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Introduction & Objectives: Prostate cancer (PCa) is the second most commonly diagnosed cancer in men. In contrast to localized low grade disease, locally advanced and metastatic PCa leads to increased mortality. Insulin-like growth factor 1 (IGF-1) is a growth factor that regulates the development of striated muscle. Recent evidence suggests a role for the IGF-IEc transcript variant in cancer biology. The aim of the present study is to investigate whether IGF-IEc immunohistochemical expression (IE) is associated with PCa histologic parameters, in order to be involved in the treatment of advanced PCa as a new therapeutic targeted approach.

Materials & Methods: Archive material from radical prostatectomy specimens of patients without neoadjuvant androgen blockade or other hormone therapy was reviewed. Two groups of patients were selected: Group A: 50 patients with PCa Grade Group 1 or 2 (Gleason Score 6 or Gleason Score 7 with pattern 3 >90%) and Group B: 50 patients with Pca Grade Group 5 (Gleason Score 9 or Gleason Score 10). The histological slides were reevaluated and a monoclonal antibody against IGF1Ec at a dilution of 1:50 was performed on newly prepared sections from the representative paraffin blocks using a Ventana BenchMark ULTRA platform. Striated muscle and liver tissue were used as positive control. Cytoplasmic granular expression of the antibody was observed and graded as grade 1 (weak intensity), grade 2 (moderate intensity) and grade 3 (strong intensity). The H scoring system was applied, which integrates the extent and the intensity of the immunostaining (semiquantitative analysis of protein IE). Specifically, the percentage of positive cells was measured in each section and multiplied by 1, 2 and 3, respectively (grade 1 score= percentage with grade 1 expression x 1; grade 2 score= percentage with grade 2 expression x 2; grade 3 score = percentage with grade 3 expression X 3). A total score between 0 and 300 was calculated for each case (total score = grade 1 score + grade 2 score + grade 3 score).

Results: Normal prostate epithelium was negative or demonstrated mild IGF-IEc cytoplasmic IE, whereas PCA exhibited mild to strong cytoplasmic IE. A statistically significant positive correlation (p<0,05) of IGF1Ec IE with histological parameters (Gleason score, Grade group, percentage of pattern 4 participation, cribriform pattern, extraprostatic extension, tumor volume, surgical margins, seminal vesicles invasion and pelvic lymph node metastasis) was observed. Furthermore, there was a statistically significant difference (p<0,05) between IGF1Ec IE in low grade - Group A and high grade - Group B Pca (higher IE in group B).

Conclusions: The present data demonstrate that IGF-IEc is highly expressed in GG 5/ high pathological stage PCa and therefore could be a promising targeted approach in the therapeutic panel era for advanced PCa.