EVALUATION OF THE ROLE OF CXCL12 IN CASES OF ALOPECIA AREATA

Wafaa Ibrahim Abdallah, Eman Mohamed Eleryan, Mona Moustafa Tahoun,* Israa Khaled Shaddad Zreid

Department of Dermatology, Venereology and Andrology, Department of Clinical and Chemical Pathology,* Faculty of Medicine, Alexandria University.

Introduction

Alopecia areata (AA) is a common immune-mediated disorder that targets anagen hair follicles and causes nonscarring hair loss. The condition most commonly presents with discrete patches of hair loss on the scalp. Other hair-bearing areas may also be affected. In severe cases, patients may experience loss of all scalp or body hair. Patients with alopecia areata typically have smooth, circular, discrete areas of complete hair loss that develop over a period of a few weeks.

CXCL12 expression during hair cycle progression have not been characterized. In alopecia areata, a few studies were done and observed different results about the role of CXCL12 in hair growth so it may play dual and complex role in the pathogenesis of alopecia areata.

On one hand, CXCL12 contributes significantly to angiogenesis during adulthood by attracting bone marrow-derived endothelial progenitor cells via a CXCR4 dependent pathway. In AA, decreased CXCL12 levels may impair angiogenesis, potentially disrupting the vascular support of healthy hair follicle, thereby contributing to hair loss. On the other hand, CXCL12 is implicated in the autoimmune mechanisms of AA. Human dermal γδ T cells, known to act as stress sentinels, are recruited to stressed hair follicles through the over expression of chemoattractants such as CXCL10 and CXCL12. This exacerbates the autoimmune attack on hair follicles, leading to hair loss.

Aim of the work

The aim of this work was to determine the role of CXCL12 in patients with alopecia areata.

patients and Methods

This study was a case-control study that was included 40 alopecia areata cases and 40 controls who were conducted from Dermatology and Venereology department, Alexandria University Hospital during the period of research.

All patients in this study were subjected to history taking including Personal history (age, sex), Present history of AA (age of onset, course, duration of the disease), Past history of previous diseases or previous treatments, and family history of AA or other autoimmune diseases. And Careful and full clinical examination: General examination. Dermatological examination for exclusion of any disease other than AA and determination of site of AA, clinical variants, number of lesions, and extent of lesions.

Severity of alopecia tool (SALT) was used for assessment of disease severity. Dermoscopic examination of the lesions were done to see the signs of activity.

Serum samples were collected from patients with alopecia areata and from controls to measure CXCL12. Level of CXCL12 in serum was determined using Enzyme linked immunosorbent assay (ELISA).

Results

Table (1):Comparison between the two studied groups according to demographic data

	Cases (n = 40)		Control (n = 40)		Test of Sig.	p
	No.	%	No.	%		
Sex						
Male	27	67.5	22	55.0	χ^2= 1.317	0.251
Female	13	32.5	18	45.0		
Age			15.0 – 50.0			
Min – Max.	3.0 – 60.0		15.0 – 50.0		U= 612.500	0.070
Mean ± SD.	21.15 – 15.18		23.35 ± 9.26			
Median (IQR)	16.0 (8.50 – 31.0)		19.50 (16.0 – 30.0)			

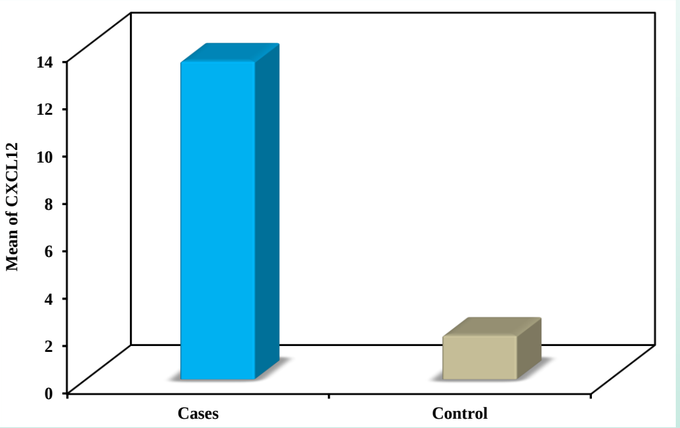

Figure (1) :Comparison between the two studied groups according to CXCL12

Conclusion

- CXCL12 serum level was significantly elevated in patients with alopecia areata compared to control group.
- There was no significant correlation between serum CXCL12 level and severity or activity seen by dermoscopy.