Salvage High-Dose-Rate Interventional Radiotherapy (Brachytherapy) For Locally Relapsed prostate cancer After Radical Prostatectomy and Subsequent External Irradiation

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What was your motivation for initiating this study?

Interventional radiotherapy (HDR-IRT, brachytherapy) is a fundamental aspect of treating primary prostate cancer, as well as radio-recurrent prostate cancer. However, its application in salvage scenarios following radical prostatectomy and prior irradiation has received limited attention. These cases are relatively uncommon, often managed similarly to metastatic patients with systemic palliative hormonal treatments.

At our institute, we have offered HDR-IRT to such patients, aiming to furnish a second (or third) opportunity for a curative local treatment option. Our main interest was to investigate the treatment's efficacy and safety. This study has the potential to pave the way for more comprehensive analyses. This would not only be beneficial for prostate cancer patients but also expand the clinical application of brachytherapy.

What were the main challenges during the work?

A prominent challenge in our study was the relatively modest sample size (ten patients), spread over an extended timeframe (a decade). Nevertheless, we meticulously monitored the individual clinical courses to secure accurate outcomes.

What are the most important findings of your study?

Among the examined subjects, the median age stood at 63 years. Each participant had previously received external beam radiotherapy delivering an average dose of 60Gy and underwent two ultrasound-guided HDR-IRT fractions, delivering a total dose of 30Gy. Median follow-up period was 34 months. Within six months, post HDR-IRT, the PSA nadir was achieved with a median value of 0.2 ng/ml. Biochemical failure-free survival rates at one, three, and four years were 80%, 60%, and 60%, respectively. Only three patients exhibited progressive local relapse. Treatment-related side effects were mild, Significant late genitourinary complications (grade 3) were observed in only two patients.

What are the implications of this research?

The study's outcomes underscore the viability of HDR-IRT as an effective treatment option for prostate cancer patients with confirmed, isolated macroscopic local relapse post prostatectomy and previous external beam irradiation, having acceptable levels of toxicity,. Therefore, our intention is to collaborate with other institutions to establish a collective database of such patients to study their clinical characteristics and to compare the safety and efficacy of different treatment options. As healthcare professionals, it is our duty to offer evidence-based information, ensuring that our patients have the most effective and safe treatment in the era of personalized medicine.

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