55. PREDICTIVE BIOMARKERS OF COLORECTAL CANCER

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Introduction. Colorectal cancer (CRC) is the type of cancer with the highest incidence rate at present. Despite the fact that CRC is histologically homogeneous, each tumor has a unique molecular profile, which is characterized by different genetic and epigenetic changes.

Aim of study. Assessing the significance and informativeness of biomarkers in early detection of CRC in the current literature.

Methods and materials. PubMed, PubMed Central, Medline, Google Scholar databases for assessing the role of predictive biomarkers of CRC, keywords used „biomarkers", „colorectal cancer", „screening".

Results. The analysis of the databases selected 82 articles: 25 – dedicated to chromosomal instability and its involvement in colorectal carcinogenesis, 17 – on microsatellite instability and frequency of genomic mutations, 13 – on molecular repair systems, 27 – on polymerase gene mutations. Thus, several molecular genomic biomarkers have been identified, which are currently used for the diagnosis, prognosis and establishment of CRC treatment. The informativeness of many genes that are characterized by high frequency of mutations has been demonstrated (KRAS, NRAS, BRAF, PIK3CA, APC, TP53, SMAD2, SOX9), changes in DNA methylation (MLH1), affected expression at the level of mRNA or proteins and translocations (NAV2/TCF7L1), which contributes to the early confirmation of CRC and the early initiation of treatment for these neoplasms.

Conclusion. This review highlights the effectiveness of biomarkers and the importance of individual approaches in the curative management of patients with this type of neoplasia, with a direct impact on morbidity and mortality.