

Jordan University of Science and Technology

JC virus in colorectal cancer: where do we stand?

Authors: Ismail Matalka, Samer Swedan, Mohamad Nidal Khabaz, Myassar Mustafa Barahmeh

Abstract: Aim: Colorectal cancer (CRC) is a major cause of morbidity and mortality worldwide. In 2008, CRC was ranked as the second most common cancer among all newly diagnosed cancers in Jordan. It was recently suggested that the JC virus (JCV) could be linked to the development of CRC. However, this topic remains highly controversial. JCV is a common human polyomavirus that first infects individuals during early childhood. Infection with JCV can occur due to intake of contaminated water and food. The vast majority of those infected have no symptoms; however, severe immunosuppression can trigger reactivation of the virus. The oncogenicity of JCV was suggested to be related to its large T-antigen (T-Ag). This study aimed to investigate the incidence of JCV in CRC tissue of patients from northern Jordan. Materials & methods: Paraffin-embedded tissues from cases previously diagnosed with CRC were used. Immunohistochemistry and PCR techniques were used to detect the presence of JCV. Results: In total, 15.6% of CRC samples were positive for JCV T-Ag protein, whereas none of the noncancer control samples were positive. In total, 43.5% of CRC samples contained the JCV T-Ag gene compared with 16.7% within control samples. All CRC samples expressing the JCV T-Ag protein harbored the JCV T-Ag gene. However, not all samples that harbored the T-Ag gene expressed the T-Ag protein. Conclusion: Our results are consistent with recently published data and raise the possibility of an association between JCV infection and CRC. These findings deserve further investigation in larger-scale studies in order to elucidate the possible molecular carcinogenesis pathways in JCV-infected colorectal neoplasms.