E-cadherin expression in colorectal cancer

Immunohistochemical Study

Thesis

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LIST OF ABBREVIATIONS

AA	: Amino acid.
AC	: Actin cytoskeleton.
ACF	: Aberrant crypt foci.
AJ	: Adherens junction.
AJCC	: American Joint Committee on Cancer.
APC	: adenomatous polyposis coli
BMI	: Body mass index.
CD	: Chron's disease.
CDX2	: Caudal type homeobox gene.
CEA	: Carcinoembryonic antigen.
CK	: Cytokeratin.
CM	: Cytoplasmic membrane.
CRC	: Colorectal cancer.
DAB	: Diaminobenzidine tetrahydrochloride solution.
EC	: Extracellular cadherin.
ECF	: Ectopic crypt formation.
ED	: Extracellular domin.
EMT	: Epithelial mesenchymal transition.
FAP	: Familial adenomatous polyposis.
GI	: Gastrointestinal.
GIT	: Gastrointestinal Tract.
H&E	: Hematoxylin and Eosin.
HNPCC	: Hereditary non-polyposis cancer colon**.**
HPs	: Hyperplastic polyps**.**
IBD	: Inflammatory bowel disease.
ID	: Intracelluler domain.
IEN	: Intra Epithelial Neoplasia.

IHC	: Immunohistochemistry.
K-ras	: Kirsten rate sarcoma virus.
MC	: Mucinous adenocarcinoma.
MSI	: Microsatellite instability.
NEC	: Neuroendocrine carcinoma.
NET	: Neuroendocrine Tumor.
P value	: Probability factor.
PJS	: Peutz-Jeghers syndrome.
SACA	: Serrated adenocarcinomas.
SCC	: Squamous cell carcinoma.
SPSS	: Statistical Product for services solutions.
SSA	: Sessile serrated adenoma.
TBS	: Tris Buffered Saline.
TD	: Tumor deposits.
TGF β	: Transforming Growth Factor β.
TGF-a	: Transforming Growth Factor-a.
TIL	:Tumor infiltrating lymphocytes
TNM	: Tumor node-metastasis.
TSA	: Traditional serrated adenoma.
UC	: Ulcerative colitis.
UICC	: Union for International Cancer Center.
WCRF/AICR	: The World Cancer Research Fund/American Institute for Cancer Research.

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INTRODUCTION

Colorectal carcinoma (CRC) is one of the most common human cancers. It is the fourth most common cause of death from cancer. Colorectal cancer is the third most common cancer in men and the second in women worldwide **(Ferlay et al.,2010)**.

In Egypt, the Cancer Pathology Registry of National Cancer Institute of Cairo University showed that during the years 2003-2004, colorectal cancer occupied the first rank among digestive system's malignancies (15.78%) and the fifth rank among all total cancers (4.34%) **(Mokhtar et al., 2007)**.

Veruttipong et al., (2012) stated that colorectal carcinoma is one of the common malignancies among Egyptians and also that neoplastic and non neoplastic colonic lesions represent insisting danger in Egypt where the incidence rate is progressing, and became more common in younger ages.

Selection of the most beneficial treatment regimens in colorectal cancer remains a challenge and is hindered by a lack of predictive and prognostic markers. In recent years, research on a global scale has attempted to define subsets of prognostic markers to determine the aggressiveness of the disease and the like hood of recurrence after surgery **(Wilson et al., 2007)**.

E-cadherin is a membrane-associated protein which is an essential regulator and provider of cellular adhesion. In the metastatic cascade of malignant tumors, detachment of tumour cells from each other is a very important step.

It has been shown in several tumor types, that reduced expression of these proteins is important. Without sufficient E-cadherin expression, cells become unable to adhere to one another .The cells begin to invade surrounding tissues and are unable to control their growth. Loss of E-cadherin allows carcinomas to become highly metastatic **(Guarino et al., 2007)**.

E-cadherin is expected to be a useful biomarker associated with invasiveness and poor differentiation **(Ye et al.,2012)**.

AIM OF THE WORK

1. Histopathologic and immunohistochemical studies on colorectal carcinoma (CRC).

2. Evaluation of immunohistochemical expression of E-cadherin marker in studied cases.

3. Correlation of E-cadherin immunohistochemical expression with clinical data, histology and tumor differentiation will be carried out.

Colorectal Carcinoma

Colorectal cancer (CRC) is the fourth most common leading causes of cancer-related mortality in the world, accounting for approximately 10% of all human cancers (**Zavarhei et al., 2007**).

Ferlay et al.,(2010) stated that it is the third most common cancer in men and the second in women worldwide. It represents the third most common cancer worldwide after lung and breast cancer.

Early diagnosis of CRC, successful surgical treatment, better knowledge of its clinicopathological prognostic factors and response to adjuvant therapy have contributed to the improve outcome of affected patients. Therefore, identification of molecular marker associated with carcinogenesis, tumor growth, invasion and metastasis has been critical to developing potential therapeutic intervention (**Doger et al., 2006**).

Epidemiology:

Colorectal cancer is a common form of malignancy in developed countries but occurs much less frequently in the developing world (**Northern Ireland Cancer Registry, 2011)**.

The age standardized incidence varies greatly around the world, with up to 20 fold difference between the high rates in developed countries of Europe, North and South America, Australia, New Zealand, and Asia and the still lower rates in some recently developed countries as (Malaysia, Korea) and in developing countries of Africa, Asia and Polynesia (**Hamilton et al., 2010**).

In the European Union, the lowest rates for both men and women were in Greece. The highest rates were found in men in Slovakia and in women in Denmark (**European Age-Standardized rates, 2008)**.