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More Space More Dose: Dose Report of the First Patients With Intermediate and High Risk Prostate Cancer Treated in Cologne With Spaceoar Hydrogel Before Hdr-brachytherapy Boost And External Beam IMRT

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Abstract : Purpose/Objective(s):

The aim of this study was to evaluate the impact of a spacer between prostate and anterior rectal wall on dose distribution of a combined HDR-Boost and External Beam IMRT (EB-IMRT) radiotherapy, especially in terms of dose escalation for patients with unfavorable prostate cancer and identified small rectum/prostate distance ($\leq 5\text{mm}$).

Materials/Methods:

Between November 2011 and Februar 2012 6 Patients with intermediate and high risk cancer (Gleason Score $\geq 7\text{b}$ and/or iPSA ≥ 10 and/or both gland lobes) underwent external Beam IMRT (55,6 Gy) followed by HDR-Brachytherapy-Boost (3 x 8 Gy). The hydrogel was perennially injected between rectum and prostate. Distance between anterior rectal wall and prostate was measured before and after injection. Simultaneously the patients recieved three GOLD Marker Seeds for image guided radiotherapy (IGRT). Treatment planning for IMRT external Beam RT was performed with Eclipse inverse planning modul, for HDR-Brachytherapy-Boost with real time modul OncentraProstate.

Results:

The space between rectum and prostate was increased an average of 11.36mm at base, 13.16mm at mid gland and 10.42mm at the apex. The rectum dose was decreased an average of 42% for the EB-IMRT and the D10 rectum (Dose which was given to 10% of the rectum volume) of HDR-Brachytherapy was reduced from an average of 8,67 Gy to 2,97 Gy with an additional increase (3mm) of the periprostatic margin at the dorsal prostate capsula (100% isodose). The toxicity during the whole treatment was very low, particularly the GI acut toxicity. No patient showed more than grade 1 (WHO) toxicity.

Conclusions:

The use of SpaceOar Hydrogel is an easy and safe way to reduce the rectal dose under HDR-Brachytherapy especially for patients with a small rectum/prostate distance and a intermediate/high risk prostate cancer.