EXPRESSION OF ANDROGEN RECEPTORS IN PROSTATE CARCINOMA

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Background. Androgens and their receptors are crucial for prostate development, maintaining glandular structure and function. Androgen receptors are present not only in epithelial but also stromal cells, comprising smooth muscle, fibroblasts, myofibroblasts, and macrophages. Their role in stromal cell regulation remains incompletely understood, yet they likely influence reactive stroma in prostate cancer. Comparative assessment of androgen receptor expression in stromal and epithelial cells in malignancy informs prostate cancer progression mechanisms.
Aim of the study. Assessment of the variation in AR receptor expression between stromal and epithelial cells in malignant prostate lesions.
Material and methods. The study included 73 prostate cancer specimens, collected by open surgery TURP in the clinical setting of the MSPI Institute of Oncology and MSPI Republican Clinical Hospital. The biopsy fragments, after fixation in 10% buffered formalin, were primarily processed following the standard procedures. Sections 5µm thick were sliced off each block, which were mounted on histological slides. The material collected was divided into 2 groups: acinar and non-acinar carcinomas. Histopathological profiling was performed on hematoxylin-eosin stained sections. Immunohistochemical study included the androgenic anti-receptor (anti-AR) monoclonal antibody. At the same time, to elucidate the types of AR-expressing stromal cells, the histological sections were subjected to Masson's trichrome staining and anti-αSMA immunohistochemical method.
Results. In all prostate carcinoma specimens, three patterns of AR expression were identified by the epithelial and stromal cells: diffuse nuclear, regional nuclear and focal nuclear. All three patterns were considered as a positive response to anti-AR immunoreaction. Most tumours were characterized by AR positive epithelial cells. However, in 21,9% (n=16) small AR negative tumour foci were observed. In the stroma, the density of AR positive cells decreased compared to benign lesions. The difference between the mean scores of histological carcinoma types was statistically significant (p=0,001). Based on the achieved results, the correlation between the total score of AR expression and Gleason score was recorded, obtaining a total and direct correlation (r_p=-0,86, p=0,001).
Conclusions. The decrease in stromal AR expression is dependent on tumour stage, Gleason score, and can be considered a marker of disease aggressiveness.
Keywords: androgen, prostate, prostate carcinoma, androgen receptors, stroma, Gleason score.