

Evaluation of Serum Cystatin C level in Psoriatic Patients

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Abstract

Psoriasis is a constant fiery dermatological infection that is regularly connected with foundational comorbidities. The psoriatic skin shows penetration and collection of a few fiery and insusceptible cells and broad arrival of proinflammatory cytokines and chemokines. This brought about hyperproliferation of keratinocytes with halfway loss of separation. Cystatin C (Cys C) is a little sub-atomic weight particle that is communicated in the majority of the natural tissues. Cys C is equipped for a few physiological and obsessive activities. The harmony between these impacts is sensitive and relies upon focus and term of delivery. Point of the work: The introduced examination expected to assess the serum level of Cys C in patients with 50 patients with summed up plaque psoriasis and 30 sound people as a control were remembered for this investigation. Results: Serum Cys C is altogether raised in psoriatic patients than control with a positive huge connection with psoriasis seriousness.

Keywords: Psoriasis, Cystatin C.

1. Introduction

Psoriasis is a chronic inflammatory disease that manifests in the skin as raised, erythematous, scaly plaques mainly [10]. Psoriasis is currently considered as a systemic inflammatory disease that is associated with increased risk of several comorbidities, such as psoriatic arthritis, Crohn's disease, malignancy, obesity, and cardiovascular diseases ([7].

The interleukin (IL)-23/IL-17 axis is recently considered to be central in the pathogenesis of psoriasis. IL-23 which is primarily produced by antigen-presenting cells and can induce and maintain differentiation of both T helper (Th) 17 and 22 cells, a primary cellular source of proinflammatory cytokines such as IL-17 and IL-22, these cytokines mediate the epidermal hyperplasia, keratinocyte immune activation and tissue inflammation seen in psoriasis [3].

Cystatin C (Cys C) is a cysteine protease inhibitor and has been widely proven to be a highly sensitive biomarker in vascular disorders such as renal and cerebrovascular diseases [1].

Cystatin C is ubiquitously expressed and secreted in different body fluids [2]. By inhibiting cysteine proteases such as cathepsins B, H, K, L, and S, Cys C has a broad spectrum of biological roles in numerous cellular systems, with growth promoting activity, inflammation down-regulating function, and anti-viral and anti-bacterial properties [9].

In pathological conditions, there are growing evidences suggesting that Cys C is associated with various immune responses against either exogenous or endogenous antigens, which ultimately result in inflammatory autoimmune diseases or tumor development if not properly controlled [15].

2. Aim of the work

The aim of this study was to measure serum cystatin c level in patients with psoriasis and its correlation with disease severity.

3. Patients and methods

This assessment was a comparable case-control study and supported by the Research Ethics Committee in Faculty of Medicine, Benha University in December 2019. This assessment included 80 subjects segregated into two social affairs; the fundamental get-togethers included 50 patients with summarized plaque psoriasis, while the resulting gathering included 30 obviously stable, sex and age facilitated individuals included as a control.

All patients presented to history taking: including age, sex, term, rehash, family lineage, past meds, and response to past treatment. Complete general appraisal and complete dermatological evaluation. Earnestness of psoriasis was scored using psoriasis locale reality list.

Lab examination

Five mls of venous blood were pulled over from each patient and control subject after 10-12 hours of fasting. Serum cystatin C assessment was done using a concoction associated immunosorbent test (ELISA) pack gave by Shanghai Sunred Biological Technology Co., Ltd, Shanghai, China. Thing number is: SRB-T-81409. This was a thoughtful cystatin C unit and used an ELISA method. This was an in-vitro ELISA-based test for the quantitative assessment of cystatin C.

Statistical analysis

Data management and statistical analysis were performed using the Statistical Package for Social Sciences (SPSS) vs. 23 for Windows 10.

4. Results

This study included 80 subjects divided into two groups; the first group included 50 patients with generalized plaque psoriasis and 30 apparently healthy whom were both age and sex matched as a control group.

The mean age in patient group was 44.18 ± 8.46 years (range 29 - 62 years), while in controls it was 46.57 ± 5.59 years (range 35 -56 years). There was no statistically significant difference regarding age

between the two groups ($P = 0.174$). The patient group included 36 (72%) male and 14 (28%) females, while the control groups included 18 (60%) male and 12

40%) females. There was no statistically significant difference regarding sex between the two groups ($P = 0.267$) Table (1).

Table (1) Comparison between patients and controls as regard age and sex.

