Diagnostic Value of Biochemical Markers in Urine of Bladder Cancer Patients

Thesis
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Presented by
ABLA EMAD EL-DIN TAHA BARAKAT

Under the supervision of

PROF. DR. ZEINAB ZAKI EL-DARDIRI
Professor of Biochemistry
Faculty of Science - Ain Shams University

DR. OMAR EL-AHMADY EISSAWI
Head of Tumor Markers Oncology Research Unit
Associate Professor of Biochemistry
Faculty of Pharmacy - Al Azhar University

BIOCHEMISTRY DEPARTMENT
FACULTY OF SCIENCE
AIN SHAMS UNIVERSITY

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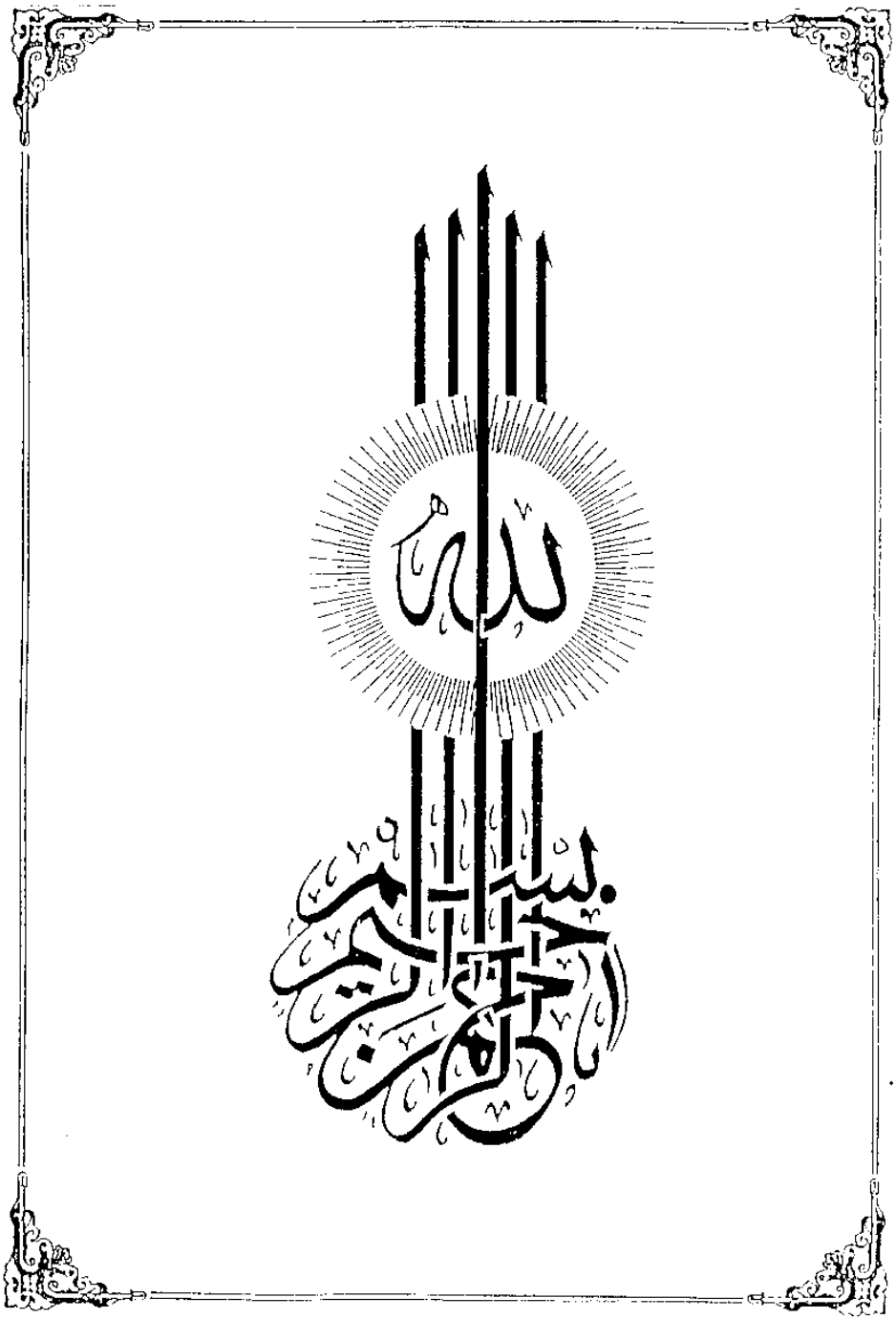

