Immunohistochemical study of mammaglobin expression in metastatic and non metastatic duct breast carcinoma

A thesis submitted in fulfillment of M.Se in pathology
By

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2009

Acknowledgement

First, I would like to express my deepest gratitude and thanks to almighty; **ALLAH** most Gracious most Merciful whose magnificent help was the main factor in accomplishing this work.

I would like to express my sincere gratitude and deep appreciation to Prof. Dr. ***Naema Abd El Monaem Maraii*** *,* professor of Pathology, Faculty of Medicine, Cairo University, for her continuous scientific guidance, unlimited help, the precious time and effort she devoted in the supervision of the present work.

I am delighted to express my deep gratitude and sincere thanks to, Prof. Dr. ***Mona Moris Zakii****,* Professor of Pathology, National research center for his great help, experienced guidance, endless support, precious advice and kind supervision throughout the period of the work.

I'm greatly indepted to Dr. ***Wael Shawky Ibrahim****,* Lecturer of Pathology, Faculty of Medicine, Cairo University, for her continuous interest, helpful cooperation and effective advice throughout the entire work.

My sincere thanks to Prof. Dr. ***Sonia Labib****,* Professor of Pathology, and National research center, for his great support and help.

Finally but not the least, thanks to my family and special thanks to my **mother** who exerted true effort in helping me to complete this work.

ABESTRACT

Background: Breast cancer is the most common type of cancer diagnosed in women excluding skin cancer. In Egypt, breast cancer is the most common cancer among women. Also it has a younger age distribution.The Mammaglobin gene is a member of uteroglobin family. Mammaglobin expression has been observed in breast epithelial cells, its biological role in breast tissue, and by extension in breast cancer, is completely unknown. The particular mechanism mediated by mammaglobin, or whether mammaglobin expression is just a feature of the normal breast epithelial cell that may gets lost during the dedifferentiation process associated with increasing malignant transformation.

Aim of work: Study of mammaglobin (MAM) expression in relation to metastatic and non metastatic breast carcinoma and evaluate the ability of using mammaglobin marker as prediction of metastasis.

Materials and methods: the studied 30 specimen were subjected to the ordinary H&E staining and immunohistochemical staining for mammaglobin.

Results: Correlative studies between mammaglobin expression with different prognostic parameters including the grade and stage of the studied tumors revealed statistically significant correlation between mammaglobin expression and

tumor size, grade and lymph node metastasis of breast carcinoma.

Conclusions: Increasing mammaglobin intensity seems to be significantly associated with disease progression in breast carcinoma with exception of the tumor grade in which there is an inverse relation mammaglobin expression and low grade tumor and tumor stage that likes to have no relation.The correlation between *mammaglobin* expression and positive lymph nose metastasis suggested that we can use it as a predictor of tumor metastasis.

Key words: Mammaglobin –Duct breast carcinoma.

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LIST OF ABBREVIATIONS

AJCC: American Joint Committee on Cancer.
AR: Androgen receptor.
ATM: Ataxia Telangectasia Mutated.
BRCA: Breast cancer gene.
CD: Cathepsin-D.
CHEK2: Cell cycle check point kinase 2.
DCIS: Duct carcinoma insitu.
ECM: Extracellular cellular matrix.
ER: Estrogen receptor.
HNPCC: Hereditary non polyposis colon cancer syndromes.
LCIS: Lobular carcinoma insitu.
MAM: Mammaglobin.
NCI: National cancer Institute .
NOS: Not Otherwise Specified.
NPI: Nottingham prognostic index.
PR: Progesterone receptor.
PTEN: Phosphatase and Tensin homologue.
STK11: Serine Therionine Kinase – 11.
SRCC: Signet ring cell carcinoma.
TNM: Tumor Metastasis Nodal classification.
WHO: World Health Organization.

INTRODUCTION

Breast cancer is an important cause of morbidity and mortality among women. It represents the second leading cause of cancer deaths in females (after skin cancer). The estimated annual incidence of breast cancer worldwide is about one million cases (22% of all cancers in the world in 2000). **(Dumitrescu and Cotarla, *2005*).**

Breast cancer constitutes 33% of all feamle cancers in Egyptian National cancer Institute (NCI) **(EL-Bolkainy et al. *2005*)**. The large variation of breast cancer incidence among or within different regions of the world may be attributed to genetic differences among populations and /or differences in lifestyle **(Parkin, *2001*).**

The pathogenesis and epidemiology of the disease are complex with few risk factors **(Newman, *2005*).**

The Mammaglobin gene is a member of uteroglobin family, localized on chromosome 11q12-13. It codifies for a glycoprotein