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The Influence of Polymorphisms of NER System Genes on the Risk of Colorectal Cancer in the Polish Population

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Abstract : Colorectal cancer (CRC) is one of the deadliest cancers. Every year we see an increase in the number of cases, and in spite of intensive research etiology of the disease remains unknown. For many years, researchers are seeking to associate genetic factors with an increased risk of CRC, so far it has proved to be a compelling link between the MMR system of DNA repair and hereditary nonpolyposis colorectal cancers (HNPCC). Currently, research is focused on finding the relationship between the remaining DNA repair systems and an increased risk of developing colorectal cancer. The aim of the study was to determine the relationship between gene polymorphisms Ser835Ser of XPF gene and Gly23Ala of XPA gene–elements of NER DNA repair system, and modulation of the risk of colorectal cancer in the Polish population. Determination of the molecular basis of carcinogenesis process and predicting increased risk will allow qualifying patients to increased risk group and including them in preventive program. We used blood collected from 110 patients diagnosed with colorectal cancer. The control group consisted of equal number of healthy people. Genotyping was performed by TaqMan method. The obtained results indicate that the genotype 23Gly/Ala of XPA gene is associated with an increased risk of colorectal cancer, while 23Ala/Ala as well as TCT allele of Ser835Ser of XPF gene may reduce the risk of CRC.

Keywords : NER, colorectal cancer, XPA, XPF, polymorphisms
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