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LIST OF CONTENTS

Chapters	Page
I. Introduction	
• Breast cancer	1
• Risk factors	1
• Breast Cancer treatment	7
• Apoptosis	9
• Tumor suppressor protein (p53)	12
• Survivin	16
• Circulating DNA	20
• Cytochrome c	24
• Vitamin A	28
• Vitamin E	33
II. Aim of the work	38
III. Subjects and Methods	39
• Determination of serum p53 concentration	41
• Determination of serum survivin level	45
• Determination of serum circulating DNA	48
• Determination of serum cytochrome c	55

IV. Results

- **Clinicopathological characteristics of patients in all studied groups** **59**
- **Results of serum p53 concentration** **62**
- **Results of serum survivin level** **65**
- **Serum circulating DNA** **67**
- **Results of serum cytochrome c level** **74**

IV. Discussion **79**

V. Summary and Conclusions **86**

VI. References **90**

V. Arabic Summary

LIST OF TABLES

Tables	Page
1. Clinicopathological parameters and characteristics of patients in control group.	60
2. Clinicopathological parameters and characteristics of patients in vitamins-treated group.	61
3. Statistical analyses of serum p53 concentrations (U/ml) in the control and vitamins-treated groups before and after chemotherapy.	63
4. Statistical analyses of serum survivin concentrations (pg/ml) in the control and vitamins-treated groups before and after chemotherapy.	65
5. Band intensity of serum DNA integrity in AU at 100 & 400 bp & DNA integrity index in the control and the vitamins-treated groups.	68
6. Serum cytochrome c levels in the control and the vitamins-treated groups.	74
7. Correlation between all biochemical parameters.	77
8. Correlation between biochemical parameters and clinicopathological characteristics in the control and vitamins-treated groups before and after chemotherapy.	78

LIST OF FIGURES

I) Introduction

<u>Figures</u>	<u>Page</u>
(1) Structure of FAC (5-Fluorouracil, Adriamycin, Cyclophosphamide).	8
(2) The two main pathways involved in apoptosis regulation.	11
(3) Structure of p53 protein.	13
(4) Stimuli and effects of activation of p53 protein.	15
(5) Survivin protein structure and function.	17
(6) The main functions of cytochrome c.	24
(7) Regulation of apoptosis by the redox state of cytosolic cytochrome c.	27
(8) Different forms of vitamin A.	29
(9) Schematic diagram of vitamin A/carotenoids metabolism.	31
(10) Different forms of vitamin E.	34

II) Subjects And Methods

<u>Figures</u>	<u>Page</u>
(1) Determination of serum p53 level by ELISA.	41
(2) Serial Dilutions of p53 standard curve.	43
(3) Standard curve of p53.	45
(4) Standard curve of survivin.	48
(5) Schematic diagram of the main three steps in PCR.	51
(6) Schematic diagram represents the exponential amplification of a particular DNA sequence.	51
(7) Schematic diagram illustrated DNA integrity analysis for PCR amplification of β -actin.	52
(8) Arrangements of accessories for protein transfer for western blot.	56
(9) A schematic diagram of western blotting technique.	58

III) Results

Figures

Page

(1) Serum p53 concentration (U/ml) in all studied groups.	64
(2) Serum survivin concentration (pg/ml) in all studied groups.	66
(3) Band intensity at 100 bp in all studied groups.	69
(4) Band intensity at 400 bp in all studied groups.	69
(5) Serum DNA integrity index (400 bp/100 bp) in all studied groups.	69
(6) A photograph of the electrophoresis for PCR products for the control group at 100 bp.	70
(7) A photograph of the electrophoresis for PCR products for the control group at 400 bp.	71
(8) A photograph of the electrophoresis for PCR products for the vitamins-treated groups at 100 bp.	72
(9) A photograph of the electrophoresis for PCR products for the vitamins-treated groups at 400 bp.	73
(10) Serum cytochrome c in all studied groups.	75
(11) The release of cytochrome c in the control and vitamins-treated Groups before and after chemotherapy.	76

LIST OF ABBREVIATIONS

ADH	Alcohol Dehydrogenase
AIF	Apoptosis Inducing Factor.
Apaf-1	Apoptotic Protease Activating Factor 1.
Apo-1	Activator Protein 1.
ATP	Adenosine Triphosphate.
At-RA	All-trans retinoic acid.
At-retinol	All-trans retinol.
AURKB	Aurora kinase B
AVED	Ataxia with vitamin E deficiency.
Bad	Bcl-2-associated death promoter
Bak	BCL2-antagonist/killer
Bax	Bcl-2-associated X protein
BC	Breast Cancer
Bcl -2 protein	Anti-apoptotic protein
Bcl-2 family	Apoptosis regulator Bcl-2
BclXL	B-cell lymphoma-extra large
BH (1-4)	Bcl-2 Homology Domains.
Bid	BH3 interacting-domain death
Bik	Bcl-2-interacting killer
BIR	Baculovirus IAP repeat.
BMI	Body Mass Index.
Bok	Bcl-2 related ovarian killer
BRCA 1	Breast Cancer Gene 1.
Ca ⁺²	Calcium ion.
CAD	Caspase-Activated DNase.
CARD	Caspase Recruitment Domain
Casp	Caspase.
CD95	Cluster of Differentiation 95
CDK	Cyclin-dependent Kinase.
CFDNA	Circulating Cell-free DNA.

