EVALUATION OF SERUM LEVEL OF CXCL12 AND ITS RELATION TO DISEASE ACTIVITY IN VITILIGO PATIENTS

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Introduction

Vitiligo is a pigmentary disorder with an unknown cause that affects the skin and is characterized by well-defined, depigmented macules and patches that develop as a result of the selective loss of melanocytes. Vitiligo can be classified into segmental and nonsegmental which is the most common and unclassifible vitiligo. The pathogenesis of vitiligo is still unclear but it may be due to interplay of theories including genetic, environmental factors, immunological theory, reactive oxygen system theory, and neural theory. Treatment for vitiligo aims to promote repigmentation and cause stability. There are three types of treatment: pharmaceutical, surgical, and physical.

CXCL12 is an effective vitiligo predictor. In early vitiligo, it is produced by epidermal melanocytes and is surrounded by CXCR4+ cells.CXCR4 and CXCL12 have been recognized as critical mediators for mobilizing the IFN-producing cells and Langerhans cells to the site's proximity to melanocytes, resulting in melanocyte destruction and depigmentation in the skin.

Aim of the Work

The aim of this work was to evaluate serum level of C-X-C motif chemokine ligand 12 (CXCL12) and its relation to disease activity in vitiligo patients.

Subjects and Methods

This study was carried on 32 patients with non segmental vitiligo who were divided into two groups, group I consisted of 16 patients with active disease and group II consisted of 16 patients with stable non segmental vitiligo and group III consisted of 16 healthy subjects who were matched to vitiligo patients according to age and sex. They were conducted at Dermatology and Venereology department, Alexandria University Hospital during the period of research.

Patients underwent a comprehensive history taking including sex, age, duration of the vitiligo and general examination of body systems to identify associated medical conditions. The dermatological examination involoves describing the lesions ,assessing activity according to vitiligo disease activity (VIDA)score and using dermoscopy. The study involved collecting five milliliters of venous blood samples from participants, centrifuged, frozen and used the human CXCL12 ELISA kit to estimate serum levels of CXCL12.

Results

Table 1: Comparison between the three studied groups according to serum level of CXCL12.

CXCL12	Group I (n = 16)	Group II (n = 16)	Group III (n = 16)	F	p
Min. – Max.	4.10 – 11.20	1.07 – 3.53	1.53 – 3.31	96.640*	<0.001*
Mean ± SD.	7.73 ± 1.80	2.51 ± 0.81	2.72 ± 0.64		
Median (IQR)	7.35 (6.6 – 9.0)	2.35 (1.98 – 3.4)	3.07 (2.14 – 3.3)		
Sig. bet. grps.	p_1<0.001* p_2<0.001*,p_3=0.867				

Group I: Patients with active disease
Group II: Patients with stable non segmental vitiligo
Group III: Healthy control

Table 2: Correlation between two studied patients groups according to serum level of CXCL12 with VIDA score and dermoscopic score.

	CXCL12	
	r	p
VIDA score		
Group I (n = 16)	0.669*	0.005*
Group II (n = 16)	–0.505*	0.046*
Dermoscope		
Group I (n = 16)	–0.893*	<0.001*
Group II (n = 16)	0.073	0.787

Group I: Patients with active disease
Group II: Patients with stable non segmental vitiligo

Conclusion

1. Active vitiligo patients have significantly higher levels of serum CXCL12 than stable vitiligo patients indicating its probable role in vitiligo activity.
2. There is negative correlation between serum CXCL12 and dermoscopic score in active vitiligo patients and there is positive correlation with VIDA score.