

## Hypofractionation versus conventionally fractionated radiotherapy for low-intermediate risk prostate cancer: clinical and economic evaluation in real-life setting.

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## Abstract

**Purpose:** Hypofractionated radiotherapy (HypoRT) has the potential to improve the therapeutic ratio and to reduce the costs associated with radiotherapy compared to conventionally fractionated radiotherapy (ConvRT) in patients with prostate cancer. The objective of this study was to evaluate clinical outcomes and compare cost of HypoRT (3 Gy/fraction in 4 weeks) versus ConvRT (1.8 to 2 Gy/fraction in 7-8 weeks) regimens. **Materials and Methods:** The cohort consisted of low- and intermediate-risk prostate cancer patients treated from Nov/2002 to Jul/2013. Biochemical failure (BF) was the main clinical outcome and was defined as the nadir PSA level plus 2ng/ml. Kaplan-Meier analyses were performed to estimate the time to clinical outcomes. Cox proportional hazards model, adjusted for covariables, was used to evaluate the association between the clinical outcomes of HypoRT versus ConvRT. **Results:** 340 patients were reviewed: 200 patients received HypoRT, and 140 patients were treated with ConvRT. Overall, BF was less observed in HypoRT patients (90.0%) as compared to ConvRT patients (70.5%) at the eight-year mark ( $p < 0.0001$ ). A significant association was found between type of regimen and BF ( $HR_{Hypo/Conv} = 0.495$ ; 95% CI 0.256-0.996). In a subgroup analysis, a stronger association was found between HypoRT and biochemical control in intermediate risk patients ( $HR = 0.432$ ; 95% CI, 0.204 to 0.915). In addition, the cost estimates for the HypoRT regimen ranged from \$5,718.80 to \$6,254.00; compared to ConvRT, which ranged from \$8,802.70 to \$9,614.40. **Conclusion:** This study highlights the potential therapeutic gains and cost savings of using a HypoRT regimen in patients with low and intermediate risk prostate cancer, versus ConvRT.

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