Purpose or Objective: Radiotherapy (RT) is one of the most important curative options for treating localized prostate cancer (PC). At low α/β ratio of prostate tumors, HDR-brachytherapy (HDR-BT) represents a way to perform an absolute and radiobiological dose escalation. When using 3-D real-time planning systems it is possible to optimize treatment plans generating dose distributions with an integrated boost (SIB) to peripheral zone (PZ) without substantially increasing the dose to the organs at risk (OAR), especially the urethra.

Aim: to analyze the dosimetric parameters (DP) and the acute toxicity of 30 consecutive patients (pts) treated with HDR-BT monotherapy.

Material and Methods: From January 2014 to September 2015, 20 pts with intermediate/high risk PC were treated with combined external beam RT (EBRT 50 Gy/25 f) and HDR-BT (2 x 9 Gy in the 2nd and 4th week of the EBRT). In the same period, 10 pts with low risk PC were treated with HDR-BT monotherapy (3 x 11.5 Gy, every 2nd week). In all implants a SIB of 20% (EBRT+HDR-BT) or 15% (HDR-BT monotherapy) to peripheral zone (PZ) was planned. Equivalent dose at 2 Gy / fraction especially the urethra.

Table 1. Dose distribution parameters

<table>
<thead>
<tr>
<th>Dose distribution parameter</th>
<th>Medium</th>
<th>SDQ (Q)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D90 (Gy)</td>
<td>11.8</td>
<td>0.4</td>
</tr>
<tr>
<td>D100 (Gy)</td>
<td>14.0</td>
<td>0.3</td>
</tr>
<tr>
<td>V100 (Gy)</td>
<td>217.1</td>
<td>3.6</td>
</tr>
<tr>
<td>V300 (Gy)</td>
<td>278.8</td>
<td>11.2</td>
</tr>
<tr>
<td>V350 (Gy)</td>
<td>371.8</td>
<td>23.2</td>
</tr>
<tr>
<td>V400 (Gy)</td>
<td>490.0</td>
<td>32.9</td>
</tr>
<tr>
<td>Combined HDR+EBRT (n=20 pts, 30 implants)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: HDR-BT with SIB to the PZ is feasible in both combined and monotherapy settings. Acute toxicity was mild. Local control and late toxicity profile should be investigated prospectively.

PO-0977 Ten year patient reported Quality of Life following I-125 prostate brachytherapy monotherapy

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PO-0978 Image-guided impact on the brachytherapy prostate treatment quality.

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PO-0979 Image-guided prostate brachytherapy: 3-D planned simultaneous integrated boost to the peripheral zone

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Purpose or Objective: This prospective longitudinal study quantifies patient-reported Quality of Life (QoL) pre-treatment and up to ten years following permanent I-125 prostate brachytherapy delivered as monotherapy in a single institution.

Material and Methods: 120 patients were asked to complete the Expanded Prostate Cancer Index Composite (EPIC) questionnaire, a comprehensive validated QoL tool designed to evaluate patient function and bother after prostate cancer treatment. Men completed the EPIC questionnaire before brachytherapy and at 8 time points after treatment (6 weeks; 6, 10 and 18 months; 2, 3, 5, and 10 years). At each time point clinically relevant small, moderate and severe declines in QoL were defined as 0.2-0.5 times SD, 0.5-0.8 times SD and > 0.8 times SD of baseline function for each of urinary, bowel and sexual domains respectively.

Results: Response rates in the first two years were >90% but thereafter dropped to 75% at 5 years and 48% at 10 years. 50 patients (41.6%) responded at all stages. Maximal deterioration in mean urinary and sexual summary scores was noted 6 weeks after implant with severe urinary symptoms and moderate bowel/sexual symptoms at that point. At 6 months urinary and bowel QoL had improved to mild impairment which then fully resolved by 10 months. Sexual QoL remained mildly impaired throughout the 10 years. At 10 years new mild impairment of urinary and bowel QoL was also found.

Conclusion: Clinically mild changes in urinary, bowel and sexual QoL are found 10 years after I-125 monotherapy. The impairment in sexual function persists from treatment but urinary and bowel symptoms are new at 10 years and may be either a late effect of brachytherapy or due to increasing age.