ABSTRACT:

Introduction: The ideal outcomes in prostate cancer (PCa) treatment have been described as a "trifecta." This term denotes the desired triad of oncologic control, urinary continence, and sexual potency. We sought to determine the probability of achieving these results and the risk factors associated with trifecta failure in men treated with brachytherapy (BT) for localized PCa.

Methods: From 1990 to 2011, 734 men meeting trifecta criteria at baseline were treated with low-dose-rate BT with or without external beam radiation therapy (EBRT) and underwent ≥5 years of follow-up. Included men had clinical stage T1-T2 PCa, International Prostate Symptoms Score (IPSS) ≤7, and good erectile function (EF), defined as Sexual Health Inventory for Men (SHIM) score >17 or Mount Sinai Erectile Function (MSEF) score 2-3. Post-treatment trifecta failure was defined as biochemical recurrence (BCR) by Phoenix criteria (prostate specific antigen (PSA) nadir +2 ng/ml), increase in IPSS ≥7, and good erectile function (EF) decline (SHIM ≤17 or MSEF 0-1). Patients with baseline incontinence or missing data were excluded. Univariate associations were calculated with chi-square and ANOVA. Logistic regression analysis was used to identify factors predictive of trifecta failure at 2 and 5 years post-treatment.

Results: Median follow up was 10 years (range 5-22). Mean age at treatment was 64 years (range 41-83), 66% (297/451) failed to achieve trifecta criteria at 2 years and 68% (250/366) at 5 years. Worsened urinary function was the most common reason for trifecta failure at 2 years (48%) but accounted for just 28% of failure at 5 years. EF decline was the main reason for failure at 5-year (58%) follow-up. Phoenix failure was uncommon (<2%).

On multivariate analysis, age >65 was prognostic for 5-year failure, but not at 2-year. No other clinical or treatment related factors were significant.

Conclusions: Trifecta outcomes were attained in 34% and 32% of patients at 2 and 5-year follow-up with ED accounting for the majority of trifecta failure at 5-year follow up. Cancer control was excellent and treatment related urinary symptoms improved over time, trending back toward baseline with longer follow-up. Age >65 was predictive of long-term trifecta failure. Further work is needed to better risk stratify patients before BT to expect functional outcomes and improve individualization of care.

METHODS:

From 1990 to 2011, 734 men meeting trifecta criteria at baseline were treated with low-dose-rate BT with or without external beam radiation therapy (EBRT) and underwent ≥5 years of follow-up. Included men had clinical stage T1-T2 PCa, International Prostate Symptoms Score (IPSS) ≤7, and good erectile function (EF), defined as Sexual Health Inventory for Men (SHIM) score >17 or Mount Sinai Erectile Function (MSEF) score 2-3. Post-treatment trifecta failure was defined as biochemical recurrence (BCR) by Phoenix criteria (prostate specific antigen (PSA) nadir +2 ng/ml), increase in IPSS ≥7, or EF decline (SHIM ≤17 or MSEF 0-1). Patients with baseline incontinence or missing data were excluded. Univariate associations were calculated with chi-square and ANOVA. Logistic regression analysis was used to identify factors predictive of trifecta failure at 2 and 5 years post-treatment.

RESULTS:

Seven-hundred and thirty-four men met inclusion criteria. Median follow up was 10 years (range 5-22). Mean age at treatment was 64 years (range 41-83). Sixty-six percent (297/451) failed to achieve trifecta criteria at 2 years and 68% (250/366) at 5 years. Worsened urinary function was the most common reason for trifecta failure at 2 years (48%) but accounted for just 28% of failure at 5 years. EF decline was the main reason for failure at 5-year (58%) follow-up. Phoenix failure was uncommon (<2%).

On multivariate analysis, age >65 was prognostic for 5-year failure, but not at 2-year. No other clinical or treatment related factors were significant.

CONCLUSIONS:

Trifecta outcomes were attained in 34% and 32% of patients at 2 and 5-year follow-up with ED accounting for the majority of trifecta failure at 5-year follow up. Cancer control was excellent and treatment related urinary symptoms improved over time, trending back toward baseline with longer follow-up. Age >65 was predictive of long-term trifecta failure. Further work is needed to better risk stratify patients before BT to expect functional outcomes and improve individualization of care.

REFERENCES:


Trifecta Outcomes for Men with Localized Prostate Cancer after Treatment with Low-Dose-Rate Brachytherapy

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