	volume (cc)	V40Gy (cc)	V70Gy (cc)	V40Gy (%volume)	V70Gy (%volume)	V40Gy (%volume)	V70Gy (%volume)
CT based plan (mean)	87.3	274.7	106.1	29.4	14.7	31.4	17.5
MRI based plan (mean)	76.0	241.3	92.6	26.4	10.9	29.3	14.9
p value	0.001	0.001	0.0006	0.017	0.0014	0.29	0.21

Conclusion
In IMRT for prostatic cancer, the smaller PTV/MRI resulted in smaller volume receiving medium dose (40Gy) and higher dose (70Gy) of the body. Consequently, doses to the rectal wall reduced in MRI targeting plans.

EP-1530 Prostate volume reduction with neo-adjuvant hormones and its relation with bladder and rectal volume

M. Sivanandan[1], C. Vivekananthan[1], Z. Ali[1], S. Sundar[1]
[1]Nottingham University Hospitals NHS Trust, Oncology and Radiotherapy, Nottingham, United Kingdom

Purpose or Objective
Androgen deprivation therapy (ADT) is routinely used in association with radical radiotherapy (RT) for intermediate and high risk prostate cancer. Neoadjuvant ADT has been shown to reduce the size of the prostate and hence target volume, thereby reducing the volume of normal tissue exposed to high radiation doses.
The purpose of our review was to examine whether prostate volume was associated with bladder and rectal volume as a surrogate of whether ADT-induced prostate volume reduction contributed to reduced normal tissue doses through changes in normal tissue volumes.
Material and Methods
Patients having radical prostate RT between January and May 2016 were identified from the hospital's RT database. Respective prostate volumes were calculated from diagnostic and planning MRI scans for each patient. Bladder and rectal volumes were calculated from each patient's planning CT scan. Statistical analysis was performed using the paired T-test and Pearson correlation.
Results
68 patients were identified. All patients had neoadjuvant ADT with median duration of ADT prior to planning MRI scan of 95 days. Mean reduction in prostate volume from diagnostic to planning MRI scan was 35.6% (95% CI: 32.0-39.3%) which was statistically significant ($p<0.01$). No correlation was seen between planning scan prostate volume and bladder volume ($r=0.0$; $p=0.97$) or rectal volume ($r=0.04$; $p=0.75$). Furthermore, no correlation was identified between percentage change in prostate volume and bladder volume ($r=-0.07$; $p=0.60$) or rectal volume ($r=0.06$; $p=0.65$).
Conclusion
Our study confirms neoadjuvant ADT leads to a significant reduction in prostate volume. The reduction in high radiotherapy dose to bladder and rectum with ADT appears to be due to reduction in target volume alone rather than its interaction with normal tissue volumes. This work suggests that transurethral resection of the prostate (TURP) for patients with large prostate volumes before prostate RT with a view to specifically reducing bladder volumes would be of negligible benefit.

EP-1531 SBRT for Prostate Cancer in 3 fractions: Acute Toxicity Rates from a Prospective Multicenter Study

G. Sanguineti[1], A. Farneti[1], M. Trovò[2], V. Landoni[3], E. Moretti[4], M. Ferriero[5], F. Spasiano[1], U. De Paula[6], S. Gomellini[6], A. Magli[2]
[1]ircss - Regina Elena National Cancer Institute, Radiotherapy, Rome, Italy ; [2]asuiud, Radiotherapy, Udine, Italy ; [3]ircss - Regina Elena National Cancer Institute, Medical Physics, Rome, Italy ; [4]asuiud, Medical Physics, Udine, Italy ; [5]ircss - Regina Elena National Cancer Institute, Urology, Rome, Italy ; [6]san Giovanni-Addolorata Hospital, Radiotherapy, Rome, Italy

