Evaluation of Late Onset Acne in Females

Thesis submitted for partial fulfillment of Master Degree of Dermatology and Venereology

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Contents

List of Abbreviations

15-HETE	**15-hydroxy eicosate traenoic acids**
17-HSD	**17-hydroxy steroid dehydrogenase**
3-HSD	**3-hydroxysteroid dehydrogenase**
3ß-HSD	**3ß- hydroxysteroid dehydrogenase**
5α- R	**5α –reductase**
5-LOX	**5-Lipoxygenase enzyme**
AA	**Arachidonic acid**
ARs	**Androgen receptors**
AChR	**Acetylcholine receptor**
ACTH	**Adrenocorticotropic hormone**
Apo C1	**Apolipoprotein C1**
BPO	**Benzoyl peroxide**
CAH	**Congenital adrenal hyperplasia**
CRH	**Corticotropin-releasing hormone**

CPA	**Cyproterone acetate**
COX-2	**Cyclooxygenase-2**
DHEA	**Dehydroepiandrosterone sulphate**
DHT	**Dihydrotestosterone**
E2	**Estradiol**
ECLIA	**Electrochemiluminescence immunoassay**
EE	**Ethinyl estradiol**
EGFR	**Epidermal growth factor receptor**
EGF	**Epidermal growth factor**
GAGS	**Global acne grading system**
HS	**Highly significant**
HSD	**Hydroxysteroid dehydrogenase**
HSPs	**Heat shock proteins**
IGFs	**Insulin-like growth factors**
IGF1R	**Insulin growth factor-1 receptor**

IL-1	**Interleukin-1**
IL-6	**Interleukin-6**
IL-8	**Interleukin-8**
KGF	**Keratinocyte growth factor**
MC5R	**Melanocortin-5 receptor**
MMPs	**Matrix Mettalloproteinases**
MSH	**Melanocyte stimulating hormone**
N	**Number**
NP	**Neuropeptides**
NS	**Non significant**
OCPs	**Oral contraceptive pills**
P. acne	**Propionibacterium acne**
P450sc	**P450 side chain cleavage**
PCO	**Poly cystic ovary**
PDT	**Photodynamic therapy**
PG	**Prostaglandins**

PPARs	**Peroxisome proliferator activated Receptors**
PSU	**Pilosebaceous unit**
PUVA	**Psoralen and UVA**
QoL	**Quality of life**
RAR	**Retinoic acid Receptors**
ROS	**Reactive oxygen species**
RXR	**Retinoid X Receptor**
S	**Significant**
SPSS	**Statistical program for social science**
T	**Testosterone**
TLRs	**Toll like receptors**
TLR-2	**Toll-like receptor 2**
UVA	**Ultra violet A**
X^2	**Chi-square test**

List of Tables

List of Figures

Introduction

Acne represents a pleomorphic inflammatory skin problem centered on the pilosebaceous unit. It typically develops around adrenarche in association with an increase in androgen mediated sebum production. Over the last decade, it has been recognized that acne is a chronic condition ***(Thiboutot et al., 2009).***

The peak age of onset for acne is 16–19 years in boys and 14–17 years in girls. Seventy percent of cases resolve after 5 years of onset but in some cases, acne will either persist until 20–30 years of age or present for the first time well after teenage years ***(Williams and Layton, 2006).***

Although acne is principally a disorder of adolescence, the prevalence of adult patients with acne is increasing. Adult acne has been traditionally defined as presence of acne beyond the age of 25 years ***(Goulden et al., 1997).***

There are two types of adult acne; persistent acne and late onset acne. Adolescent acne persisting beyond the age of 25 years is called persistent adult acne and acne developing for the first time after the age of 25 years is called late onset adult acne. Both types are more common in women ***(Dumont-Wallon and Dreno, 2008).***

Late onset acne can be further subdivided into; 1-Chin acne either as chronic inflammatory acne distributed on