

Materials and Methods: All men treated with AA monotherapy manipulation prior to radical prostate radiotherapy between April 2004 and December 2008 were identified and individually case matched for key prognostic factors with men treated with neoadjuvant LHRHa monotherapy. PSA kinetics and absolute pre-RT, post neo-adjuvant hormone PSA (PRPH-PSA) level and subsequent BFFS were analyzed.

Results: 65 men treated with AA monotherapy were individually matched with 65 men treated with LHRHa. The median follow-up was 74 months and 67 months respectively.

There were no significant differences in pre-treatment patient or tumour characteristics. Statistically significant differences were noted between groups in the PRPH-PSA with a geometric mean of 2.0ng/ml (range 0.1 - 11.2ng/ml) for AA patients and 1.0ng/ml (range 0.1 - 11.1ng/ml) for LHRHa patients (p<0.001). The geometric mean PSA halving time during the neo-adjuvant period of 14.6 weeks (range 2 - 160 weeks) in the AA treated group was not statistically significantly different when compared to the mean of 16.1weeks (range 2.1-96.8 weeks) for LHRHa patients (p=0.056). There were however no differences in PSA velocity.

A PRPH-PSA of <1.0ng/ml and <0.1ng/ml was seen in 16 (24.6%) and 2 (3%) of the AA patients and 34 (52.3%) and 3(4.6%) of LHRHa patients respectively.

Phoenix biochemical failure was seen in 14 (23.4%) and 9 (13.8%) of AA and LHRHa patients respectively, with the log rank test indicating no statistically significant difference between the groups.

Conclusions: Our case-matched study demonstrates that neo-adjuvant AA therapy does not result in equivalent PRPH-PSA suppression when compared to neo-adjuvant LHRHa alone. However there is no statistical difference in BFFS between the cohorts at an overall median follow-up of 72 months. Longer follow-up is required.

EP-1328

Postoperative radiotherapy in bladder cancer patients in presence of neobladder: Safety and morbidity

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Purpose/Objective: Role of postoperative radiotherapy (RT) in locally advanced bladder cancer still to be determined. Many non-randomized clinical trials and retrospective series showed that it improves local tumor control and disease free survival, it is part of our routine practice in Egypt for T3/T4 bladder cancer patients. However, there is usually a fear of irradiating a neobladder. The aim of this study is to assess the results and toxicity of 8 patients treated by RT in presence of neobladder.

Materials and Methods: Between 2007 and 2013, 8 patients with T3/T4a bladder cancer patients treated with radical cystectomy in which the pathology showed positive margin with an orthotopic bladder inserted. Data collected included: Age, gender, date of surgery, pathology showing microscopic residual disease. Shape and status of the neobladder assessed by Computer tomography. Hydroureter, hydronephrosis, continent status. Progression free survival and overall survival calculated from the date of surgery till the first recurrence or death respectively.

Results: Ninety eight patients identified in our records between 2007 and 2013, only eight patients qualified for our retrospective analysis. Three female and five male patients, treated by radical cystectomy and lymphadenectomy with orthotopic bladder. Postoperative radiotherapy initiated 4 to 6 weeks postoperatively. Mean age 54 year (range:43-60), renal profile was adequate in 6 patients to receive postoperative adjuvant chemotherapy in addition to radiotherapy. Toxicity extracted from the files showed: Diarrheaa GII-III in 5 patients. Skin dermatitis GI in all patients (100%), treatment interruption for one week in 2 patients due to GIII diarrhoea. Late complications: Incontinence improved in 6/8 patients with one patient had stress incontinence. the last two patients had persistent incontinence. Thickened wall of the neobladder in all patients, no rejection or resurgery needed, Hydroureter and hydronephrosis occurred in 3 patients. Adequate renal function maintained in all 6 patients with initial good renal profile. Disease free survival and overall survival were 50% and 58% respectively at two years, Local tumor control was 75%. Six patients had distant metastasis to: the lung, paraaortic lymph nodes (one patient) and bone metastasis (two patients). The last two patients died of extensive local recurrence.

Conclusions: To our knowledge this is the first report for postoperative radiotherapy in bladder cancer patient with neobladder. Adjuvant radiotherapy post radical cyctectomy with orthotopic bladder is safe and didn't increase patients morbidity. In contrary it improve local tumor control.. However, more data.is needed to make a conclusion.

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Comparison between the use loose and polymer string seeds in prostatic brachytherapy in Brazil

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Purpose/Objective: The World Health Organization (WHO) reports cancer as a leading cause of death worldwide. Prostate cancer is the sixth most common type, with 10% of cases ^{1,2}. One of the methods used in the treatment of prostate cancer is brachytherapy with Iodine-125 seed. The procedure is characterized by introducing radioactive eeds inside the body ^{3,4,5}. The Iodine-125 seeds can be inserted loose or placed inside a bioabsorbable polymer string, whose function is to facilitate the proper dosimetry, the implant itself and minimize seed movement ^{6,7}.

