Abstract ID: 15774 Title: Is the Bladder Foley Point Dose Still an Effective Dose Factor for Three-Dimensional Image-Based Vaginal Brachytherapy?

Purpose: To evaluate the use of the bladder foley point dose as an effective factor for 3D image-based vaginal brachytherapy.

Methods: Twenty-one endometrial cancer patients who received postoperative intracavitary vaginal brachytherapy were included in this study (69 fractions). The radiation was delivered through a segmented cylinder applicator with a high dose rate (HDR) afterloader. The prescription dose was either 550 cGy or 700 cGy to a reference line which was 0.5 cm from the applicator surface. The posterior aspect of the foley balloon was identified as the bladder dose point. The bladder was contoured by a radiation oncologist. Two dose-volume histograms (DVH) were collected for each fraction: 1) absolute bladder volume vs relative dose (% of prescription dose) and 2) relative bladder volume (% of bladder volume) vs relative dose. D2cc (the dose received by 2 cc bladder), D1cc, D0.1cc, and D50% (the dose received by 50% of bladder volume) were collected for each fraction, and the correlation coefficients were calculated between the bladder point dose and these dose factors. The correlation coefficients were also calculated between the bladder point dose and the DVH. The statistical significance of each correlation was determined with statistical significance identified as p-value < 0.05.

Results:: There were significant linear correlations between the bladder point dose and the DVH metrics, between V14% and V68% (p-value <0.05). Additionally, there were significant linear correlations between bladder point dose and D50%, D2cc, D1cc, and D0.1cc, with p-values < 0.001.

Conclusions: : In this study, there were a significant linear correlations between the bladder point dose and the bladder DVH, D50%, D2cc, D1cc, and D0.1cc. Subsequently, the bladder point dose remains an effective factor for 3D image-based vaginal brachytherapy.