

POTENTIAL ROLE OF VIRUSES IN THE ETIOLOGY AND PATHOGENESIS OF COLORECTAL CANCER

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Objectives: The aim of the project was to demonstrate the presence of viruses with oncogenic potential in colorectal cancer cells and in colon polyps, in correlation with the viral prevalence in healthy colonic mucosa in a healthy population.

Methods: Colonoscopic biopsies were taken in patients from normal mucosa, polyps and colonic tumors. Patients were divided into 3 groups green control group, yellow patients with polyps, and red patients with carcinomas and polyps. All biopsy specimens were diagnosed by a pathologist into diagnostic units (adenoma LG/HG, serrated, hyperplastic polyp), adenocarcinoma G1, G2, G3, Gx, mucinous, and normal histology. All of these were analyzed by qPCR using diagnostic kits for the 12 oncogenic DNA viruses studied - *CMV*, *HSV1*, *HSV2*, *HBV*, *VZV*, *EBV*, *HHV6*, *HHV7*, *HHV8*, *BK V*, *JC V*, *HPV*.

Results: We analyzed 696 biopsies from 123 patients. We found a statistically significant difference in the presence of *EBV* and *HPV* in biopsies from polyps (yellow group) versus control (green group) *EBV* ($p < 0.001$), *HPV* ($p = 0.026$). We observed higher presence of *EBV*, *CMV* and *HPV* in biopsies from tumors (red group) compared to control (*EBV* $p < 0.001$, *CMV* $p = 0.030$, *HPV* $p = 0.038$). We found a higher presence of *EBV*, *CMV* and *HPV* in polyps from patients in the red group compared to control (*EBV* $p < 0.001$, *CMV* $p = 0.044$, *HPV* $p = 0.003$). Higher presence of *EBV* in polyps of red group patients compared to the yellow group (*EBV* $p < 0.001$). We found no difference in the presence of viral DNA between the control group and healthy mucosa biopsies in the yellow and red groups. We found a significant difference in the presence of multiple types of viral DNA within a single biopsy only in relation to the diagnosis of carcinoma in the *EBV* concurrent *HHV6* combination ($p = 0.003$).

Conclusion: There is a statistically significant difference in the presence of potentially oncogenic viruses (*EBV*, *CMV*, *HPV* and *HHV6*) in polyps and colorectal carcinomas compared to healthy mucosa and healthy population.