

*Research Article*

## The Effect of topical Minoxidil in Treatment of androgenetic Alopecia

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### Abstract

**Background:** Androgenetic alopecia (AGA) is characterized by a non-scarring progressive miniaturization of the hair follicle in predisposed men and women with a pattern distribution. Although AGA is a very prevalent condition, approved therapeutic options are limited. **Objectives:** This work aims to evaluate the role of topical minoxidil in treatment of androgenetic alopecia. **Methods:** The study was conducted on 20 patients with androgenetic alopecia. The age of patients ranged from 18 to 45 years. **Results:** Clinical improvement in most of cases which was in the form of increase in hair growth and density within affected areas. It started at about 3 months and completed by 12 months of treatment. **Conclusion:** minoxidil is a good alternative for treating AGA in males and females.

**Keywords:** Androgenetic alopecia, topical minoxidil.

### Introduction

Androgenetic alopecia (AGA) is the most prevalent hair loss disorder. It is characterized by progressive miniaturization of hair follicles with a pattern of distribution in the scalp in genetically predisposed individuals (Blume-Peytavi et al., 2011). Hormonal and hereditary factors are less obvious in affected women than in men; therefore, patterned hair loss (PHL) is preferred for women as a broader term than AGA (Lee et al., 2013).

The main goal of treatment of AGA is to stop progression and prevent further thinning. However, improvement and regrowth may not always be achieved (Kelly et al., 2016).

Conventionally, pharmacologic therapy of AGA targets decreasing dihydrotestosterone (DHT) and stimulating hair follicles through the use of 5-alpha reductase (5AR) inhibitors such as finasteride and dutasteride or minoxidil. Other therapies include laser therapy, scalp microneedling, hair mesotherapy, PRP, hair transplantation and new experimental therapy as Janus kinase (JAK) inhibitors (Kelly et al., 2016).

A topical formulation, minoxidil (2% and 5%), and an oral drug, finasteride, have been approved by the Food and Drug Administration (FDA) for the treatment of men with AGA (Tsuboi et al., 2010).

The aim is to evaluate the effect of topical minoxidil in treatment of androgenetic alopecia.

### Subjects and Methods

The present study has been conducted on 20 patients with different grades of androgenetic alopecia attending the outpatient clinic of the Department of Dermatology, STDs and Andrology, Minia University Hospital. 40% of the patients were males while 60% were females. The age of patients ranged from 18 to 45 years. They were attending the Dermatology outpatient clinic of Minia University Hospital in the period from January 2017 to June 2019. All patients were subjected to full history taking, scalp examination, photography and scalp biopsy.

### Results

We noticed clinical improvement in most of cases which was in the form of increase in hair

growth and density within affected areas clinically and increase the number of anagen hair follicle histopathologically. It started at about 3 months and completed by 12 months of treatment.

### Discussion

AGA is the most common form of alopecia, affecting up to 80% of men and 50% of women during their lifetime (Piraccini and Alessandrini, 2014). It is a chronic, nonscarring, age-related disorder that is marked by a progressive reduction in the diameter, length, and pigmentation of the hair (Varothai and Bergfeld, 2014).

Our results revealed that 90% of cases showed variable response to treatment with only minimal and tolerable side effects, these results agree with results of Blume-Peytavi et al.,, 2011 who compared the effect of 5% minoxidil foam once daily versus 2% minoxidil solution twice daily in the treatment of AGA in women. It also similar to the results of Olsen et al.,, 2002 who studied the effect of 5% topical minoxidil versus 2% topical minoxidil and placebo in the treatment of AGA.

### Summary and Conclusion

AGA is the most prevalent type of hair loss affecting both men and women that may result in psychological disturbance. It is characterized by progressive miniaturization of the hair follicle in predisposed patients with a specific pattern of distribution. It start after puberty in both sexes and the progression of the disease continues throughout the life if left without treatment.

Topical minoxidil could be applied safely and effectively in twice daily dose in the treatment of different grades of AGA in both men and women.

### References

1. Blume-Peytavi U, Blumeyer A, Tosti A, et al., (2011): S1 guideline for diagnostic evaluation in androgenetic alopecia in men, women and adolescents. *Br J Dermatol*; 164 (1): 5–15.
2. Blume-Peytavi U, Hillmann K, Dietz E, Canfield D and Bartels NG (2011): A randomized, single-blind trial of 5 % minoxidil foam once daily versus 2 % minoxidil solution twice daily in the treatment of androgenetic alopecia in women. *J Am Acad Dermatol*;65:1126–34.
3. Kelly Y, Blanco A and Tosti A (2016): Androgenetic alopecia: an update of treatment options. *Drugs*; 76: 1349-1364.
4. Lee WS, Lee HJ, Choi GS, Cheong WK, Chow SK and Gabriel MT et al., (2013): Guidelines for management of androgenetic alopecia based on BASP classification--the Asian Consensus Committee guideline. *J Eur Acad Dermatol Venereol*; 27: 1026-34.
5. Olsen EA, Dunlap FE, Funicella T, Koperski JA, Swinehart JM, Tschen EH and Ronald J Trancik (2002): A randomized clinical trial of 5% topical minoxidil versus 2 % topical minoxidil and placebo in the treatment of androgenetic alopecia in men. *J Am Acad Dermatol*;47(3):377– 385
6. Piraccini BM and Alessandrini A (2014): Androgenetic alopecia. *G Ital Dermatol Venereol*; 149: 15–24.
7. Tsuboi R, Itami S, Inui S, Ueki R, Katsuoka K, Kurata S, Kono T, Saito N, Manabe M and Yamazaki M (2010): Guidelines for the management of androgenetic alopecia. *J Dermatol*, 39: 113-20.
8. Varothai S and Bergfeld WF (2014): Androgenetic alopecia: an evidence-based treatment update. *Am J Clin Dermatol*; 15: 217–230.