CH11	Agonistic anti-Fas antibodies
COX	Cytochrome Oxidase.
CPC	Chromosomal Passenger Complex
CRABP	Cellular Retinoic Acid Binding Protein
CRBP II	Cellular Retinol-binding Protein II.
C-terminal	Carboxy-terminal
Cyt c	Cytochrome c.
Cytc ox	Oxidized cytc
Cytc red	Reduced cytc
dADP	Deoxy Adenosine DiPhosphate
dATP	Deoxy-Adenosine Triphosphate.
DFF	DNA Fragmentation Factor.
DIABLO	Direct IAP binding protein with low pI
DISC	Death-induced Signaling Complex.
DNA	Deoxyribo Nucleic Acids.
DNase	DNA nucleases.
DR 3-6	Death Receptors 3-6.
E2	Estradiol.
EBV	Epstein-Bar virus.
EPIC	European Prospective Investigation of Cancer.
ER	Estrogen receptor.
EnR	Endoplasmic reticulum
ERE	Estrogen-Responsive Element.
ETC	Electron Transport Chain.
FAC	5-Fluorouracil, Adriamycin, Cyclophosphamide.
FADD	Fas-associated Death Domain.
FasL	Fas ligand.
FLIP	FLICE-inhibitory protein.
G1	Growth phase 1 of cell cycle.
G2	Growth phase 2 of cell cycle.
GADD	Growth Arrest and DNA Damage
GSH	Glutathione.

HBXIP	Hepatitis B X-interacting protein.
HDL	Hig-Density Lipoproteins
HER-2	Epidermal growth factor receptor 2.
HIF-1 α	Hypoxia-inducible Factor-1 alpha.
HIF-1 α	Factor-1 alpha
HRT	Hormone Replacement Therapy.
Hsp 90	Heat shock protein 90.
IAP	Inhibitor of apoptosis.
IARC	International Agency for Research on Cancer.
ICAD	Inhibitor of Caspase-Activated DNase.
IL- 3	Interleukin -3
IP3	Inisitol Triphosphate.
Kb	kilo base
LDL	Low-density lipoproteins
LMCs	Low-and middle income countries.
Lys	Lysine.
M	Mitotic phase of cell cycle.
Mb	Mega base
Mdm2	Murine double minute 2.
Mg ⁺²	Magnesium ion.
mRNA	messenger RNA
NAD	Nicotinamide Adenosine Dinucleotide.
NCI	National Cancer Institute.
NES	Nuclear Export Signal.
NLS	Nuclear Localization Signal.
NOS	Nitrogen reactive species
Noxa	Phorbol- 12-myristate-13-acetate-induced protein 1.
N-terminal	Amino-terminal
NUC	Nucleases.
OCs	Oral contraceptives.
17p13.1	Short arm of chromosome 17.
p16 INK4	Inhibitor of cyclin-dependent kinase 4.

p21	Tumor suppressor protein 21.
P21/WAF 1	Cyclin-dependent kinase inhibitor 1.
PCAF	p300/CBP associated factor
PCNA	Proliferating Cell Nuclear Antigen
PCR	Polymerase Chain Reaction.
pI	Isoelectric Point.
PKA	Protein kinase A
Puma	P53-upregulated modulator of apoptosis.
RA	Retinoic Acid.
RALDH	Retinaldehyde dehydrogenase
RAR	Retinoic acid receptor
RARE	Retinoic acid response element
Rb	Retinoblastoma
RBP,	Retinol binding protein;
RE	Retinyl Esters.
RNA	Ribonucleic Acid.
Rol	Retinol.
ROS	Reactive Oxygen Species.
RRE	Retinoid Response Element.
RRs	Retinoid receptors.
RXR,	Retinoid X receptor
S phase	DNA synthesis phase of cell cycle.
SDR	Short-chain dehydrogenase/reductase
Smac	Small mitochondria-derived activator of caspases
Stat-3	Signal Transducer and Activator of Transcription-3.
<i>STRA</i>	Retinoic acid gene
TCF	T-cell factor
Thr	Threonin.
TMPD	Tetramethylphenylenediamine.
TNF	Tumor Necrosis Factor.
TNFR1&2	Tumor Necrosis Factor Receptor 1 & 2.
TP53	Tumor suppressor protein.

TPA	12-O-tetradecanoylphorbol 13-acetate.
TRAIL	TNF-related apoptosis-inducing ligand
TTR	Transthyretin.
UV	Ultraviolet Radiation.
VLDL	Very low-density lipoproteins
XIAP	X-linked inhibitor of apoptosis protein
Zn ⁺²	Zinc ions.

تقييم التأثير المحتمل لفيتامين A و E على موت الخلايا المبرمج في مريضات سرطان الثدي

رسالة

مقدمة إلى معهد البحوث الطبية

ايفاء جزئيا للحصول على

درجة دكتوراه الفلسفة

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الكيمياء الطبية التطبيقية

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