Purpose or Objective
Five-fraction hypo-fractionationed SBRT is an acceptable option for low/favorable intermediate risk prostate cancer (NCCN 2018). The aim of the present study was to further reduce the number of treatment sessions to 3. Here we report acute toxicity rates on the patients treated so far
Material and Methods
This phase I-II prospective study is enrolling patients with low/fav int risk prostate cancer at 3 Institutions since November 2015. The prescribed dose to the target (prostate+4 mm isotropic) is 40 Gy in 3 fractions while prioritizing a 30 Gy Dmax limit to the rectum (1cc), the bladder trigone (1cc) and the urethra (0.1cc). A gel spacer (along with gold fiducials) is placed before simulation to dislocate the rectum. Patients are simulated and treated with a urethral catheter and controlled bladder filling. Prostate had to be < 80 cc at diagnosis or after 3 months of androgen deprivation and IPSS <16. Toxicity was graded according to the CTCAE v4.0 scale at the 3rd fraction and every 3 months afterwards. Toxicity developing within 3 months from treatment end is considered 'acute'.
Results
Twenty-eight patients (19, 7, 2 at each Institution) have been treated and have a 3-month minimum follow up. All patients had low (n=20) or intermediate risk (n=8) prostate cancer; mean (SD) age was 73 (5.2) years and mean (SD) PSA at diagnosis was 6.9 (2.8) ng/ml. At planning, average (SD) prostate volume (CTV) was 51.4 (17.8) cc, 3 patients after 3-month neoadjuvant androgen deprivation. On average (SD) 95% of the PTV was covered by the isodose 85.4 (4.7)% while the isodose 38 Gy covered 61.8 (19.0)% of the PTV. Mean (SD) Dmax to rectum (1cc), bladder trigone (1cc) and urethra (0.1cc) were 28.9 (1.9) Gy, 22.1 (9.0) Gy and 30.8 (1.6) Gy, respectively.
Peak acute GR0,GR1,GR2,GR3 gastrointestinal (GI) and genitourinary (GU) toxicity rates developed in 18,7,3,0 and 19,6,2,1 patients, respectively. Overall, 4 GR2+ GU events (2 urinary tract pain, 2 cystitis and 1 urinary retention) were recorded in 3 patients. The only grade 3 event consisted in urinary retention requiring transurethral resection 3 months after treatment completion. All three GR2 GI events consisted in mild proctitis. No GR4-5 GU or GI events were recorded as well as no other GR2+ event was observed.
Conclusion
Under the technical and dosimetric conditions set here, prostate SBRT in 3 fractions is associated with a favorable acute toxicity profile.

EP-1532 Metastases directed SBRT using Ga68-PSMA for oligometastatic prostate cancer: TROD 09-002 Study

G. Ozyigit[1], S. Igdem[2], B. Atalar[3], H.B. Ozkok[4], P. Hurmuz[1], F. Akyol[1]
[1]Hacettepe University- Faculty of Medicine, Department of Radiation Oncology, Ankara, Turkey ; [2]Istanbul Bilim University, Department of Radiation Oncology, Istanbul, Turkey ; [3]Acıbadem University, Department of Radiation Oncology, Istanbul, Turkey ; [4]Anadolu Medical Center, Department of Radiation Oncology, Istanbul, Turkey

Purpose or Objective
To evaluate the role of stereotactic body radiotherapy (SBRT) for oligometastatic prostate cancer (oPC).
Material and Methods
In current Turkish Radiation Oncology Group (TROD) study clinical data of 43 patients receiving metastases-directed SBRT between July 2014 and March 2017 from 4 institutions was retrospectively evaluated. Prior therapy was radical prostatectomy (RP) alone (30%), RP followed by adjuvant radiotherapy (28%) or definitive radiotherapy (RT) (42%) All of the patients should have biopsy proven prostate cancer with 5 or less metastases shown by Ga68-PSMA (Prostate Specific Membrane Antigen) PET-CT. SBRT was delivered in median 3 fractions (range,1-5 fractions) to a total dose of median 27 Gy (range,15-35 Gy)
Results
Median age was 64 years (range, 42-79 years). Median initial PSA was 21.5 ng/dL (range,5-160 ng/dL) and Gleason score was 8 (range,6-10). At the time of initial diagnosis, 18 patients had T3a, 12 patients had T3b disease and 7 patients were metastatic. Median 1 metastatic lesion located in regional lymph nodes (41%), bone (46%) and both lymph node plus bone (13%) was treated. Thirty three patients received androgen deprivation treatment (ADT). With a median follow up of 14.5 months (range,1-45 months), 13 patients (30%) had progressive disease and 54% of them were oligometastatic progression. None of the patients had relapse in the treated region. Time to progression was median 13 months. One and two year progression free survival rates were 76% and 59%, respectively. No patients reported grade 3 or more acute or late radiation related gastrointestinal or genitourinary side effects.
Conclusion
This multi-instutional study shows that SBRT for oPCa seems to be safe and effective. Most of the relapses are oligometastatic, thus retreatment with SBRT might be an option for properly selected patients to avoid early ADT and its complications. Further prospective clinical studies should be done to evaluate this treatment option.

