Seven Year Outcomes of a Prospective Trial of Concomitant Docetaxel and Proton Therapy for High-Risk Prostate Cancer

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Abstract:

Purpose/Objectives: To assess late outcomes of a novel approach to high-risk prostate cancer using concomitant docetaxel and proton therapy (PT).

Methods/Materials: Forty men with high-risk prostate cancer (PCa) were enrolled on a prospective institutional review board-approved trial of 78 cobalt gray equivalent (CGE) in 39 fractions to the prostate and seminal vesicles (without pelvic node irradiation) plus docetaxel followed by 6 months of androgen deprivation therapy (ADT). The primary objective was to measure grade 3+ toxicity; secondary objectives were to document disease control and patient-reported quality of life assessment. Median age was 72 (53-88). Eligibility required prostate-specific antigen (PSA) of ≥20 and/or Gleason score of ≥8 and/or clinical stage of ≥T3. During proton therapy docetaxel was delivered in weekly doses of 20 mg/m2. Median followup is 7.2 years (range of 0.5 to 8.3). International Prostate Symptom Score (IPSS), CTCAE v. 3.0 toxicity, and Expanded Prostate Index Composite (EPIC) were performed at baseline and 6 month intervals after treatment.

Results: Patient status is as follows: alive without evidence of disease, 26; alive with PCa, 5; 4 dead of PCa; dead of intercurrent disease, 5, including 1 with PSA progression; lost to followup, 2 who were alive and without disease at 3.7 and 4.6 years after treatment. Freedom from biochemical and/or clinical disease progression and overall survival rates are 73% and 79% at 7 years. Patterns of progression include: PSA only (3) and PSA plus distant metastases (7, including one with pelvic node recurrence). Disease progression occurred in 2 of 24 patients with T1-2 and Gleason 8 disease and in 8 of 16 patients with either T3 or Gleason ≥ 9.

Three CTCAE v 3 Grade 3 GU and 1 GI events occurred which resolved with intervention and did not recur.

Respective baseline and last followup median patient-reported outcome scores in the 26 surviving patients who have remained free of disease progression are as follows: EPIC bowel summary, 96 and 93; EPIC urinary incontinence, 100 and 90; EPIC urinary irritative and obstructive symptoms, 94 and 88; IPSS, 7 and 9; EPIC hormonal function, 90 and 90; and EPIC sexual function, 41 and 24.

Conclusions: Proton therapy in conjunction with low dose concomitant docetaxel was well tolerated and produced a disease control rate of 73% at 7 years followup. Ninety-two percent of patients with T1-2 disease and Gleason 8 remain disease-free, but more intensive therapy appears warranted for those with either T3 or Gleason 9 disease. While well tolerated, the contribution of docetaxel in achieving disease control is unclear and will require future comparative studies.