13. STRESZCZENIE W JĘZYKU ANGIELSKIM

Prostate cancer (PCa) is one of the most common malignancies in men worldwide. Characterized by high incidence and mortality rates, it poses a significant global health problem. Ongoing research seeks new methods to support classical pathomorphological diagnosis of PCa, which, through additional immunohistochemical staining, would enable the identification of proteins serving as predictive factors for aggressiveness and/or advancement of the disease. Therefore, the aim of the doctoral thesis was to evaluate the expression of HBXIP protein, Bruton tyrosine kinase, and PTEN protein in adenocarcinoma and non-neoplastic glandular tissue of the prostate. Additionally, relationships between the expression of these proteins and histological and clinical features of patients undergoing radical prostatectomy due to PCa were assessed. Relationships between the expression of the investigated proteins and loss of PTEN protein expression – a recognized marker of aggressive prostate cancer – were also examined. The analysis aimed to assess the utility of HBXIP and BTK proteins as new potential tissue biomarkers of prostate cancer.

The study was conducted on archival histopathological material from 60 randomly selected patients who underwent radical prostatectomy due to prostate cancer between 2017 and 2023 at the Department of Oncological and General Urology of the Provincial Integrated Hospital named after Jędrzej Śniadecki in Białystok. Patients were divided based on the degree of histopathological differentiation of the tumor according to the Gleason classification and the International Society of Urological Pathology (ISUP) from 2014, as well as the presence of lymph node metastases.

The research showed higher expression of HBXIP and BTK proteins in primary foci and lymph node metastases of prostate cancer, which may indicate their role in the tumorigenesis process. Moreover, higher expression of HBXIP and BTK proteins, along with more homogeneous loss of PTEN tumor suppressor protein expression, is associated with increased histological malignancy of the primary focus of prostate cancer. In the primary focus of prostate cancer, a relationship was found between BTK protein expression and local tumor advancement, as well as between HBXIP protein expression and increased risk of lymph node metastases.

In summary, the investigated proteins HBXIP and BTK, similar to PTEN – a recognized marker of aggressive prostate cancer – may serve as potential tissue prognostic and predictive markers for prostate cancer.