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ABSTRACTS OF THE 21st ANNUAL MEETING OF THE ITALIAN SOCIETY OF URO-ONCOLOGY (SIUrO)

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IRCCS-CROB, Radioterapia Oncologica, Centro di Riferimento Oncologico di Basilicata, Rionero In Vulture, Potenza, Italy

Aim: To evaluate biochemical disease-free survival (b-DFS) after low-dose rate ^{125}I permanent prostate brachytherapy implant (LDR-BRT) in patients with prostate cancer. *Patients and Methods:* Patients older than 18 years of age with diagnosis of prostate adenocarcinoma and adequate PSA follow-up time were analyzed in this retrospective study. LDR-BRT was performed as monotherapy, with a prostate total dose of 145 Gy. Patients were divided into recurrence-risk groups according to the criteria of the National Comprehensive Cancer Network. The guidelines of the American Society of Therapeutic Radiology and Oncology were used to define biochemical failure, which was calculated from the implantation date to the date of biochemical recurrence. Post-implant D90, defined as the minimum dose covering 90% of the prostate, was calculated for each patient. Univariate and multivariate statistical analyses were performed using SPSS software. For univariate analysis, cut-off points of 5.89 ng/ml for PSA and 5 for Gleason score (GS) were used. Clinical stage, pre-treatment PSA, GS, androgen deprivation therapy, D90 and risk groups were analyzed in the multivariate analysis. *Results:* From June 2003 to April 2007, 70 patients were treated and analyzed. Among them, 39 (56%) were at low risk, 23 (33%) at intermediate risk and the remaining 8 (11%) at high risk of recurrence. With a median follow-up time of 58 (range, 46-92) months, the global 5-year b-DFS rate was 86%. In the low-, intermediate- and high-risk groups, the 5-year b-DFS rate was 97.2%, 82.6% and 62.5%, respectively (p=0.006). In univariate analysis, initial PSA level, GS and risk group were significant predictors of biochemical failure (p=0.01, 0.01 and 0.006, respectively, by log-rank test). In multivariate analysis, only risk group and GS (p=0.005 and 0.03, respectively) were statistically significant predictors of b-DFS. *Discussion and Conclusion:* Our data compared favorably with the literature (1, 2) and confirmed the advantage of LDR-BRT, especially for low- and intermediate-risk patients with early prostate cancer.

1 Merrick GS, Butler WM and Galbreath RW: Five-year biochemical outcome following permanent interstitial brachytherapy for clinical T1-T3 prostate cancer. Int J Radiat Oncol Biol Phys *51*: 41-48, 2001.

2 Potters L, Cha C and Oshinsky G: Risk profiles to predict PSA relapse-free survival for patients undergoing permanent prostate brachytherapy. Cancer J Sci Am *5*: 301-306, 1999.

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ADDED VALUE OF MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING IN PATIENTS WITH NEGATIVE ULTRASOUND-GUIDED PROSTATE BIOPSY

Andrea Fandella[1], Francesco Di Toma[2] and Bernardino Spaliviero[2]

[1]Unità di Urologia and [2]Unità di Scienza delle Immagini, Casa di Cura Giovanni XXIII, Monastier di Treviso, TV, Italy

Aim: To prospectively investigate the incremental value of multiparametric magnetic resonance (MR) imaging compared with standard T_2-weighted imaging for biopsy planning. *Patients and Methods:* A total of 43 consecutive patients underwent T_2-weighted MR imaging supplemented with multiparametric 1.5-T MR imaging, consisting of proton (^{1}H) MR spectroscopy, diffusion-weighted (DW) imaging and dynamic contrast-enhanced (DCE) MR imaging. From the multiparametric MR imaging, quantitative maps of the following parameters were calculated: choline plus creatine to citrate ratio, apparent diffusion coefficient, and volume-transfer and exchange-rate constants. The prostate was divided into 20 standardized areas. Each area was classified as benign, inconclusive, or suspicious at T_2-weighted imaging, followed by quantitative evaluation of all inconclusive and suspicious areas with MR parameter maps. Transrectal ultrasound (TRUS) biopsy, guided by the MR findings, was performed for lesions classified as suspicious for cancer using at least one of the MR parameter maps after being overlain on the T_2-weighted images, and displayed in three dimensions. Diagnostic parameters were calculated on a per-lesion and per-patient basis for all combinations of T2-weighted images with MR parameter maps. *Results:* A total of 43 patients had a median of two prior TRUS biopsies with negative findings. Each patient had a median count of three suspicious lesions. Prostate cancer was demonstrated in 21 of 43 patients. Biopsy was performed for 128 lesions; 53 of them were positive for prostate cancer. Digital rectal examination was not suspicious for malignancy in 40 patients, while it indicated malignancy in only 3 cases. The biopsy Gleason score (GS) within this group was distributed as follows: 52% GS≤6, 33% GS=7, 14% GS≥8. *Conclusion:* Only the combination of T_2-weighted imaging with all three MR multiparametric techniques depicted all identifiable prostate carcinomas. The combination of T2-weighted imaging with only two MR multiparametric techniques (DW imaging and 1H MR spectroscopy or DW imaging and DCE MR imaging) missed 6%, reasonably reducing the number of areas needing biopsy.