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LIST OF ABBREVIATIONS

AFP	:	Alphafetoprotein.
APR	:	Acute phase reactants.
B-HCG	:	Beta subunits of human chorionic gonadotropin.
CA 15-3	:	Cancer antigen 15-3
CA 19-9	:	Cancer antigen 19-3.
CA-50	:	Cancer antigen 50.
CA-125	:	Cancer antigen 125.
CEA	:	Carcinoembryonic antigen.
CpK	:	Creatinine phosphokinase.
DNCB	:	Dinitrochlorobenzamine reaction.
EIA	:	Enzyme linked immunoassay.
ELISA	:	Enzyme linked immunosorbent assay.
FDPs	:	Fibrinogen degradation products.
FSA	:	Fetal Sulfoglycoprotein antigen.
GGT	:	Gamma-glutamyl transferase.
GT-II	:	Glycosyl transferase II isoenzyme.
HpL	:	Human placental lactogen.
IRMA	:	Immunoradiometric assay,
LDH	:	Lactate dehydrogenase.
MTGP	:	Mammary tumor associated glycoprotein.
NSE	:	Neuron-specific Enolase.
PAG	:	Alpha 2 pregnancy associated globulin.
PAP	:	Prostatic acid phosphatase.
PLAP	:	Placental like alkaline phosphatase.
POA	:	Pancreatic oncofetal antigen.
PSA	:	Prostatic specific antigen.
PTA	:	Parathyroid hormone.
RIA	:	Radioimmunoassay.
SCC-A	:	Squamous cell carcinoma antigen.
SHBG	:	Sex hormone-binding globulin.
SP-I	:	Pregnancy-specific glycoprotein.
TA-4	:	Tumor associated antigen.
TATI	:	Tumor associated trypsin inhibitor,
TdT	:	Terminal deoxy nucleotidyl transferase.
TPA	:	Prostatic acid phosphatase.

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INTRODUCTION

The incidence rates for bladder cancer in many countries are increasing to variable degrees *(Mcphee and Hill, 1981).* In U.S.A, bladder cancer accounts for about 4% of malignant diseases. It has been estimated by the American Cancer Society that 37,000 new cases of bladder cancer in United States were diagnosed in 1982, with about 27,000 occurring in males and 10,000 appearing in females *(Cancer Facts, 1982).* While in 1988 it has been estimated that there were 46,600 new cases of bladder with an estimated 10,400 deaths *(Silverberg and Lubera, 1988).* Thus, bladder cancer is significant and important public health problem in United States and other countries *(Richie et al., 1989).*

Bladder cancer continues to be the most frequent cancer today in Egyptian men. It accounts for about 33% of malignant tumors *(Ragaa et al., 1988).* At the Cancer Institute in Cairo alone, over 700 new cases are seen every year *(O'Conor, 1981).* The high frequency of bladder cancer in Egypt Led Ferguson in 1911 to suggest an association with the Urinary Schistosomiasis. There is a universal correlation between the endemicity of S. haematobium and the frequency of bladder cancer.

Schistosomiasis is a disease recorded in antiquity, presently known as bilharziasis to Gredit "Theodor Bilharz" the discoverer of the parasite. Schistosomiasis has become and persists as one of the most important public health problems affecting more than 200 millions people in many countries, where the climatic conditions provide favorable circumstance for the maintenance of the life cycle of the parasites *(Adamson, 1976).* It has been

suggested that the cardle of Schistosomiasis lies in the region of the African Great Lakes. The trading routes and practices of ancient times provide for the subsequent establishment of the parasites as well as the snail hosts in upper Egypt. From there, a wider dissemination into and throughout the Delta region was readily accomplished. The presence, location and density of the intermediate Snail hosts are the determining factors for the geographical distribution of the parasites and the diseases with which they are associated. Today S. haematobium infection is endemic throughout most of Africa and in many countries of the Middle East and in India *(O'Conor, 1981).* Carcinoma of the urinary bladder predominates in the rural communities, in Egypt 65-70% of the bladder cancer patients are farm workers. The age incidence of cancer of the schistosomal bladder is much lower than that of the non-schistosomal cancer. A period of 10-15 years of bilharzial infection usually elapses before the carcinoma develops *(El-Ahmady et al., 1988).* The bladder cancer associated with schistosomiasis is predominantly of the squamous cell type. Chronic inflammation and obstruction clearly play a role, but a variety of interacting factors may also be involved in the tumorigenic process.

Human neoplasma may produce and release into the circulation a variety of substances collectively referred to as "Tumor Markers". The oncofetal antigens comprise one particular group of markers of which the carcinoembryonic antigen (CEA) has been the most widely studied. The CEA can be released by these tumors into the circulation to cause raised levels that may be measured by sensitive radioimmunoassay and related methods *(Goldenberg et al., 1981).*

Squamous cell carcinoma antigen (SCC), a tumor related antigen is currently attracting attention, it is a clinically important marker specific to cervical squamous cell carcinoma. Increased squamous cell carcinoma antigen levels have been found in the serum of patients with the SCC of uterine cervix (53.6%), skin (50%), lung (47%), esophagus (46%) and head and neck (24%) *(Cook et al., 1989).* Squamous cell carcinoma antigen was never tried in urine of bladder cancer patients specially of SCC (the famous type in Egypt).

AIM OF THE WORK

The aim of this work is to estimate the carcinoembryonic antigen (CEA) and squamous cell carcinoma antigen (SCC) in urine of patients with bladder cancer and compare the results with that of bilharzial and normal control cases to clarify the diagnostic importance of both markers in such cases.