prostate cancer patients

Analysis of PSA kinetics after HDR brachytherapy in prostate cancer patients

W. Burchardt, J. Skowronek
Greater Poland Cancer Centre, Brachytherapy Department, Poznan, Poland

Purpose or Objective: The PSA level after definitive treatment using radiotherapy decreases but still remains detectable. The aim of this study is to analyze clinical and dosimetric factors which influence the PSA level in the blood serum of patients with prostate cancer after HDR (High Dose Rate) brachytherapy.

Material and Methods: 53 patients after HDR brachytherapy were qualified to the study from June 2008 to December 2010. The patients were from T1c to T2c, iPSA from 1.5 to 19.6 ng/ml with prostate adenocarcinoma (Gleason Scale <7) and belonged to the low and intermediate risk of recurrence. 20 patients had androgen deprivation therapy. Patients were treated with HDR brachytherapy 3 x 15 Gy or 3 x 10.5 Gy. Median follow-up was 3 years. The PSA Bounce threshold was >0.2 ng/ml and the biochemical failure definition was nadir PSA +2.0 ng/ml. The influences of clinical and dosimetric parameters were assessed. Statistical analysis was performed assuming significance level p < 0.05.

Results: PSA Bounce occurred in 22% after average 10.7 months. The time to PSA increase in BF group after brachytherapy HDR was 36 months. It was observed that patients with PSA nadir below 0.1 ng/ml were more likely to have normal follow-up than PSA Bounce, biochemical failure (BF), clinical failure (CF). The amplitude of the PSA increases were significantly different between subgroups. The further analysis demonstrated only a significant difference between the subgroup HDR_Bounce (median 0.7 ng/ml) and HDR_BF (median 2.6 ng/ml). The time to PSA increase was significantly different between the subgroups of the group HDR. It applies to patients with PSA Bounce (median 10.5 months) and biochemical failure (median 36 months). The analysis of others dosimetric and clinical factors (including hormone therapy) didn’t show any significant effect on the studied HDR subgroups.

Conclusion: The percentage of patients who had a PSA Bounce was 22%. Predisposing factors for PSA Bounce after HDR brachytherapy were nadir PSA (median >0.1 ng/ml) and time to PSA increase (median <12 months). There was no influence of other analyzed clinical, dosimetric factors and use of hormone therapy to occurrence of the PSA Bounce.

EP-2006
IPSS time recovery in patients with prostate cancer after I-125 prostate brachytherapy

1Hospital Universitario Fundación Jiménez Díaz, Oncología Radioterápica, Madrid, Spain
2Hospital Universitario Fundación Jiménez Díaz, Urology, Madrid, Spain
3Hospital Universitario Fundación Jiménez Díaz, Radiophysics, Madrid, Spain

Purpose or Objective: To evaluate evolution and average time to IPSS (International Prostate Symptom Score) recovery, in patients who have been submitted to I-125 prostate brachytherapy (Low dose rate brachytherapy).

Material and Methods: Between March 2011 and December 2013 we performed 66 prostate brachytherapy in patients with low / intermediate risk prostate cancer. 4 patients also received external radiotherapy. 54 patients received previous hormone therapy. A 145 Gy dose was prescribed if exclusive brachytherapy was given and 108 Gy if combined with external radiotherapy. All patients were treated with Quiklink Delivery System® (BARD) and real-time planification. Of the 66 treated patients 5 did not have initial IPSS, 13 did not have complete follow up, and the 48 remaining have a suitable follow up. The variables that have been evaluated were: Prostate volume, Qmax, number of implanted seeds, number of needles and Urethra’s D1: “p value” was obtained from Mann-Whitney test. The prostate average volume was 33.73 cc, Qmax: 18.7 ml/sec, number of seeds: 60.2, number of needles: 16.1 and urethra’s D1: 138% to the prescribed dose.

Results: With an average follow up of 27 months, 41 of 48 patients (85%) recovered their IPSS, with an average recovery time of 9 months. 7 patients (15%) showed progressive worsening without recovery, and 3 (4.5%) of them developed acute urinary retention (AUR) one month after the implant. In a multivariate analysis the main factor that influenced AUR was the prostate volume, with p=0.0583, (in these 3 patients prostate average was 42.47 cc, higher than the average non AUR) and other factors that seem to influence were IPSS and Qmax values, without statistical significance (‘p’ value) (In these patients Qmax average was 7.63 and IPSS average was 9.33, worse than non AUR).

Conclusion: 85% of patients with complete follow-up, recovered its basal IPSS. The average time to recovery was 9 months, and the incidence of acute urinary retention was lower than 4.5%.

EP-2007
A multicenter study of exclusive brachytherapy in younger patients with prostate cancer

1Hospital of Navarra, Radiation Oncology, Pamplona, Spain
2Onkologikoa, Radiation Oncology, San Sebastian, Spain

Diagnostic capability was determined by calculating the area under the curve (AUC) in the receiver operating characteristic (ROC) curves. This parameter had an AUC value of 0.786. It was predictive of G2-G3 complications with 71.4% specificity and 72.2% sensibility for a dose difference threshold of 48 Gy.

Conclusion: A non-homogenous dose region around urethra at the end of the real-time implant is a risk factor for development of urethral morbidity.

Several studies have found dosimetry correlations between CT post-plan and urinary morbidity. This study focuses on US real-time dosimetry parameters. It allows us to consider new constraints and dosimetry alerts during treatment planning. A prospective study is under consideration, where a new constraints and dosimetry alerts during treatment planning. It allows us to consider new real-time dosimetry parameters. It allows us to consider new dosimetric factors which influence the PSA level in the blood serum of patients with prostate cancer after HDR (High Dose Rate) brachytherapy.