

complemented by a boost to local recurrence to a total dose of 72 Gy. In case of no macroscopic tumor recurrence the total dose was 66.6 Gy.

Results: MRI was performed in 233 patients and PET/CT was performed in 169 patients. A local recurrence in the prostate bed could be detected in 123 patients with a median volume of 0.5 ml (range, 0.03 - 125.00 ml). The median follow-up time after RT was 49.4 months (range, 7.3 - 86.1 months). A total of 85 patients experienced a biochemical failure with a median time of 19.8 months (range, 1.9 - 76.1 months) after sRT. Median PSA level at the time of recurrence was 0.91 ng/ml (range, 0.01 - 2224.00 ng/ml). The median BRFS after radiation therapy was 73 months. The estimated 3- and 5-year bRFS was 72% and 55%, respectively. On multivariate analysis, Gleason Score (hazard ratio, 6.946; $p = 0.006$) and pre-RT PSA level (hazard ratio, 2.265; $p = 0.022$) were statistically significant predictors for bRFS. bRFS was similar in patients with a macroscopic recurrence in either MRI or PET/CT compared to patients without a macroscopic recurrence. 5-year overall survival was 91% and 5-year cancer-specific survival was 96%. Grade 3 gastrointestinal toxicity was observed in 4 patients and 3 patients showed grade 3 genitourinary toxicities. No grade 4 gastrointestinal or genitourinary side effects were reported.

Conclusion: Gleason score and pre-RT PSA were important predictors for bRFS. The dose in salvage radiotherapy should be increased to 72 Gy to prevent an early recurrence after sRT in patients with a macroscopic recurrence. A higher total dose of up to 72 Gy was well tolerated in this cohort of patients.

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PSA kinetics in prostate cancer patients after SBRT radiotherapy using CyberKnife.

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Purpose or Objective: The aim of the study was to assess the kinetics of the Prostate-Specific Antigen (PSA) in prostate cancer patients after stereotactic body radiotherapy using CyberKnife System.

Material and Methods: 44 localized prostate adenocarcinoma patients (33 low and 11 intermediate risk) without hormonal therapy, were irradiated using the CyberKnife Radiosurgical System. The prescription dose was 36,25 Gy in five fractions. During the 1-year follow-up all the patients had at least six PSA measurements - before the treatment (1-2 months before RT), during RT (after the 4th fraction) and 1, 3, 6, 12 months after RT.

Results: The mean initial PSA value among the patients was 6,25 ng/ml (range from 3,02 to 17,46 ng/ml). During the treatment we observe the PSA increase - the mean value was 11,89 ng/ml (4,13-30,68ng/ml, 155% of the initial PSA in average). In every case we noticed the PSA nadir 12 months after the treatment with a mean value of 1,50 ng/ml (0,10-4,56 ng/ml). The mean slope of the PSA was 0,56 ng/ml/month (median 0,46 ng/ml/month). No biochemical failure was observed.

Conclusion: The PSA kinetics after treatment can reflect the biological effect of radiation on prostate cancer and potentially correlate with a clinical outcome. Especially the lower value of PSA nadir (<0,5 ng/ml) is considered to associate with an increased freedom from biochemical failure. The interpretation of PSA slope is more controversial however some studies indicates a correlation with clinical outcome. Our results are similar to other SBRT studies and significantly better than in conventionally-fractionated technics. The rapid decline in PSA is particularly worth to be

underlined. The further follow-up will probably confirm the expected good clinical outcome.

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Acute toxicity hypofractionated-IMRT vs standard radiotherapy in prostate cancer: comparative study

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Purpose or Objective: To describe and compare acute toxicity rate in three different radiotherapy (RT) protocols for prostate cancer (PC): hypofractionated radiotherapy intensity modulated and image-guided radiation therapy (Hypo-IMRT-IGRT) group A: 21 fractions/3Gy and group B: 28 fractions/2.5Gy) and three-dimensional conformal radiotherapy standard fractionation (3DCRT) group C: 39 fractions/2Gy.

Material and Methods: Patients with the diagnosis of PC treated with RT between January 1st 2011 to June 30th 2015 were included. Hypo-IMRT-IGRT were performed using internal marker and ExacTrac-X-Ray-system. In 3DCRT group not employed internal marker. Acute genitourinary (AGUT) and acute gastrointestinal toxicity (AGIT) were assessed according to RTOG-EORTC criteria. A p value<0.05 was considered significant. Results were expressed as median (IQR). Categorical and continuous variables were compared with X2 and kruskal-Wallis ran sum test respectively. All statistical analysis was performed using R package. The institutional review board approved this study.

Results: 242 consecutive patients were retrospectively analyzed (group A: 39, group B: 128 and group C: 74). No baseline characteristic differences were found (age, PSA, TNM, PTV total, bladder and rectal volume). Maximal bladder doses and V60 rectal were different within the three groups ($p < 0.01$). AGUT (n): in group A was grade 0: 18; grade 1: 9, grade 2: 12; group B grade 0: 35; grade 1: 86; grade 2: 7; and group C grade 0: 23; grade 1: 38; grade 2: 13 ($p < 0.01$). AGIT was in group A grade 0: 38; grade 1: 1; grade 2: 0; group B grade 0: 121; grade 1: 7; grade 2: 0; and group C grade 0: 65; grade 1: 6; grade 2: 3 ($p = 0.07$) Table 1. Comparative AGUT between A+B vs. C did not differ. AGIT in A+B group was less frequent than C group ($p = 0.017$). AGUT from group A was different from group B ($p < 0.01$). AGIT from A group was not different from B group ($p = 0.75$). There were no events > grade 3 reported in any group.

| GRADE n (%) | 0 | 1 | 2 | p |
|-------------|---------|--------|--------|-------|
| AGUT | | | | <0.01 |
| Group A | 18(46) | 9(23) | 12(31) | |
| Group B | 35(27) | 86(67) | 7(5) | |
| Group C | 23(31) | 38(51) | 38(51) | |
| AGIT | | | | 0.07 |
| Group A | 38(97) | 1(3) | 0(0) | |
| Group B | 121(95) | 7(5) | 0(0) | |
| Group C | 65(88) | 6(8) | 3(4) | |

Conclusion: Hypo-IMRT-IGRT was associated to lower AGIT rate than 3DCRT. Hypo-IMRT-IGRT 21 fractions/3Gy was inferior to Hypo-IMRT-IGRT 28 fractions in terms of AGUT.

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A comparative study between radical RT and radical prostatectomy in locally advanced prostate cancer

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