Hair Loss among Egyptian Children by Using Handyscopy: Statistical Analysis

Thesis
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Sara Mohamed M. Mohy El-Din

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Dedication

I would like to dedicate this thesis to my Parents

for standing beside me all my life

And to my Sisters

for their everlasting support

And last but not least To my

dear husband Moatasem and little daughters Nour & Dina

Thank you for being there for me

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List of Abbreviations

Abb.		Meaning
AA	:	Alopecia areata
AGA	:	Androgenetic alopecia
IDS.....	:	International Dermoscopy Society
IRS.....	:	The inner root sheath
ORS	:	The outer root sheath
SD.....	:	Seborrheic Dermatitis
TA	:	Traction alopecia
CTE	:	Chronic Telogen Effluvium
TTM	:	Trichotillomania
ACC	:	Aplasia cutus congenital
SAS	:	Short anagen syndrome
TC.....	:	Tinea capitis
TE	:	Telogen effluvium

INTRODUCTION

Hair loss in children is commonly encountered in the dermatological practice, It has a great psychological impact on the patient and the parent alike, It can scar a young child's vulnerable self-esteem ***(Vibhu & Masarat, 2011).***

More than a decade ago, the diagnosis of hair and scalp disorders was based on clinical examination, pull test, KOH, culture and other methods for hair loss assessment. In 1980, the dermoscopy era has started. It is a diagnostic tool which visualizes subtle clinical patterns of skin lesions, subsurface skin structures as well as hair & scalp disorders not normally visible to the unaided eye. Since then, Dermatoscopy has been used as a new fast, noninvasive, and cost efficient technique for easy in-office diagnosis of all hair and scalp disorders ***(Nischal & Khopkar, 2005)***.

A total of 2250 children were examined at the Dermatology outpatient clinic in Misr University for Science & Technology (MUST) Hospital during the period from April 2013 to April 2014 of various clinical dermatological symptoms**.** Out of these patients, 255 children were complaining of hair loss and scalp disorders. Patient's age ranges from 2 to 15 years, belonging to both sexes. Each child was examined clinically and dermoscopically.

Hair loss is a common problem among Egyptian children where tinea capitis showed the highest percentage. Few studies were found concerning the use of dermoscopy in the study of hair disease done exclusively on children ***(Lencastre & Tosti, 2013)***. None of these studies were done in Egypt. Our study concluded that the routine use of dermoscopy in the clinical evaluation of scalp and hair disorders in children improves diagnostic capability beyond simple clinical inspection and reveals novel features of disease, which may extend clinical and pathogenetic understanding.

AIM OF THE WORK

To statistically analyze the causes of hair loss among children in Egypt; clinically and dermoscopically.

HAIR GROWTH CYCLE

Disorders of the scalp often result in severe pathologic and cosmetic interference with skin disease and quality of life, creating the need for optimal medical surveillance thus a basic knowledge of normal hair growth is necessary to fully understand hair loss ***(Buffoli et al., 2014)***.

Hair growth cycle

The hair growth cycle can be divided into Five distinct phases **(Fig. 1)**:

(i) Anagen or growth phase;

(ii) Catagen or transitional phase;

(iii) Telogen or resting phase;

(iv) Exogen or shedding phase**.**

(v) *Kenogen phase*

(Dhurat & Deshpande, 2010)

The anagen phase:

It is an active growth phase, during which the hair follicle enlarges reaching its characteristic onion shape and a hair fiber is

produced. It can be divided into six stages (I–VI) ***(Dhurat & Deshpande, 2010).***

During anagen I–V (proanagen):

Hair progenitor cells proliferate, envelope the growing dermal papilla, grow downwards into the skin, and begin to differentiate into the hair shaft and IRS; then, the newly formed hair shaft begins to develop and the melanocytes located in the hair matrix show pigment producing activity ***(Dhurat & Deshpande, 2010).***

During Anagen VI (metanagen):

Full restoration of the hair fiber-producing unit, which is characterized by formation of the epithelial hair bulb surrounding the dermal papilla, located deep in the subcutaneous tissue, and the new hair shaft appears from the skin surface. This phase can last for several years in hair follicles ***(Dhurat & Deshpande, 2010).***

The catagen phase:

It starts when the anagen growth phase comes to the end. At the beginning of the catagen phase, differentiation and proliferation of hair matrix keratinocytes decreases significantly, the pigment-producing activity of melanocytes stops, and hair shaft production is completed. The hair follicle undergoes apoptosis-driven regression resulting in a reduction of about one-sixth of the normal diameter ***(Randall & Botchkareva, 2009).***