



The Role of TROP2 Expression on Progression of Colon Cancer in Iraqi Patients

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Abstract

Colon Cancer (CC) is common type of the intestinal cancers, its onset in peoples at 50-70 years and high percent in male more than female and account for about 80% of all intestinal cancer cases CC diagnoses depend on histopathological finds of abnormal colon architectures in the tissue as golden standard of CC diagnosis. Trophoblast cell surface antigen 2 (TROP2) or tumor-associated calcium signal transducer 2 (TACSTD2) is a 36-kDa type I transmembrane glycoprotein and exerts dual functions as an oncogene and tumor suppressor in cancer cells is transmembrane glycoprotein receptor, encoded by Tacstd2 gene, observe in various cancer types of especially epithelial cancers. TROP2 has the up-regulation (overexpression) in another cancer cells such as pancreatic, thyroid and ovarian cancers. It is shown up-regulation of TROP 2 in CC Iraqi patients by Immunohistochemical method. The current study done in Al-Yarmook Teaching Hospital from March 2019 to January 2021, was included 30 cases of CC patients (23 males and 7 females) and 30 healthy subjects (23 males and 7 females), all of subject's age were more than 50 years. This study depends on collect of paraffin embedded CC biopsies then used Immunohistochemical method to examine the present of TROP2 in all cases. This qualitative study shows significant expression of TROP2 in CC patients compare with control groups. The present study confirm effect of TROP2 expression on CC development.

Keywords: Colon Cancer (CC), TROP2 and Immunohistochemical.

1. Introduction

Colon Cancer (CC) is the common intestinal cancer disturbance about 80% of all intestinal cancers, and it's more frequent in males than females at age 50-70 years (1). The histological analysis considers golden standard for diagnosis, CC's diagnosis by histology depends on present of abnormal cell architectures (malignant cells) association with nuclear features that involve elongation and irregular contour with grooves (2)

Trophoblast cell surface antigen 2 (TROP2) is

trans-membrane glycoprotein receptor, encoded by tumor associated Ca signal transducer 2 (Tacstd2) gene located on chromosome 1p32. It's found in cell lines of human trophoblasts and choriocarcinoma, also the TROP2 expression observed to be correlated with the development and progression of tumors in several epithelial malignancies (3) . TROP2 has the up-regulation (overexpression) in cancer cells such as pancreatic, thyroid, and ovarian cancers (4).

The study aim is shown up-regulation of TROP 2 in CC Iraqi patients by Immunohistochemical method.

2. Materials and Methods

The current study done in Al-Yarmook Teaching Hospital from March 2019 to January 2021, was included selection of 30 cases with CC patients (23 males and 7 females) and 30 cases of benign tumor (act as control) (23 males and 7 females) after taken biopsy by done colonoscopy and investigated under cytology exam. The subjects studied ages were more than 50 years of both sexes. The all of individuals in this study were examined by ultrasound and computerized tomography scan to exclude any other tumor conditions. The sampling depends on collect of paraffin embedded biopsies from CC group and control group, then used Immunohistochemical method to examine the present of TROP2 (as qualitative measurement) in all cases.

3. Statistical Analysis

After examined TROP2, chi-square (χ^2) method was for statistical analysis to show different of TROP2 presenting by comparison between CC and control groups, and $P < 0.05$ was considered significant.

4. Results

The present study explains a different of TROP2 expression results between CC and control groups. This result used Chi-square assay to find different between groups under microscope 10x (Table 1, Figures 1 and 2).

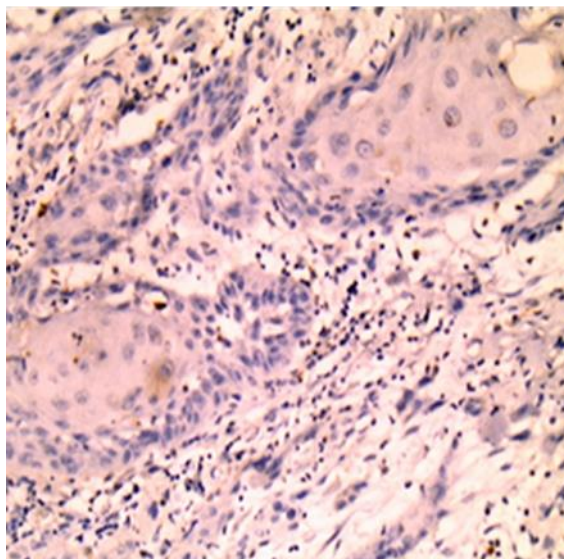


Figure 1: Show negative expression of TROP2 by immunohistochemistry method under microscope 10x.

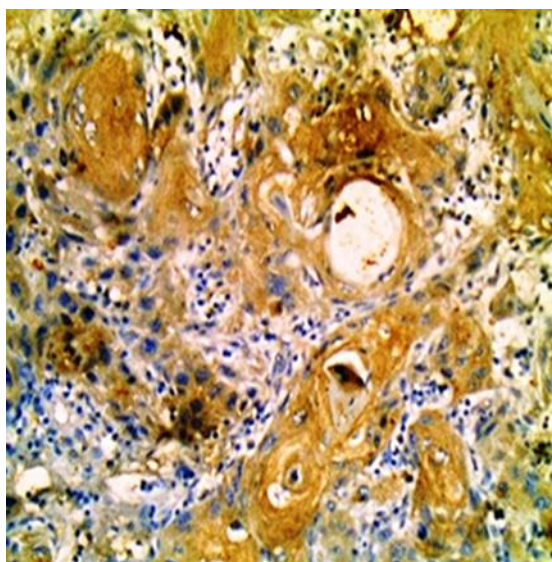


Figure 2: Show positive expression of TROP2 by immunohistochemistry method under microscope 10x.

Table 1: Comparison of CC Patients and control groups according to TROP2 expression results via Chi-square assay method

Groups	Cases	TROP2 expression	
		No. positives (%)	No. negatives (%)
Control	30	0 (100)	30 (100)
Colon cancer	30	27 (90)	3 (10)
<i>P- value</i>		0.02	

*Significant value

5. Discussion

In this study the immunohistochemical method was used to assess the TROP2 expression in CC patients compares with control groups. The study results demonstrate that a significant value in TROP2 expression when compare between CC and control groups (high TROP2 expression in CC patients' group), that agree with Zhao P and et al (5). The present study found that increase TROP2 expression in PTC group.

TROP2's expression detected in high sensitivity and specificity CC based on these finding, TROP2 immunohistochemistry staining has been shown to be a strong diagnostic marker for CC, but there are numerous studies show finding demonstrate the utility of TROP2 expression in the CC diagnosis in clinical settings, no mechanism was explored as to why TROP2 expression was particularly elevated in CC patients (6,7). The TROP2 expression also facilitates tumor genesis by activating the MAPK/ERK pathway, which has significant implications for different cellular pathways lead to cancer cell proliferation, migration, invasion, and survival (8).

This study results agree with Gu QZ and et al and other studies that shown that TROP2 is up regulated in all CC cells and support cell proliferation, and also regulate the TROP2 transcription (9).

6. Conclusions

The current study demonstrate effect of TROP2 expression on CC cancer cell proliferation, migration, invasion, and survival immunohistochemical method.

7. Conflicts of interest

“There are no conflicts to declare”.

8. Ethical approval

All investigations were conducted in accordance with the ethical committee of Al-maarif University College.

9. Acknowledgments

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10. References

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