Evaluation of Superficial Electrocautery in the Treatment of Localized Vitiligo

Thesis

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Alaa Gharib Mohammed Abd-Allah

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List of Abbreviations

Abb.	Full term
8-MOP	*8- methoxypsoralen*
AchE	*Acetylcholine esterase*
AISL	*Autoimmune susceptibility locus*
ANA	*Antinuclear antibody*
Bcl-2	*B-cell lymphoma-2*
BFGF	*Basic fibroblastic growth factor*
Ca^{+2}	*Calcium*
CAT	*Catalase gene*
COMT	*Catechol-O-methyl transferase*
CTLA-4	*Cytotoxic lymphocyte antigen 4*
DCs	*Dendritic cells*
DOPA	*Dihydroxyphenylalanine*
EBV	*Epstein-Barr virus*
ET	*Endothelins*
GM-CSF	*Granulocyte monocyte colony stimulating factor*
GPx	*Glutathione peroxidise*
Gr B	*Granzyme B*
GSH	*Reduced glutathione*
GST	*Glutathione-S-transferase*
GV	*Generalized vitiligo*
H_2O_2	*Hydrogen peroxide*
HGF	*Hepatocyte growth factor*
HIV	*Human immunodeficiency virus*
HLA	*Human leukocyte antigen*
ICAM-1	*Intercellular adhesion molecule – 1*
IgA	*Immunoglobulin A*
IgG	*Immunoglobulin G*
IgM	*Immunoglobulin M*
IL	*Interleukin*
INF- γ	*Interferon gamma*
iNKT	*Invarient natural killer T cells*

List of Abbreviations cont...

Abb.	Full term
KP	*Köebner's phenomenon*
LCs	*Langerhans cells*
LTB_4	*Leukotrienes B_4*
LTC_4	*Leukotrienes C_4*
MBEH	*Monobenzone ethyl ester*
MCHR 1	*Melanin – concentrating hormone receptor 1*
MCs	*Melanocytes*
MHC	*Major histocompatibility complex*
MMP	*Matrix metalloproteinase*
MSH	*Melanocyte stimulating hormone*
NADPH	*Reduced nicotinamide adenine dinucleotide phosphate*
NB-UVB	*Narrow Band- Ultraviolet B*
NK	*Natural killer cells*
NSV	*Non segmental Vitiligo*
OMP	*Oral mini pulses*
PBMCs	*Peripheral blood mononuclear cells*
PG	*Prostaglandines*
PGD_2	*Prostaglandines D_2*
PGE_2	*Prostaglandines E_2*
PUVA	*Psoralen+Ultraviolet A*
QOL	*Quality of life*
RCTs	*Randomized controlled trials*
ROS	*Reactive oxygen species*
SCF	*Stem cell factor*
SD	*Standard Deviation*
SOD	*Superoxide dismutase*
SV	*Segmental vitiligo*
T reg	*T regulatory cells*
T	*Thioredoxin*
TCIs	*Topical calcineurin inhibitors*
TGFβ1	*Transforming growth factor β1*
Th	*T- helper*

List of Abbreviations cont...

Abb.	Full term

TIM ..... *Topical immunomodulators*
TNF-α..... *Tumor necrosis factor - alpha*
TNF-β..... *Tumer necrosis factor-beta*
TRP..... *Tyrosinase- related protein*
UV..... *Ultraviolet*
UVA ..... *Ultraviolet A*
UVB ..... *Ultraviolet B*
VASI ..... *Vitiligo area scoring index*

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INTRODUCTION

Vitiligo is an acquired leukoderma that results from the loss of epidermal melanocytes, and is characterized by patches of depigmented skin. With a relatively high rate of prevalence, vitiligo can occur in localized, generalized, or segmental patterns. It can run a rapidly progressive course or remain stationary ***(Mahmoud et al., 2008)***.

The pathogenesis of vitiligo is complex and not yet had been fully understood, but is believed to involve a combination of autoimmune, genetic, and environmental factors. The autoimmune hypothesis suggests that antibodies and/or T-cell mediated immune reactivity may develop against melanocyte surface antigens ***(Kovacs, 1998)***. Gauthier et al., proposed the melanocytorrhagy hypothesis, which is based on an in vivo observation of melanocyte detachment from the basal layer, followed by transepidermal migration, which would -in turn- triggers melanocyte death ***(Gauthier et al., 2003)***. In addition, neural, self-destruction, and biochemical hypotheses have been proposed ***(Forschner et al., 2007)***.

Based on these hypotheses, many treatment modalities have been described depending on the extent, distribution, and progression rate of the lesions. Treatment may be either non-surgical or surgical. The non-surgical treatments include phototherapy, vitamin D3 analogues, topical corticosteroids, systemic corticosteroids, topical immunomodulators (TIM) and

Excimer laser ***(Mahmoud et al., 2008)***. Non-medical treatment lines include tattooing, different types of autografts, and removal of the depigmented areas e.g. through excision and primary closure. Alternatively, wounding the lesion could be also resorted to in order to stimulate melanocytes at the periphery and within hair follicles to proliferate, migrate and re-pigment the lesion. This could be achieved through microdermabrasion**,** laser ablation, cryosurgery, needling, local application of phenol or trichloroacetic acid or electrocautery ***(Savant, 2005)***.

Electrocauterization is a semi-surgical technique that involves introducing high frequency current to a specific area of the body in order to remove unwanted tissue, seal off blood vessels, or to create a surgical incision. The instrument is also known as an electrocautery which usually uses a very high frequency of more than 100 kHz ***(Beutner et al., 1999)***.

Aim of the Work

The aim of this study was to evaluate a new approach in treating stable vitiligo using superficial electrocautery.