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Pathological and clinical predictors of biochemical recurrence after radical prostatectomy

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Introduction & Objectives: Prostate cancer is the second most frequent cancer and the fifth leading cause of cancer death among men in 2020. Radical prostatectomy (RP) remains the mainstay of treatment for localized prostate cancer. However, up to 30% of patients will experience biochemical recurrence (BCR) following RP, and 20-30% of this will progress to clinical metastasis or recurrence. The aim of this study was to determine clinical and pathologic characteristics predictive of BCR in a cohort of patients treated with RP for localized prostate adenocarcinoma.

Materials & Methods: One centre retrospective observational study who were included all patients submitted to RP due to localized prostate adenocarcinoma between January 2013 and December 2015. All patients who were submitted to neoadjuvant hormonal therapy were excluded. BCR was defined as a PSA ≥0.2ng/mL, with an increase a in two consecutive measurements. Adjuvant radiotherapy was recommended for positive surgical margins and/or pT3 disease. Clinical and pathological variables were collected, as well as time to BCR, metastatic disease, and overall survival. The sample was divided in two groups: (group 1) those without BCR and (group 2) those with BCR. Statistical analysis was performed using SPSS V25.

Results: In this study 96 patients were included; the median age at diagnosis was 64 years old (59-67 IQR), and 60% (n=57) had an ECOG PS 1. In this cohort the median PSA before surgery was 9.9 ng/mL (6.15-11.46, IQR). In 25% (n=24) the surgery was R1, and 14 patients underwent adjuvant radiotherapy. BCR occurred in 46% (n=44) patients, with a median time of 33 months (14.3-51 IQR); the majority of patients (52%; n=23) had earlier recurrence (<33 months). Comparing the two groups, PSA before surgery (p= 0.001), Gleason score ≥7 (4+3) (p<0.001), and presence of cribriform growth (p<0.001) were statistically superior in group 2. Pathological stage (pT), perineural invasion, margin status was not different between groups. The predictors of biochemical recurrence in the multivariable analysis were higher preoperative PSA, Gleason score ≥7 (4+3) and the presence of cribriform growth. Metastatic disease occurred in 3 patients in group 2 with a median time of 33 months (19-48, IQR); none of the patient included in group 1 had metastatic disease during the follow up time. Only 7 patients died in the follow up time (4 in group 1 and 3 in group 1) and the median overall survival was not reach; no statistically difference in overall survival between the two groups was found.

Conclusions: This study shows that higher preoperative PSA, Gleason score ≥7 (4+3) and the presence of cribriform glands are strong prognostic biomarkers for biochemical recurrence, which is in accordance with published literature. So, particular attention should be made to identify this high risk group for recurrence and perform a proactive and closer follow up after RP.