

Determination the Level of the D Binding Protein in the Patients with Chronic Plaque Psoriasis in the Iraq and its Relation with Disease Severity

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Abstract

Psoriasis is chronic disease characterized increase the proliferation and decrease the differentiation of the keratinocyte due to the many conditions such as immune imbalance, genetic or infection or or environmental condition. 89 patients was included in the presented study additionally to the 89 control and estimated for the level of the vitamin D binding protein in the blood sample. The level of the vitamin D binding protein was higher in the patients group than the control group and there is a strong correlation of the level of the vitamin D binding protein with the disease severity. The author of the presented study opinion about these higher level of the vitamin D binding protein is attributed to the these protein considered as acute phase reactant protein and its level can increase at any acute phase of the any disease which may decrease the level of the vitamin D in the body and increasing the disease severity.

Keyword: Vitamin D binding protein, Psoriasis, PASI score

1. Introduction

Psoriasis is considered a chronic inflammatory with immune background disease of the skin. It has a negative effect on the physical, emotional additionally of the psychosocial life of affected patients [1]. There are different environmental triggering factors such as infection or drug or may be secondary to the trauma or genetic factor. Psoriasis is found in the entire world but the prevalence varies among the different ethnic groups. There are many clinical cutaneous manifestations of psoriasis but the most common chronic, symmetrical, erythematous, thickening, and scaling disease of the skin. The prevalence of psoriasis is 3% and mostly in European and North America [2] and 0.16 % in Iraq in 2016.

The disease occurs in the different age groups with rare occurrences less than 10 years and greatly between 15-40 years, there is an unknown course disease with continuous remission and exacerbation [2]. The main reason is still unknown, Historically, psoriasis is considered a primary disorder of keratinocyte [3, 4]. There is hyper-proliferation of keratinocytes and alteration in differentiation [5, 6]. Genetic abnormality leads to keratinocytes hyper-proliferation which in turn, produces a defective skin barrier allowing the penetration of antigens which resulting in the immune response to that antigen (Ag) [7].

2. Material

Patients

All patients that were included in the presented study were collected from the department of dermatology after diagnosing the type of psoriasis as chronic plaque psoriasis by the specialist

dermatologist that was founded in the department of the dermatology in the Marjan teaching hospital in al Hilla city.

Patients information such as name, gender, age, address, date of the onset and duration of the involvement, height, weight, and BMI calculation, presence or absence of the psoriatic co-morbidities, psychological stress, itching, erythema induration, and calculation of the PASI score are collected directly from the involved patients are directly collected from the patients after an interview with those patients and the documented in the questionnaire and finally patients signature.

Physical examination

The Physical examination such as height, weight, and BMI was applied to both participants group in the presented study which consisted of a major two groups that included the first group which is the patient group, and the second group which was the control group. All these parameters were calculated in the nutrition department in the Marjan teaching hospital in al Hilla city.

Clinical examination

Detection of the disease severity by calculation by using of the severity index (PASI score).

PASI score is a tool that is used for identifying the disease severity among the psoriatic patients depending on the major psoriatic signs which are the erythema, scaling, and thickness. PASI score considered a tool that is used for the monitoring of the disease among psoriatic patients and identifying the degree of the disease response to the treatment, when there is a lower degree of the PASI score, these mean a good response to the treatment, PASI score also used for detection the extent of psoriasis among patients.

Biochemical examination

Determination the level of the vitamin D binding protein

Principle of assay

The level of the vitamin D binding protein was detected by the sandwich immunoabsorbent assay. Two antibodies are used in this method, the first called Anti-vitamin D binding protein which is coated on the exterior layer of the well, and the second antibody called anti-vitamin D binding protein coated with biotin used as the detection antibody. Standards, patient's serum, and conjugated antibody were added subsequently then incubated together and finally washed by the washing buffer. The conjugated enzyme was added after the first washing process followed by the addition of the enzyme-substrate which TMP and incubated in the incubator, The TMP were used by the HRP by its enzymatic reaction to produce the blue color which then changed into yellow color and the color density was correlated with the vitamin D binding protein concentration which is determined on the wavelength 450nm in ELISA plate.

3. Result

Vitamin D binding protein

In the depending on the result of the presented study, there is a significant difference between the level of the D binding protein in patients group than in the control group, The level of the D binding protein are higher than its level in the control group, as showed in the table 3-4 below

Table 3-1 show the concentration of the DBP in both group in the presented study with level of the significant				
P value	Mean ± SD	Individuals No.	Group	DBP ng/l
0.01	435.0364±171.36762	89	Patients group	
	266.1936±217.30586	89	Control group	

4. Discussion

Physical examination

The physical examination for the patients and control in the presented study was include age, BMI and exposure to sunlight for the both patients and control group.

There was no any statistical difference in the mean age for the both group of the presented study These was necessary for the accuracy of the result of the current study and to minimize the difference in the level of the study parameter between the subjected group.

The insignificant difference in the mean BMI between the patients and control group was necessary to minimize the errors that may occur in the result of the current study due to the discrepancy which may occur in the level of the biochemical parameter between the both group and between the individual patients or control which may

resulting in the inaccurate result. The BMI of the patients group are still within the normal these would mean the psoriasis which mean there is no any correlation between the obesity and psoriasis finding was agreed with and disagreed with Al-Ammar study [8, 9].

It's necessary to the presence of the insignificant difference in the exposure to the sunlight between the patients and control group as mentioned previously to minimizing the fault the occur in the concentration of the biochemical parameter among study group. The exposure to the sunlight among the psoriatic male was higher than the psoriatic female and these resulting in low PASI score among the psoriatic male than female and these result was agreed with the study done on the Iraqi psoriatic patients by the mohammed et al in 2019 which reveal to the improvement in the psoriasis after exposure to the sunlight and decreasing PASI score among the psoriatic male than female because of the exposure to the sunlight among male higher than female. The finding of the present study was agreed with the previous study in Ohio, USA done by E. Soyland et al [9] which concluded that there was a clinical improvement in psoriasis and decreasing in PASI score among psoriatic patients after exposure to sunlight mainly due to the rapid reduction for inflammatory markers such as inflammatory cytokines that produced by Th cell in response to decreasing the numbers of Th cell in the lesional psoriatic skin in epidermis after exposure to light that resulting in these clinical improvement. Author opinion about the results of the present study is the improvement may occur in psoriasis in response to the seasonal discrepancy mainly in the summer and spring.

Correlation of the biochemical parameter with the disease severity (PASI score)

The author of the presented study opinion the negative significant correlation between the DBP and the PASI mean the level of the DBP play important role in the decreasing the severity of the disease if it is in the normal, The author opinion is when the level of the DBP are elevated but in the normal limit this would resulting in the increase the transferring of the vitamin D from the skin to the liver and kidney and thereby replacing the deficiency of the vitamin D and decreasing the PASI score , But when the level of the DBP are more than the normal limit this can cause the a decreasing level of the vitamin D and thereby increase the disease severity.

5. Conclusion

Vitamin D binding protein play critical role in the psoriasis and any increasing in its level resulted in the disease to exacerbate.

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