Evaluation of Serum Zinc Level in Patients with Persistent Plantar Warts

Thesis

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Presented by

Dina Farouk Mohamed

(M. B. B.Ch.)

Faculty of Medicine –MisrUniversity for Science and Technology

Under Supervision of

Prof.NehalMohamed Zuel Fakkar

Prof. of Dermatology and Venereology
Faculty of Medicine–Ain Shams University

Dr. Nermeen Samy Abdel Fattah

Associate Professor of Dermatology and Venereology
Faculty of Medicine–Ain Shams University

Dr. El Sayed El Okda

Associate Professor of Occupational Health and Environment
Faculty of Medicine–Ain Shams University

Faculty of Medicine
Ain Shams University
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List of Abbreviations

Abbrev.		Full term
AE	:	Acrodermatitis enteropathica
ANOVA	:	One way analysis of variance
APCs	:	Antigen presenting cells
CD	:	Cluster of differentiation
CO_2	:	Carbon dioxide
DCs	:	Dendritic cells
DNA	:	Deoxyribonucleic acid
E	:	Early region
Er:YAG	:	Erbium-doped:Yttrium/Aluminum/Garnet
EV	:	Epidermodysplasia verruciformis
GAGs	:	Glycosaminoglycans
HPV	:	Human papilloma virus
HSPGs	:	Heparan sulfate proteoglycans
hzip4	:	Human zinc/iron-regulated transporter-like protein 4
IFN	:	Interferon
IL	:	Interleukin
Kb	:	Kilobases
KTP	:	Potassium-titanyl-phosphate
L	:	Late region
LPS	:	Lipolysaccaride
m/s^2	:	Metre per second squared
mg/l	:	Milligram/liter

List of Abbreviations

Abbrev.		Full term
mg/ml	:	Milligrams per millilitres
Mmol/l	:	Millimole per litter
mol/l	:	Mole per liter
mRNA	:	Messenger ribonucleic acid
Myd88	:	Myeloid differentiation factor 88
NF-kB	:	Nuclear factorkB
NK	:	Natural killer
ORFs	:	Open reading frames
P value	:	Probability value
p53	:	Protein 53
PDL	:	Pulsed dye laser
pRB	:	Retinoblastoma protein
RBP	:	Retinol binding protein
RNA	:	Ribonucleic acid
SCD	:	Sickle cell disease
SD	:	Standard deviation
SPSS	:	Statistical package for social science
Th	:	T-helper
TNF	:	Tumor necrosis factor
TRIF	:	Toll/interleukin–1 receptor domain containing adapter–inducing interferon -β
URR	:	Upstream regulatory region
US	:	United States

List of Abbreviations

Abbrev.		Full term
Xg	:	Gravity by acceleration
ZIP-6	:	Zrt/irt like protein 6
ZnT	:	Zinc transporter
α	:	Alpha
β	:	Beta
γ	:	Gamma
µg/dl	:	Micrograms per decilitre
µg/l	:	Microgram per litre
µmol	:	Micromole per litre
5-Br-APS	:	(5-Bromo-2-pyridiylazo)-5-[N-n-propyl-N-(3-sulfopropyl) amino] phenol

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بِسْمِ اللّهِ الرّحمَنِ الرّحيمِ

(رَبِّ أوزِعنِي أن أشكُرَ
نِعمَتَكَ الّتِي أنْعَمْتَ عَلَيَّ و
عَلَى والِدَيَّ
و أنْ أعْمَلَ صَالِحاً تَرْضَاهُ
و أدْخِلْنِي برَحْمَتِكَ فِي
عِبَادِكَ الصَّالِحِينَ)

