS. A cohort of 67 LDR patients was randomly selected from our clinical GYN database. Plans were generated with Varian BrachyVision v6.5 for Selectron ^{137}Cs LDR sources, and with Nucletron Plato v14.1 for the ^{192}Ir PDR source. Doses were compared at the ICRU 38 patient points: Bladder, Rectum, A right and left, B right and left, 3 o'clock and 9 o'clock. A 5% difference between LDR and PDR doses at these points was considered significant. **Results**: In every case, the difference in dose between the ^{137}Cs LDR plan and the ^{192}Ir PDR plan was less than 5%. In addition, the differences in dose appeared to be randomly distributed about zero, implying that there was no systematic difference in the LDR and PDR dose points. **Conclusions**: A transfer method of our traditional LDR clinical program to PDR was validated. This insures our history with ICBT LDR experience is consistent for future ICBT patients undergoing PDR treatments.