

EVALUATION OF SERUM INTERLEUKIN 15 IN PSORIATIC PATIENTS

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Introduction

Psoriasis is a chronic skin condition with a wide range of clinical manifestations, including plaque, flexural, guttate, pustular, and erythrodermic lesions. It is an immune-mediated inflammatory condition with a strong hereditary component. It may be triggered by skin damage, infection, stress, and certain medication. Psoriasis is distinguished by epidermal proliferation and immune cell infiltration of the dermis. Psoriasis etiology is multifaceted, including the interaction of keratinocytes, immune cells, and other skin-resident cells. Activation of plasmacytoid dendritic cells (pDCs) increases the maturation and synthesis of TNF-, IL-12, and IL-23 by myeloid dendritic cells (mDCs), which leads to the activation of Th (T helper) 1 and Th17 and subsequent secretion of inflammatory cytokines such as TNF-, IL-17, IL-21, and IL-22. These cytokines subsequently activate keratinocytes, which generate antimicrobial peptides, cytokines, and chemokines, leading to the amplification of inflammation. IL-15 is a cytokine that plays a role in innate and adaptive immunity. In addition, it acts as a growth factor and promotes the survival of T, B, and NK cells by preventing apoptosis.

Aim of the Work

The aim of this study was to evaluate the level of Serum interleukin-15 in patients with psoriasis vulgaris and its correlation with disease severity.

Patients and Methods

The study involved 50 psoriasis patients and 20 healthy volunteers from the Dermatology outpatient clinic, Alexandria university. Patients above 18 years old, with chronic plaque psoriasis, without traditional or biological treatment were included. Patients with inflammatory or autoimmune skin or systemic diseases that may impact IL-15 serum level and pregnant or lactating women were excluded. All patients provided informed consent.

Patients underwent a comprehensive history taking, including age, sex, occupation, and family history, as well as a general examination of body systems to identify associated medical conditions. The dermatological examination involves describing lesions, assessing psoriasis severity, and calculating the body surface area score and Psoriasis Area Severity Index (PASI) score was calculated. The study involved collecting three milliliters of venous blood samples from participants, centrifuged, frozen, and used the human interleukin 15 ELISA kit to estimate serum levels of IL-15.

Results

Table 1: Comparison between the two studied groups according to serum IL-15

Serum IL-15	PTIENTS (n=50)	Control (n=20)	U	P
Min. – Max	366.4-646.6	160.7-476.3	170.0*	<0.001*
Mean + SD.	482.9 + 62.62	368.1 + 114.7		
Median (IQR)	477.3 (442.9 – 513.4)	410.8 (302.4 – 445.2)		

Table 2: Relation between serum IL-15 and severity of PASI score for patients (n = 50)

Serum IL-15	Severity of PASI Score			H	p
	Mild (n = 8)	Moderate (n = 9)	Severe (n = 33)		
Min. – Max.	366.4 – 495.4	404.3 – 462.0	401.9 – 646.6	8.609*	0.014*
Mean ± SD.	455.0 ± 44.93	439.9 ± 19.95	501.4 ± 66.31		
Median	477.3	447.9	494.7		
Sig. bet. Grps	p ₁ =0.410 , p ₂ =0.111 , p ₃ =0.006*				

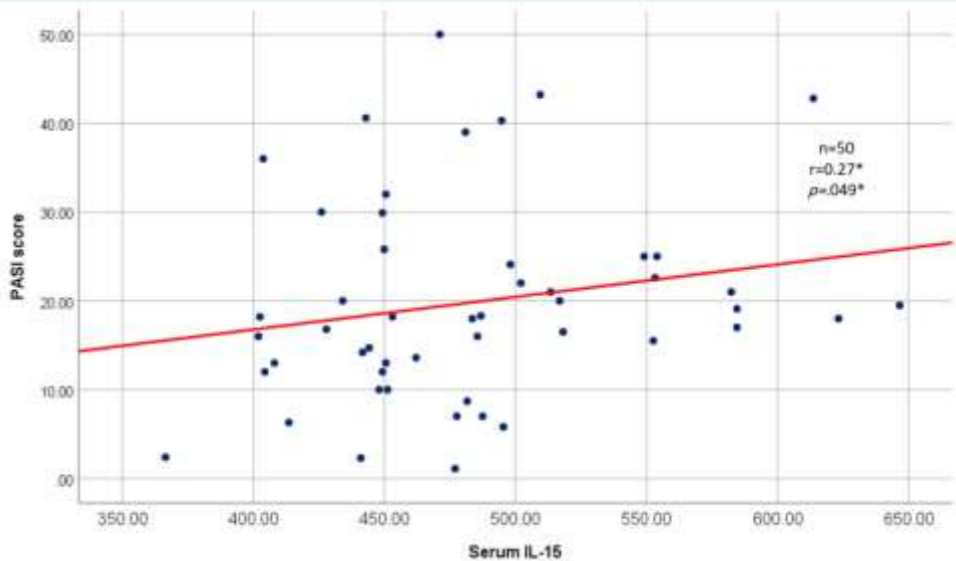


Figure: Correlation between serum IL-15 and PASI score for patients (n = 50)

Conclusions

- 1.Psoriatic patients have significantly higher levels of serum interleukin 15 than healthy controls indicating its probable role in psoriasis pathogenesis.
- 2.Serum IL-15 level is significantly higher in high grades PASI score than lower grades, which may indicate that IL-15 play a role in affecting the activity of disease.