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Expression of stem cell markers Cd133 and Oct4 in rectosigmoid adenocarcinoma and their predictive significance of response to chemotherapy and/or radiotherapy

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Background: Colorectal cancer is the third most common cancer in men and the second most common cancer in women worldwide. Recently, cancer stem cells (CSCs) have received attention due to their role in cancer initiation, progression and metastases. Their ability of self-renewal, unlimited proliferation, and multipotency are considered as cancer stem-cell phenotypes, and they seem to be responsible for local relapse and metastasis by inducing resistance against traditional drug therapy.

Methods: In this study, we evaluated the immunohistochemical expression of OCT-4 and CD133 in 30 cases of rectosigmoid adenocarcinoma which received neoadjuvant chemoradiotherapy in relation to other clinicopathological features of the tumor.

Results: Negative OCT-4 expression was noted in 17 cases with the scores less than 4. Positive OCT-4 expression was observed in 13 cases with the scores equal to or more than 4. A significant relationship was found between OCT-4 and tumor stage ($P=0.029$). The significant relationship was found between OCT-4 and clinical response ($P=0.010$). 10 cases out of 30 were negatively stained by CD133, while the other 20 cases were positively stained. Positively stained samples further classified into high expression (12 specimens) and low expression (8 specimens). No statistically significant relationship was found between CD133 and different clinicopathological parameters as patient's age, sex, tumor stage, grade, LN status, clinical response and pathological response to chemoradiotherapy.

Conclusion: We concluded that the expression of OCT-4 is significantly correlated with tumor stage which might indicate that OCT-4 expression is a poor prognostic factor in CRC. The expression of OCT-4 is significantly correlated with good clinical response to chemoradiotherapy. The mean age for the development of CRC is lower in the Egyptian population than the western countries.

Biography

Dina M Abdallah is an Assistant Professor of Pathology at Alexandria Faculty of Medicine, Egypt.

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