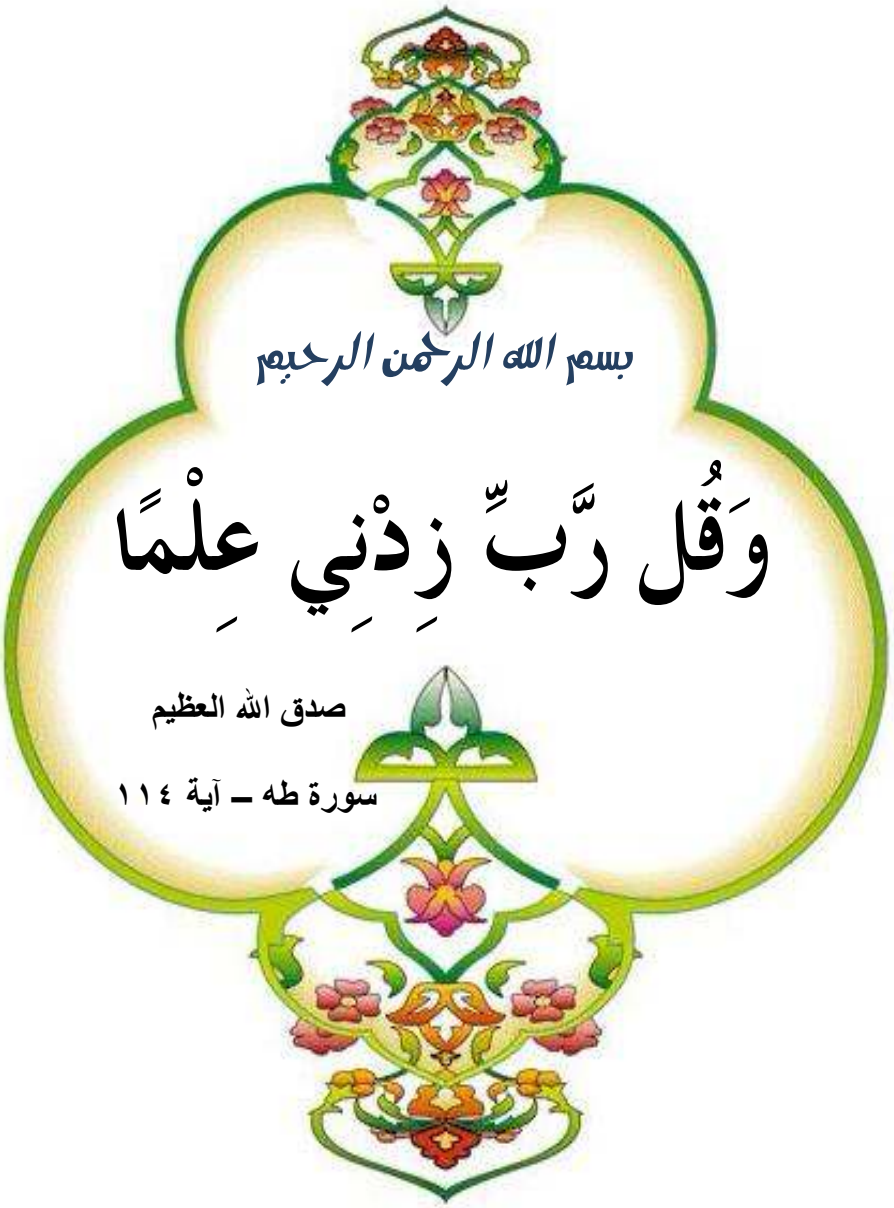
صدق الله العظيم

النمل.. اية رقم ١٩

بسم الله الرحمن الرحيم

قَالُواْ سُبْحَانَكَ لاَ عِلْمَ لَنَا إِلاَّ مَا
عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم
سورة البقرة – آية٣٢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INTRODUCTION

Cutaneous viral warts are benign epidermal proliferations caused by Human Papilloma Viruses (HPV). Viral warts are common afflictions, affecting mostly children and young adults **(Silverberg, 2004; Hutchinson and Klein, 2008).**

Although humoral and cell mediated immune responsesare sufficient against viral warts, molecular and cellular mechanisms of the immunity against the virus are notcompletely established **(Frazer, 2009).** Once the infection isestablished, HPV has several mechanisms to avoid the immune system. Despite viral immune evasion, the immune system effectively clears most HPV infections **(Stanley, 2006).**

Zinc is known to play a central role in the immune system, and zinc-deficient persons experience increased susceptibilityto a variety of pathogens **(Shankar and Prasad, 1998; Bari et al., 2004; Hamer et al., 2009)**.Furthermore, the activitiesof many immuno-stimulants frequently used in immunologicstudies are influenced by zinc concentration **(Ibs and Rink, 2003).**However,the immunity is delicately regulated by zinc anddecreased levels result in a disturbed immune function **(Rink and Gabriel, 2001).**