EVALUATION STUDY OF EFFICACY & SIDE EFFECTS OF INTENSE PULSED LIGHT "IPL" AND ALEXANDRITE "ALEX" LASER IN FACIAL HAIR REMOVAL OF EGYPTIAN PATIENTS (SKIN TYPES III, IV & V)

Thesis

Submitted for Partial Fulfillment of Master Degree of
Dermatology and Venereology

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Faculty of Medicine
Ain Shams University
2011

دراسة تقييمية لفعالية والأعراض الجانبية لإزالة الشعر فى الوجه باستخدام الوميض الضوئى المكثف والليزر اللاكسندريتي فى المرضى المصريين من ذوى الجلد من نوعية فيتزباتريك ٣، ٤، ٥

رسالة

توطئة للحصول على درجة الماجستير فى

الأمـراض الجلدية والتناسلية

مقدمة مــن

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SUMMARY

Lasers and Intense Pulsed Light "IPL" sources have become the epilating tools of choice, although there is still controversy over which is the best photoepilation system. The definition of "permanent hair removal and efficacy of IPL & Alexandrite laser" are still not clearly specified.

In order to gain a more comprehensive understanding of how laser hair removal procedures work one must have knowledge of relevant hair microanatomy, physiology and growth cycles associated with growth of hair on the body.

Only few publications exist about the side effects in treatment with lasers and even fewer reports are available on IPL treatment. In treatment with lasers, the most important parameter is the selection of laser type in order to achieve the best therapeutic results and avoid negative side effects.

The aim of the current study is to examine efficacy and side effects of IPL versus ALEX. Laser in facial hair removal in Egyptian patients (Skin types III, IV & V).

The study period started from March 2008 to the end of August 2008. Thirty eligible patients presenting at Dermatology clinic, Ain Shams University Hospital, for facial hair photo-epilation were selected. All patients satisfied the exclusion and inclusion criteria.

Acknowledgement

First, my deepest and humble gratitude to the Almighty Allah the source of all gifts in which we prosper.

I am greatly honored to express my deep gratitude to ***Prof. Dr. Mostafa Mokhtar Kamel****, Professor of Dermatology and Venereology, Faculty of Medicine, Ain Shams University for his supervision, keen and continuous guidance, kind advice and marvelous support. His planning, constant support and encouragement together with his valuable directions made the accomplishment of this work possible. I have been greatly inspired by his endless enthusiastic driving power.*

Deep thanks are expressed to ***Prof. Dr. Heba Mahmoud El-Sayed Diab****, Assistant Professor of Dermatology and Venereology, Faculty of Medicine, Ain Shams University for her initiation and assignment of the subject of this thesis, valuable help and kind advice during carrying out the research work. Without her support, nothing would have been done.*

Grateful thanks are expressed to all of the staff members of the Department of Dermatology and Venereology, Faculty of Medicine, Ain Shams University for their advice and continuous help.

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List of Abbreviations

Abbreviation	Description
ALEX	Alexandrite
ASAPS	American Society of Aesthetic Plastic Surgery
CIS	Computer Imaging System
DP	Dermal Papilla
FDA	Food and Drug Administration
HS	Hair Shaft
IPL	Intense Pulsed Light system
IRS	Inner Root Sheath
LASER	Light Amplification by Stimulated Emission of Radiation
O.D	Optical Density
ORS	Outer Root Sheath
PDT	Photo Dynamic Therapy
RF	Radio Frequency
S.P.S.S	Statistical Package for Social Sciences
TDT	Thermal Damage Time
TRT	Thermal Relaxation Time

INTRODUCTION

Hair removal is the third cosmetology action in USA. The patient's demand for this procedure is nevertheless very high, especially in mediterranean countries which are more associated with facial hirsutism and not only restricted to cosmetic and aesthetic practice ***(Toosi et al., 2006; Kulkin and Flash, 2010)***.

Lasers and Intense Pulsed Light "IPL" sources have become the epilating tools of choice, although there is still controversy over which is the best photoepilation system. The definition of "permanent hair removal and efficacy of IPL & Alexandrite laser" are still not clearly specified ***(Christian and Syrus, 2011)***.

Electrolysis is the only permanent treatment so far considered in hair treatment. However, the practice of electrolysis lacks standardization. The regulations of the procedure vary among different centers. Shaving and depilation are the most commonly attempted initial options for facial hair removal. Although these methods are less expensive, they are temporary only ***(Olsen, 1999; Marayiannis et al., 2003)***.

There are few clinical studies directly comparing the efficacy of multiple hair removal systems for the same individual skin types. These studies evaluate the efficacy of popular systems for laser hair removal. Unfortunately, clinical studies regarding the efficacy and clinical safety of these procedures have lagged behind the actual widespread use of this modality all over the world. Also confusing is that many studies have included different anatomical locations with different growth cycles in the same study. Evaluation of the abilities of the different devices for hair reduction may be inaccurate unless exact hair follicle counting is provided. A Computer Imaging System (CIS) need to be used for this purpose ***(Maziar et al., 2010)***.

There is substantial evidence for laser and photoepilation, with a total of 43 identified controlled trials as of the beginning of 2009 ***(Christian and Syrus, 2011)***.

Light based photoepilation target chromophore is melanin in the hair bulb and outer root sheath zones of the hair follicle, while the competing chromophores are any other melanin containing components of the skin and other light absorbing components such as hemoglobin in blood vessels. Therefore, patients with darker skin types “III, IV and V” e.g. Egyptians, present a greater treatment risk. The photoepilation goal for those patients is to deliver the highest fluence to the hair follicles without causing injury to the epidermis, allowing