The polymer strings seeds have some advantages, however, its use is still not exclusive and still controversial ^{8,9,10,11,12,13,14}. This paper aims to make a comparison between the uses of loose seeds and strings polymer in the Brazilian scenario.

Materials and Methods: Data were collected regarding the marketing of seeds in both forms, between the years 2005 and 2011, the Institute of Energy and Nuclear Research (IPEN), which is responsible for the distribution of all seeds used in the country.

Results: The data obtained can be seen in the table 1 and figure1.

Table 1: Total loose and strings seeds marketed between the years 2005-2011.

Year	Loose Seeds	String Seed	Total
2005	6343 (18.8%)	27360 (81.2%)	33703
2006	5609 (19.2%)	23594 (80.8%)	29203
2007	7495 (21.5%)	27330 (78.5%)	34825
2008	5835 (17.6%)	27380 (82.4%)	33215
2009	6071 (17.6%)	28400 (82.4%)	34471
2010	5383 (16.8%)	26720 (83.2%)	32103
2011	3494 (8.8%)	36240 (91.2%)	39734

The table data presents that the string seed are about 80% more marketed than the loose seeds, with an increase in 2011 to more than 90% of the total. The preference for the medical profession is precisely the reduction of seeds migration, an event that, in theory, could affect the dosimetry of the region and also cause unnecessary damage to healthy tissues or organs.

Figure 2 shows the impact in seed migration.

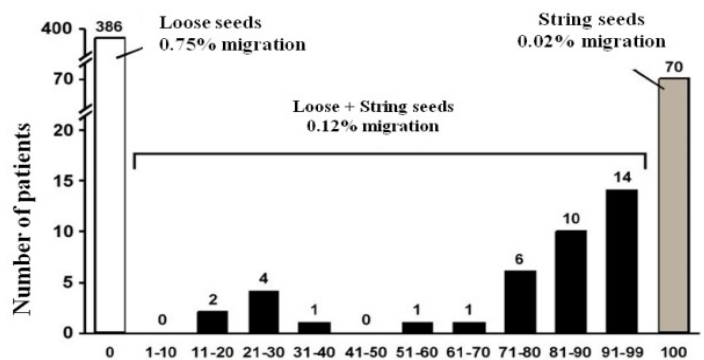


Figure 2 - Migration rate comparison between seeds loose, Loose+string and String seeds ¹⁵.

By analyzing the presented data it's clear that when using loose seeds 46% of patients had seed migration. The number decreased to 10.3% with mixed use, reaching only 1.4% of patients when used only string seed. Most seeds that migrate end housed in the pulmonary vasculature, but have been reported cases of accommodation in the right ventricle and coronary artery ^{16,17,18}. Since the only 1% of the seeds migrates, the treatment efficiency is hardly impaired ¹⁷. However, while no harmful effects due to migration of the seeds was observed, the reduction of its occurrence is highly desirable by the medical class ^{16,17,18}.

Conclusions: It can be concluded that the use of seed polymer strings in Brazil is much higher than using loose seeds (about 4 times). The main argument is the reduction of the possibility of seed migration to other

parts of the body, as though no adverse effect has been reported, there is a potential damage.

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Individual risk for biochemical recurrence in T2/T3a R1 prostate cancer - a multicenter study

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Purpose/Objective: In localized prostate cancer, positive surgical margins after radical prostatectomy have been shown to be associated with impaired patients' outcome. Three randomised trials demonstrated that biochemical progression-free survival and local control is improved by early adjuvant radiation therapy (RT). Although there is currently no evidence supporting early salvage RT as equivalent to adjuvant RT, it is still under debate how to predict individual and concomitant risks of biochemical recurrence (BCR) in R1 prostate cancer patients.

Materials and Methods: A retrospective, multicenter data analysis of 8 urological centers on patients undergoing radical prostatectomy between 1994 and 2013 was performed. Only patients with T2 and T3a N0/NX tumors and positive surgical margins were included and no neo-/ or adjuvant therapy was applied until BCR. 1641 patients met the inclusion criteria. Follow up of patients was at least three years or until the earlier event of BCR. In all patients, a new, concordant and predefined histopathological work up of all prostate samples was performed. Statistics: Kaplan-Meier and Cox regression model, univariate and multivariate data analysis.

