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Abstract
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Safety, Efficacy and Quality of Life with Stereotactic Radiotherapy (SBRT) in High Risk, Node Positive and Oligometastatic Prostate Cancers

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Abstract

Objectives:

SBRT in high risk (HR), node positive (N+) and oligometastatic (OM) prostate cancers is limited by pelvic nodal
coverage, larger treatment volumes and use of hormone therapy. We report the safety, efficacy and patient reported quality of life measures (QOL) for SIB-SBRT for prostate and pelvic nodal treatment in HR, N+ and OM
(non-regional node or skeletal deposits) cohorts.

Methods:

28 patients of NCCN category HR, N+, OM adenocarcinoma prostate and all staged by MRI prostate and PSMA
PETCT scan received SIB-SBRT from April 2019 to October 2021. All received long term androgen (ADT) deprivation therapy (80%) or surgical castration (20%). ADT was neo-adjuvant, concomitant and adjuvant for at
least 2 years and for OM 2 nd generation hormone treatment. SIB-SBRT to prostate and pelvic nodal regions (until common iliac level) was 35-36.25 Gy and 25 Gy in 5 fractions respectively. Post ADT gross PSMA avid nodes and skeletal deposits received 30 Gy in 5 fractions. SIB-SBRT was by volumetric modulated arc therapy (VMAT) with intrafraction imaging and hexapod robotic couch corrections on alternate days. Baseline IPSS and Expanded Prostate Cancer Index Composite for Clinical Practice (EPIC-CP) QOL recorded and then post SIB-SBRT at 6 weeks and then 3 monthly till 2 years. Dosimetry followed standard published literature.

Results:

28 patients were treated over 3 years with median age of 70 years. The median PSA at baseline was 45ng/ml with 90% Gleason score 8+. The OM disease included nonregional nodes or 1-2 skeletal deposits. After median follow up of 20 months acute grade 2 genitourinary (GU) and gastrointestinal (GI) toxicities were 10% and 12%,
respectively. Late grade 2 GU and GI toxicities were 4% and 9%, respectively. Late grade 3 GU and GI toxicity was seen in 2 patients each requiring medical management. 2 years overall survival and biochemical failure-free
survival was 95% and 90% respectively. Baseline median IPSS score was 9 and median EPIC CP score was 12/60. Mean urinary incontinence domain scores worsened significantly from baseline to 6 months and obstructive scores improved from baseline to 6 months with more than 95% patients not using any pads at 6 months. Bowel frequency scores were maximum at 6 weeks post SBRT and it persisted till 6 months. Sexual function scores declined gradually and recovery only in few till last follow up. Vitality/hormonal scores were unchanged from baseline till 6 months.

Conclusion(s):

SBRT for HR, N+ and OM prostate cancers is safe, effective with good QOL. The encouraging PSA control and minimal grade 3 toxicity and favourable therapeutic ratio achieved reflects the feasibility of LINAC based SIB-SBRT.This warrants long term follow up with effective bladder/rectal protocol measures and optimal use

of ADT in prospective setting.