PO-0742
Stereo tactic radiotherapy for limited nodal prostate cancer disease
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Purpose/Objective: This study explores the results, in term of Local Control (LC) and Disease Free Survival (DFS), of SBRT used to eradicate nodal recurrence of prostate cancer assessed by Choline-PET scan. Materials and Methods: 103 patients with biochemical relapse were examined by Choline-PET scan to select those with recurrences limited to nodal sites. A total number of 40 patients were selected and treated with ablative SBRT. Among these 7 patients were previously treated for primary tumor with surgery, 11 with radiotherapy and 22 with both. Median age was 65 years (range 46-85). SBRT was delivered by 6 MV Linac (Elekta Synergy), using dynamic micromultileaf collimator and intensity-modulated arc therapy optimization. During the follow-up the patients were submitted to Choline-PET scan, Computed Tomography and PSA dosage sixty days after treatment and then every 4 month. Results: Median follow-up was 57 months (range 3-127). At the time of analysis 25/40 (62.5%) patients were still alive, 13/40 (32.5%) were dead and 2/40 (5%) were lost in follow-up. Median PSA was 1.04 ng/ml (range 0.1-77.6) in patients with Choline-PET negative and 5.65 ng/ml (range 0.37-181.6) with Choline-PET positive scan (p<0.05). Among treated patients 15/40 were with no evidence disease (NED) at the last follow up while 25/40 relapsed out of treated field (4 pts in bone and 6 in lymph nodes other then treated). Disease Free Survival, Overall Survival and Local Control rates at 2 and 5 years were 50%, 92% and 90%, and 17%, 56.3% and 90%, respectively. Any severe acute or late GI and/or GU toxicity (≥G3) was not observed but only mild GI late toxicity in 15% of patients.

Conclusions: Our results confirmed that SBRT for isolated nodal relapses from prostate cancer is effective ablative treatment with high LC probability rates and is well tolerated also. Based on results regarding the survival and disease progression SBRT could be considered as a possible alternative treatment able to preserve and/or postpone the systemic treatments or androgen deprivation therapy in patients with isolated relapse of disease. Choline-PET scan is useful diagnostic option in order to detect both disease progression to lymph-node sites and to evaluate the results of SBRT.

PO-0743
Reduction of volume through IGRT method: personalize a prostate cancer treatment
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Purpose/Objective: To analyse if image guided Radiotherapy (iGRT), made on prostate cancer patients treated with Simultaneous Integrated Boost technique, could help to personalise treatment. Materials and Methods: A prospective study was performed enrolling prostate cancer patients. Radiotherapy was performed for the majority of patients with volumetric Arc Therapy technique. The Clinical Target Volume, irradiated by SIB-IMRT, included. During CTV delineation procedure each patient was planned twice: the first time using a standard CTV to PTV enlargement procedure with margins common to all patients Afterwards patients started treatment and during first week therapy they underwent 5 daily Cone Beam CT (CBCT) scanning before dose delivery. Subsequently the CBCTs were registered with the simulation CT, hence allowing the overall movements evaluation both for organ motion and set-up movements at the same time. A new CTV-IGRT contour was defined by merging all the positions of the prostate and SVs; finally 3 mm of margins in all directions were added to obtain an individualized IGRT based PTV. The sizes of PTVs in both phases of the treatment were compared. We used for statistical analysis the Mann Whitney Test rank sum test with continuity correction. Results: A total of 123 patients were included in the study and had a total of 1253 CBCT scans, corresponding a median of 10 CT scans (range 0-27) for each patient. To 98 patients a total dose of 80 Gy was prescribed on CTV1 (prostate) (mean dose 79,5- range 56-80; only three patients did not receive prescribed dose for other reasons) delivered in 40 fractions within a median of 38 days (range 32-127); CTV2 received a total dose of 72 Gy fractionated into 1.8 Gy/die. In 15 high risks patients CTV1 (prostate and base or whole seminal vesicles, depending on the stage) received a total dose of 67,5 Gy fractionated into 2,7 Gy/die and CTV2 (Pelvic Lymphnodes) received a total dose of 45 Gy fractionated into 1,8 Gy/die.

Median Follow-Up time was 20,4 months (IC 16,8-24,1). All patients are still alive at last observations, except for one dead for other causes. Mean PTV1 (prostate) was 139,94 cm3. Mean PTV1 re-planning (PTV1r) was 118,66 cm3. Difference between PTV1 vs PTV1r was statistically significant (p-value = 0.000882).

Mean PTV2 (semenal vesicles) was 192,22 cm3. Mean PTV2 re-planning (PTV2r) was 162,42 cm3. Difference between PTV2 and PTV2r was also statistically significant (p-value = 0.000723).

Mean PTV3 (pelvic lymphnodes) was 326 cm3. Mean PTV3 re-planning (PTV3r) was 245 cm3. Difference between PTV3 and PTV3r was also statistically significant (p-value = 0.002122).

Toxicity were in accord with literature. Conclusions: IGRT is an efficacious method to obtain a personalised treatment whilst maintaining high delivered treatment doses.

PO-0744
Develope predictive models to foresee toxicity: validation of a software to help clinicians
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Purpose/Objective: Elaborate predictive model is the new challenge to personalize treatment on a single patient. Radiobiological models describe effects of radiation