		Patients (n=50)		Controls (n=30)		Test	P-value
		Mean \pm SD		Mean \pm SD			
Age (years)		44.18 \pm 8.46		46.57 \pm 5.59		T= 1.373	0.174
Sex	Male	36 (72%)		18 (60%)		$\chi^2= 1.23$	0.267
	Female	14 (28%)		12 (40%)			

t= Independent Samples Test. χ^2 = chi-square test. $P \leq 0.05$ is significant.

The mean serum level of Cys c in patients was 5.73 ± 1.48 ng/ml, while in the control was 2.29 ± 0.41 ng/ml. There was a statistically significant difference in favor of the patients' group ($P < 0.0001$) (Table 2).

Table (2) Mean serum Cys C level in the patients and the controls.

		Patients (n=50)		Controls (n=30)		T	P-value
		Mean	SD	Mean	SD		
Cys C (ng/ml)		5.73	1.48	2.29	0.41	12.39	<0.001*

T= independent t test, $P \leq 0.05$ =statistically significant

There was statistically significant positive correlation between PASI score and Cys C. Fig (1).

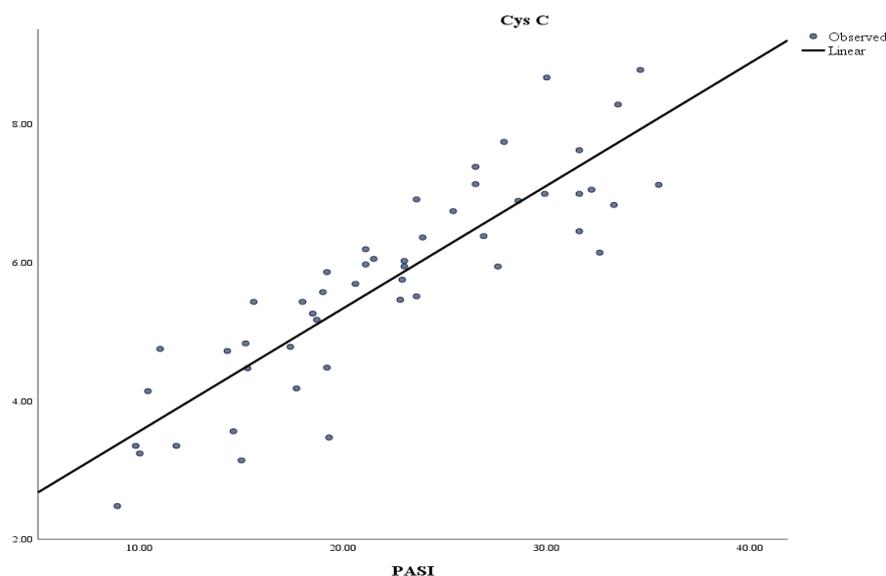


Fig (1) Correlation between PASI score and Cys C.

5. Discussion

Psoriasis is a typical constant provocative dermatological issue influencing the skin, nails and sporadically the joints. Psoriasis is an intricate illness coming about because of connecting natural, insusceptible framework reaction and hereditary inclination factors (13).

Cystatin C is one of cystatin family which are endogenous, tight-official and reversible inhibitors of the C1 and C13 groups of cysteine peptidases [1]. Cys C is known with its inhibitory impact on lysosomal cysteine proteinases and can direct the intracellular and extracellular activity of lysosomal cathepsins B, H, K, L, S [1].

Cystatin C has pleiotropic impacts, and these impacts are identified with its objective proteins. The impacts of Cys C stretch out to numerous organic cycles, for example, protein turnover, guideline of inborn insusceptible cells phagocytosis, initiation of forerunner proteins, MHC-II intervened antigen introduction, and apoptosis [15].

This investigation intended to assess the serum level of Cys C in psoriatic patients and its relationship of sickness seriousness. The aftereffects of the introduced examination displayed factually huge height of serum level of Cys C in psoriatic patients than control with a positive connection with sickness seriousness. This outcome concurs with Demirbaş et

al., (2020) who demonstrated huge height of Cys C in psoriatic patients.

The height of Cys C may add to metabolic disorder improvement in psoriatic patients. Cys C has been related with metabolic disorder and its segments as DM (Magnusson et al., 2016), atherosclerosis [6].

The aftereffects of this examination demonstrated a positive relationship between's Cyc C and psoriasis seriousness. This may demonstrate a potential function of Cys c in psoriasis pathogenesis and interminable irritation status saw in psoriasis. This concurs with past report about the part of Cys C in other constant provocative infections as rheumatoid joint inflammation [12] and Crohn's malady [5].

5. Conclusions

Serum Cys C is significantly elevated in psoriatic patients than control with a positive significant correlation with psoriasis severity.

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