Results: 1033 patients with T2 and 608 patients with T3a tumors and positive surgical margins were included. The biochemical recurrence rate was 25.4% in T2 and 39.7% in T3a tumors, respectively. The following parameters were included for analysis: Preoperative PSA, age, tumor volume, prostate volume, Gleason score (GS), percentage of Gleason score 4/5, Gleason score of positive resection margin, perineural-, vascular, lymphovascular infiltration, length of positive margin, prostate volume, nerve sparing surgery, surgical technique, uni-/bilateral tumor extent. Respecting all listed parameters, in multivariate analysis GS of the prostatectomy specimen and GS plus percentage of GS 4/5 were the only statistically significant parameters in T2 R1 and T3a R1 tumors, respectively. Median time to recurrence and 5 year BCR free survival in T2 tumors were: Median time not reached and 82% for GS < 6, 127 months and 72% for GS 7a, 56 months and 54% for GS 7b, 27 months and

32% for GS 8-10, respectively. In T3a tumors a new scoring system (2-6 points) including GS and percentage of GS 4/5 was established. Median time to recurrence and 5 year BCR free survival in T3a tumors were: 122 months and 73% for 2-3 points, 72 months and 59% for 4 points, and 40 months and 39% for 5 points, respectively. The main limitation of this study represents its retrospective approach.

Conclusions: Based on our data, a new predictive model and treatment guidance of patients with T2/T3a R1 prostate cancer regarding their individual risk for BCR and their need for adjuvant RT may be offered. Beyond the primary endpoint BCR, further analyses on several patterns of recurrence and received salvage therapies are under preparation.

EP-1331

Dosimetric effects of MRI-CT registration on IMRT prostate radiotherapy

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Purpose/Objective: MRI scans are increasingly used on prostate radiotherapy due to its superior soft tissue delineation. It has been found that prostate volumes segmented on MRI images are smaller than prostate volumes derived from CT-scans, but little data are available regarding the dosimetric effects associated with the MRI use.

Our purpose was to compare dosimetric data of MRI-CT registered plans versus CT-only based plans.

Materials and Methods: Seven prostate cancer patients underwent T2 weighted MRI-scan just before the CT-scan simulation. MRI images were acquired on a Philips Intera 1.5 T; TE 120 ms; TR 3000 ms; Field of view 180mm; Matrix 256x512; Slice thickness 3 mm; Number of signal averages 4; Scan percentage 80%; TSE factor 16; Scan duration 5:12. CT-scans were undergone with contrast filled bladder. Both image studies were acquired with patients lying supine over a flat couch with a knee support. Images were rigidly registered and prostate and organs at risk (OARs, rectum and bladder) were segmented (bladder volume was only segmented on CT images). A CT-based and a MRI-CT registered IMRT plans were calculated under the same conditions. A dose of 70 Gy was prescribed to the 99% isodose. Planning target volume (PTV), OARs dose-volume histograms (DVH), conformation index (CI= body V95% /PTV volume) and homogeneity index (HI=((PTV D5% - PTV D95%)/ Prescribed dose) * 100) were calculated and compared. Data are expressed as median. Paired non-parametric tests were used for comparisons.

Results: PTV and rectum volumes decrease with the use of MRI (75.23 cc vs. 56.59 cc, p=0.018; 37.65 cc vs. 23.98 cc, p=0.063; CT and MRI plans respectively). CI was the only metric calculated that reached significance (2.71 vs 3.2, p=0.028; CT and MRI plans respectively). Table1.

Table 1: DVH computed plan metrics of PTV and OAR. Values are expressed as medians; doses in cGy, volumes in cc.

PTV	CT-based	MRI-based	Rectum	CT-based	MRI-based	Bladder	CT-based	MRI-based
Dmean	7036	7053	Dmean	4874	4895	Dmean	4372	4563
Dmax	7130	7154	Dmax	7106	7106	Dmax	7187	7200
Dmin	6611	6736	V60%	63.29	62.75	V60%	57.02	60.08
V95%	99.97	100	V80%	28.27	28.86	V80%	38.39	37.8
V100%	88.06	90.58	V95%	15.23	13.39	V95%	23.6	22.15
D5%	7086	7106	V100%	4.73	3.93	V100%	10.12	9.25
D95%	6921	6953						
CI	2.71	3.2						
HI	2.29	2.01						

Conclusions: The lack of statistically significance could be partially due to the small number of analyzed plans. Large analysis must be undergone in order to confirm results.

EP-1332

Patient-reported outcomes with a validated LENT-SOMA questionnaire for radiotherapy following prostatectomy

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Purpose/Objective: Although there is no evidence of overall survival benefit, post-radical prostatectomy (RP) external beam radiotherapy (RT) has been shown to improve biochemical progression free survival. In