



Accelerated hypofractionated radiation therapy with neoadjuvant and concomitant hormone therapy for intermediate risk prostate cancer

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Background:

- ◆ The alpha/beta ratio for prostate cancer has been estimated to be about 1.5 Gy, possibly lower than the normal surrounding tissue.
- ◆ This signifies that prostatic tumours react as late-responding tissues with a higher sensitivity to larger fractions.
- ◆ Therefore, an accelerated hypofractionated regimen can lead to a therapeutic gain
 - *while* decreasing short term side effects;
 - *without* necessarily compromising long term side effects or quality of life.



Methods:

Patient selection

- ◆ 42 patients with intermediate-risk prostate cancer, as defined by the RTOG 9910 protocol were recruited for this study
 - T1b to T4 disease with gleason scores of 2 to 6 and pre-treatment prostatic specific antigen [PSA] levels between 10 and 100 ug/L;
 - or T1b to T4 disease with gleason score of 7 and PSA below 20 ug/L;
 - or T1b-T1c disease, gleason score of 8 or above and PSA below 20 ug/L).



Methods:

Pre-treatment evaluation:

- ◆ Patients had a calculated risk of pelvic lymph node disease of less than 15%.
- ◆ Negative pelvic CT and bone scan.



Methods:

Treatment

- ◆ Hormone therapy consisted of one intramuscular injection of leuprolide acetate (lupron depot 30 mg, 4 months preparation) and one month of oral non-steroidal anti-androgen medication (bicalutamide 50mg po qd) starting on the day of the injection.
- ◆ Conformal radiation treatment was started 8 weeks after the leuprolide injection and was administered using at least 4 fields, with beams of 18MV or more.
- ◆ Patients received 57 Gy in 19 fractions.



Methods:

Treatment failure

- ◆ If there was clinical evidence of local or distant recurrence,
- ◆ if hormone therapy was started
- ◆ or if there was a biochemical failure. (Biochemical failure was redefined at time of analysis to be a PSA value equivalent to or greater than the nadir after treatment plus 2 ug/L.)



Results:

- ◆ Follow-up time ranged from 18 to 50 months (median 40 months).
- ◆ Data was available on 39 patients for acute toxicity and 38 patients for chronic toxicity and PSA monitoring.
- ◆ Radiation therapy was well tolerated and no treatment interruptions occurred.



Results:

Toxicity

- ◆ The majority (56%) had grade 0 or 1 acute genitourinary (GU) toxicity, while 36% had grade 2 and 8% had grade 3 acute GU toxicity. There was no significant acute gastro-intestinal (GI) toxicity, with only grade 1 or 2 side effects observed.
- ◆ Chronic grade 1, 2 and 3 GU toxicity was seen in 8%, 5% and 5% respectively. Only chronic grade 1 GI toxicity was observed (18%).
- ◆ Eighty-two percent (82%) of patients had no long term side effects from the treatment.



Results:

At time of analysis, **79%** showed no sign of treatment failure (median FU of 40 months)



Conclusions:

- ◆ Accelerated hypofractionated radiation with neoadjuvant and concomitant androgen blockade is well tolerated with no significant short or long term morbidity after a median follow-up time of 40 months.
- ◆ Control rate seems good, however longer follow-up is needed to see if this is maintained and if the treatment will impact survival.

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