EP-1533 Stereotactic Body Radiotherapy in Prostate Cancer: A Single Center Experience
F. Akyol[1], P. Hurmuz[1], S. Sari[1], A.E. Dogan[1], D. Yuce[2], S. Yazici[3], B. Akdogan[3], G. Ozyigit[1]
[1]Hacettepe University Ankara, Radiation Oncology, Ankara, Turkey ; [2]Hacettepe University Ankara, Preventive Oncology, Ankara, Turkey ; [3]Hacettepe University Ankara, Urology, Ankara, Turkey

Purpose or Objective
To evaluate our treatment results in patients with prostate cancer receiving definitive robotic stereotactic body radiotherapy (rSBRT).
Material and Methods
Between July 2007 and November 2016 135 patients were treated with CyberKnife® robotic radiosurgery treatment machine. According to our institutional treatment protocol we delivered 36.5 Gy in 5 fractions to prostate. According to D'Amico risk classification system 74 patients were in low-risk group and 61 patients were in intermediate-risk group. 'Phoenix definition' was used for biochemical relapse and Cavanagh definition was used for PSA bounce, respectively.
Results
Median follow-up time was 34 months (range, 3-111 months). Biochemical relapse was detected in 6 patients between the 26th and 56th months. PSA bounce was observed in 38 (29%) patients, and 30 of these patients had had low-risk disease. Biochemical relapse was observed in 3 patients who experienced PSA bounce during the follow-up. For the whole group, 3-year biochemical relapse-free survival (BRFS) and overall survival (OS) rates were 95% and 92%, respectively. Presence of PSA bounce did not have an effect on BRFS rates; however, OS rate was significantly higher in patients with PSA bounce, independent from the risk group (p=0.025). Treatment was well tolerated with no grade 3 or more acute toxicities. Late grade III gastrointestinal system and grade III genitourinary system toxicity was observed in 4 and 11 patients, respectively.
Conclusion
Prostate rSBRT is an effective and safe treatment for patients with low-intermediate risk prostate cancer with acceptable toxicity rates.

EP-1534 Clinical Outcomes for Patients with Gleason Score 10 Prostate Adenocarcinoma: TROD 09-004 Study
G. Ozyigit[1], H.C. Onal[2], P. Hurmuz[1], A. Iribas[3], I. Cetin[4], I.B. Gorken[5], D. Yalman[6], F. Akyol[1]
[1]Hacettepe University- Faculty of Medicine, Department of Radiation Oncology, Ankara, Turkey ; [2]Baskent University, Radiation Oncology, Adana, Turkey ; [3]Istanbul University, Radiation Oncology, Istanbul, Turkey ; [4]Marmara University, Radiation Oncology, Istanbul, Turkey ; [5]Dokuz Eylul University, Radiation Oncology, Izmir, Turkey ; [6]Ege University, Radiation Oncology, Izmir, Turkey

Purpose or Objective
Gleason score (GS) 10 disease is a rare and an aggressive form of prostate adenocarcinoma (PCa). In this national multi-institutional study we evaluated the treatment outcomes for this subgroup of patients.
Material and Methods
The clinical data of 30 patients receiving definitive radiotherapy (RT) plus androgen deprivation therapy (ADT) between January 2001 and March 2015 from 6 institutions was retrospectively evaluated in current Turkish Radiation Oncology Group (TROD) study. All of the patients had biopsy proven disease. Follow up duration of at least 24 months was mandatory. ASTRO Phoenix definition was used for biochemical relapse.
Results
Median age was 65 years (range, 58-78 years). Median initial PSA was 25 ng/dL (range,4.5-150 ng/dL). Median RT dose was 75 Gy (range,70-78 Gy) and 12 patients received pelvic radiation as a part of treatment protocol. All patients received ADT with median duration of 24 months (range, 9-48 months). With a median follow up time of 66.5 months, 13 patients (43%) had biochemical relapse, 2 patients (7%) had local relapse and 8 patients (27%) had distant metastases. Five-10 year overall survival (OS) and biochemical relapse free survival (BRFS) rates were 78%-66% and 56%-42%, respectively.
Conclusion
To our knowledge this is the first study to give BRFS in GS=10 prostate cancer patients treated with RT and long term ADT. Regarding the rarity of the disease multi-institutional studies are valuable in the further evaluation of this group of patients.

EP-1535 Vessel-sparing prostate V-MAT with simultaneous integrated boost to dominant intraprostatic lesion
S. Ciabatti[1,2], M. Ntreta[2], C. Gaudiano[3], E. Sessagesimi[3], V. Dionisi[2], M. Buwenge[2], M. Ferioli[2], F. Deodato[4], A. Ianiro[5], G. Macchia[4], M. Ferro[4], S. Riga[6], F. Romani[6], A.L. Angelini[6], V. Valentini[7], S. Cammelli[2], R. Golfieri[3], G.P. Frezza[1], A.G. Morganti[2], S. Cilla[5]
[1]Radiotherapy Department, Bellaria Hospital, Bologna, Italy ; [2]Radiation Oncology Center, Dept. of Experimental- Diagnostic and Specialty Medicine - DIMES-University of Bologna- S. Orsola-Malpighi Hospital, Bologna, Italy ; [3]Radiology Unit, Dept. of Diagnostic Medicine and Prevention- University of Bologna- S.