Immunohistochemical Study of The Expression of TACC3 and KRAS in Colorectal Carcinoma and its Correlation with Other Pathological Prognostic Factors

Thesis

Submitted for Partial Fulfilment of MD Degree in Pathology

By

Ahmed AbdelAlim AbdelRahman Hussein

MBBCh, MSc

Under Supervision of

Prof. Dr. Hany Mahmoud Khattab

Professor of Pathology

Faculty of Medicine, Cairo University

Prof. Dr. Reham Shehab El-Nemr

Assistant Professor of Pathology

Faculty of Medicine, Fayoum University

Dr. Mohammad Hussein El-Mahdy

Lecturer of Pathology

Faculty of Medicine, Fayoum University

Faculty of Medicine

Fayoum University

2021

Summary

The current study included 45 cases of colorectal adenocarcinoma. All cases were routinely processed i.e. formalin-fixed and paraffin-embedded. The cases were collected from the pathology departments of Kasr AlAiny and some private labs, dating between 2019 and 2020. For all cases, clinical and demographic data were obtained from the databases available on the IT systems. All of the cases included in our study were resection specimens.

Three sections were prepared from a paraffin block representing tumor tissue in each case. The sections were studied both histologically and immunohistochemically. For histological examination, the sections were stained by hematoxylin and eosin stain. The sections were also immunostained for TACC3 and KRAS expression by using polyclonal rabbit antibody for human TACC3 fusion protein (Biospes, YPA2096) and polyclonal rabbit antibody for a peptide derived from human KRAS protein (Biospes, YPA2157), respectively. For TACC3, immunoreactivity score (IRS) was calculated considering both the extent and intensity of cytoplasmic staining in tumor cells. For KRAS, a case was considered positive when more than 10% of the cells in the examined tumor showed positive cytoplasmic staining.

The average IRS for TACC3 expression was 107.2, with a median value of 70. On the other hand, 58% of the cases were found to be positive for KRAS. Statistical analysis showed that immunohistochemical expression of TACC3 is significantly related to the N stage and group stage, while KRAS expression was not significantly related to any of the studied parameters.

These results proved that TACC3 can be of value in the prognostication of colorectal adenocarcinoma. On the contrary, the results of our study showed that KRAS expression was not of similar value.

In general, immunohistochemical study of TACC3 expression should be considered as a significant factor when assessing the prognosis of patients having colorectal cancer. Given its role in tumor progression, TACC3 should further be considered as a molecular target in therapeutic studies.