THE SIGNIFICANCE OF DE-RITIS RATIO IN PATIENTS WITH RADIATION-RECURRENT PROSTATE CANCER UNDERGOING SALVAGE RADICAL PROSTATECTOMY

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INTRODUCTION AND OBJECTIVE: To evaluate the clinical prognostic value of preoperative serum De Ritis Ratio (Aspartate aminotransferase (AST)/Alanine aminotransferase (ALT)) on post-operative survival outcomes in patients with radiation-recurrent prostate cancer who underwent salvage radical prostatectomy (SRP).

METHODS: A retrospective review was conducted of patients with radiation-recurrent prostate cancer who underwent SRP in five tertiary referral centers from 2007 to 2015. An increased pre-operative serum De Ritis ratio was defined as ≥1.35. The association between De Ritis Ratio and postoperative outcomes was tested. Multivariate Cox analyses were performed to identify the independent predictors of Biochemical recurrence free survival (BCRFS), metastases free survival (MFS), overall survival (OS) and cancer specific survival (CSS).

RESULTS: Overall 214 patients underwent SRP, out of them 98 (45.8%) patients with high serum De Ritis Ratio, were included in the study. In a multivariate analysis high De Ritis Ratio was an independent predictor of Biochemical Recurrence (BCR) (hazard ratio (HR) 1.79, 95% Confidence Interval (CI) 1.16-2.78, p-value 0.009) (Figure 1). No significant association was found between pre-operative DRR and MFS (HR 1.32, 95% CI 0.53-3.30, P=0.55), OS (HR 2.35, 95% CI 0.84-6.57, P=0.15) and CSS (HR 3.36, 95% CI 0.65-17.35, P=0.15).

CONCLUSIONS: Increased preoperative serum DRR is associated with the development of BCR in patients with radiation-recurrent prostate cancer who underwent SRP. DRR might serve as an early indicator for BCR, which may facilitate recognition of potential relapse and could translate into more intense follow-up and even salvage therapy in selected patients.

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QUANTITATIVE PIFLFULOLASTAT F18 (PSMA) SCAN INDICES AS A RESPONSE IMAGING-BIOMARKER TO ANDROGEN DEPRIVATION THERAPY IN VETERANS WITH NEWLY DIAGNOSED METASTATIC PROSTATE CANCER

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INTRODUCTION AND OBJECTIVE: Standardized quantitative assessment is necessary to associate PSMA imaging with clinical outcome and to establish its clinical utility in management of prostate cancer patients. Assessing changes in bone metastases is a particular challenge with conventional imaging modalities. In this study, we associated the quantitative changes in total PSMA tumor burden in lymph nodes and bone with that of prostate specific antigen (PSA).

METHODS: Twenty-one newly diagnosed prostate cancer patients who underwent androgen deprivation therapy with or without radiation were included in this retrospective analysis. A PSMA scan was performed before initiation of treatment with androgen deprivation therapy, with or without radiation. A second PSMA scan was performed at least three months post initiation of treatment in follow-up. As recommended by E-PSMA guidelines, the quantitative metastatic disease burden (of lymph node and bone disease) relative to physiological uptake in blood pool and liver, were calculated using the PROMISE criteria. A deep learning enabled software as a medical device, known as aPROMISE, was used to locate PSMA-avid lesions and track changes over time. The continuous change in quantitative PSMA indices were compared with that of PSA.

RESULTS: The DICOM PSMA PET-CT images of all twenty-one patients were successfully analyzed by aPROMISE. The median time between the baseline and post-treatment scan was 20 weeks (IQR 12 to 36 weeks). Fourteen (67%) patients had bone and/or lymph node disease, five (24%) had lymph node only disease, and two did not show metastatic PSMA avid lesions in pre-treatment scan. At treatment follow-up, patients had an average PSA response decline of 97% (median PSA 0.02). Concurrently, the changes in total PSMA indices in lymph node (average decline 80%; IQR: 62% to 100%) and in bone (average decline: 51%; IQR: 14% to 87%) were found to be significantly associated with PSA decline (r=0.74; p=0.0001).

CONCLUSIONS: The study demonstrated that the change in the automated PSMA scan indices in bone and lymph node were both significantly associated to the PSA response in androgen deprivation therapy. The PSMA scan index may be a useful measurement of treatment response in bone, which is not feasible with conventional imaging.

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