

COMPARATIVE STUDY OF TROPONIN I LEVEL IN ALOPECIA AREATA, ANDROGENIC ALOPECIA AND HEALTHY CONTROL SUBJECTS

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INTRODUCTION

Androgenic alopecia is the most common hairloss associated with complex polygenic inheritance and androgens resulting in pattern hair loss. Alopecia areata is a second most common hair loss associated with inflammation on the hair follicle resulting in interference of the normal hair cycle causing anagen arrest and premature entering to catagen and telogen.

Alopecia Areata and Androgenic alopecia are associated with an increased risk of cardiac disease illness as both are associated with coexisting conditions known for cardiovascular disease risk factors.

In 2020, World Health Organization (WHO) reports that the main cause of death worldwide is related to cardiovascular diseases (CVDs) and that Egypt was ranked 15th worldwide with 32.40% of fatalities due to cardiovascular diseases (CVDs). Appropriate actions in detecting individuals at risk, monitoring, and early intervention are crucial.

There is scarce data on cardiac disease risk in Alopecia areata and Androgenic Alopecia, so monitoring the cardiac health of these patients is important.

AIM OF THE WORK

This study aimed at comparing cardiac troponin I biomarkers among Alopecia areata, Androgenic alopecia, and Healthy Controls attending the dermatology clinic at Alexandria Main University Hospital.

SUBJECTS AND METHODS

This hospital based cross-sectional study included 90 subjects, 30 Alopecia areata subjects, 30 Androgenic alopecia, and 30 Healthy Control subjects, sex matched who were above 40 years.

Subjects with other types of hair loss, autoimmune conditions, hypertension, diabetes, liver, or cardiac diseases were excluded

The demographic data, Clinical history on; the age of disease presentation, duration, recurrence, personal cardiac disease history, family history of cardiac disease and smoking.

Laboratory investigation of cardiac Troponin I for all subjects was obtained.

RESULTS

The mean \pm SD age of Alopecia areata was 52.40 ± 7.96 years, Androgenic alopecia had mean \pm SD of 52.33 ± 8.45 years, and mean \pm SD of 52.22 ± 8.34 years for Healthy controls.

Alopecia subjects had statistically significantly higher cardiac Troponin I than Healthy Controls.

The alopecia areata group showed a statistically significant higher level of cardiac Troponin I than the androgenic alopecia group.

The androgenic alopecia group showed a statistically significant higher level of cardiac Troponin I than healthy control group.

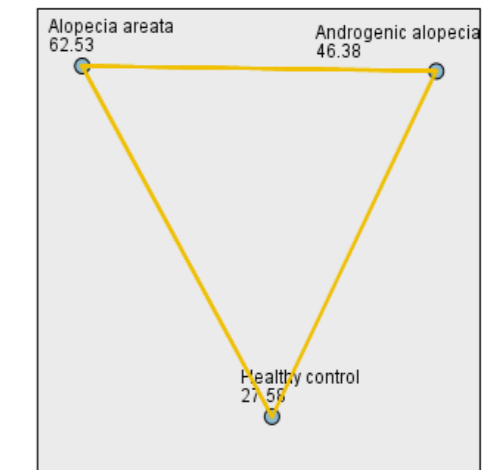
Table 1: Laboratory results of Troponin I (ng/ml) in the three groups.

Laboratory results of Troponin I (ng/ml)	Group			Test of significance p-value
	Androgenic alopecia (n=30)	Alopecia areata (n=30)	Healthy Controls (n=30)	
Min. – Max.	0.00000-0.02700	0.00210-0.02940	0.00000-0.02000	$\chi^2_{(df=2)(KW)} = 27.318$ $p < .001^*$
Median	0.00235	0.00289	0.00006	
95 % CI of the median	0.00200-0.00260	0.00250-0.00510	0.00000-0.00100	
25 th Percentile	0.00100-0.00418	0.00250-0.00650	0.00000-0.00100	
-75 th Percentile				

Pairwise comparisons of groups using Bonferroni and Dunn-Sidak tests

	Androgenic alopecia	Alopecia areata	Healthy Controls
Androgenic alopecia		Z=2.413 P1=.047*	Z=2.809 P2=.015*
Alopecia areata			Z=5.222 P3<.0001*
Healthy Controls			

Pairwise Comparisons of Group



Each node shows the sample average rank of Group.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Healthy control-Androgenic alopecia	18.800	6.693	2.809	.005	.015
Healthy control-Alopecia areata	34.950	6.693	5.222	.000	.000
Androgenic alopecia-Alopecia areata	-16.150	6.693	-2.413	.016	.047

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05. Significance values have been adjusted by the Bonferroni correction for multiple tests.

CONCLUSION

Alopecia areata subjects had higher cardiac troponin I level than both Androgenic alopecia and Healthy controls, this emphasizes the importance of proper follow-up and routine screening of cardiac health for Alopecia areata patients.