P058 Prognostic significance of immunohistochemical and pathological factors for early recurrence of localized prostate cancer

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Introduction & Objectives: To study the features of localization of hypoxia-inducible factor-1a (HIF-1a) in tumor cells in patients with localized prostate cancer (PC), depending on subsequent early recurrence and the presence of high-grade intraepithelial neoplasia (PIN-2) in the peritumoral zone.

Materials & Methods: In tumor tissue samples of 116 patients with localized PC T1c-T2cN0M0, after radical prostatectomy (RPE), the type of staining in the cell was determined using monoclonal antibodies to HIF-1a and immunohistochemistry. Prostate cancer was combined with PIN-2 in the peritumoral zone in 35 patients. Biochemical recurrence (BR) of PC in the next two years after RPE developed in 56 patients, was absent in 60 patients.

Results: It was established that nuclear cytoplasmic staining of tumor cells with antibodies to HIF-1a was associated with an increased risk of relapse (p <0,0001), as determined by the D'Amico method. At high risk of recurrence, this type of staining was found in 100% of cases, with intermediate risk, at 68.8%, and at low and very low risk, it was completely absent. Nuclear-cytoplasmic localization of HIF-1a in tumor cells in patients with PC was more common with the subsequent development of BR compared with the disease-free course of the disease (73% vs. 30%, p = 0,043). Simultaneous detection of surgical biopsy specimens of HIF-1a expression in the cytoplasm and nuclei of tumor cells increased the relative risk (RR) of developing BR (RR = 2,4, p = 0,0001) compared with isolated expression of the factor only in the nucleus (RR = 1,6, p = 0,04). At the same time, the presence of PIN-2 in the peritumoral zone did not alter the RR of relapse of PC depending on the localization of HIF-1ain the cell, but had an independent effect on the frequency of BR. Thus, the combination of adenocarcinoma with PIN-2 in the peritumoral zone increased the risk of BR (RR = 1,65, p = 0,02).

Conclusions: Expression of HIF-1a in tumor cells of operating biopsies with its nuclear-cytoplasmic accumulation is one of the prognostically significant independent risk factors for the early development of BR after RPE in patients with localized PC. The presence of PIN-2 in the peritumoral zone of the prostate did not change the risk of early recurrence depending on the expression of the hypoxia-dependent transcription factor, but had an independent prognostic significance.