

The role of radical prostatectomy and radiotherapy in treatment of locally advanced prostate cancer: a systematic review and meta-analysis

ABSTRACT

Background: The role of radical prostatectomy (RP) is still controversial for locally advanced prostate cancer (PC). Radiotherapy (RT) and hormonal therapy (HT) are usually used as a primary treatment.

Material and Methods: A systematic online search was conducted according to Preferred Reporting Items for Systematic Review and Meta-Analysis statement. Eligible publications reporting the overall survival (OS) and/or disease-specific survival (DSS) were included. A total of 14 studies, including 17,869 patients, were considered for analysis. The impact of therapeutic modalities on survival was assessed, with a risk of bias assessment according to the Newcastle Ottawa Scale.

Results: For RP, RT, and HT, the mean 10-year OS was 70.7% (95% CI 61.3-80.2), 65.8% (95% CI 48.1-83.3), and 22.6% (95% CI 4.9-40.3; $p = 0.001$), respectively. The corresponding 10-year DSS was 84.1% (95% CI 75.1-93.2), 89.4% (95% CI 70.1-108.6), and 50.4% (95% CI 31.2-69.6; $p = 0.0127$), respectively. Among all treatment combinations, RP displayed significant improvement in OS when included in the treatment ($Z = 4.01$; $p < 0.001$). Adjuvant RT significantly improved DSS ($Z = 2.7$; $p = 0.007$). Combination of RT and HT favored better OS in comparison to monotherapy with RT or HT ($Z = 3.61$; $p < 0.001$).

Conclusion: Improved outcomes in advanced PC were detected for RP plus adjuvant RT vs. RP alone and RT plus adjuvant HT vs. RT alone with comparable survival results between both regimens. RP with adjuvant RT may present the modality of choice when HT is contraindicated.

Keyword: Advanced prostate cancer ; Anti-hormonal therapy; Lymph-node positive; Prostate cancer; Radical prostatectomy; Radiotherapy