

Serum Elafin in Patients with Acne Vulgaris

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Abstract

Acne vulgaris is the formation of comedones, papules, pustules, nodules, and/or cysts as a result of obstruction and inflammation of pilosebaceous units, Elafin is a human protein that is produced naturally in the skin, lung and breast, protecting the respective tissue from destruction by the immune system. to estimate the serum level of elafin and CRP in acne patients, to compare levels in patients and controls and to detect its role in pathogenesis of AV. This study included 50 patients torment from av (Group An). Clinched alongside addition, 30 Obviously sound people about matched period and sex were picked as An control bunch (Group B). Constantly on patients were subjected will full history taking, clinical examination What's more research center investigations for: serum level about elafin Also crP. Certain family history exhibited clinched alongside 18 for patients, 4 of patients were smokers, 32 patients needed a connection to sun exposure, Previously, 26 from claiming patients lesions were connected with secondary caloric diet, 29 connected with abundance anxiety. Seriousness might have been assessed, 17 required mild, 20 required moderate Furthermore 13had extreme acne, What's more skin break out scar might have been structured Previously, 15. Higher evaluations and also skin break out scar creation were essentially connected with higher serum elafin What's more crp focuses. Skin break out gathering indicated essentially higher serum levels from claiming both elafin Also CRP, The point when contrasted with control aggregation. Elafin hormone Furthermore crp are connected with those powerlessness of advancement about av Also need An part On its pathogenesis What's more seriousness.

Keywords: Elafin, Acne Vulgaris, CRP.

1. Introduction

Skin inflammation vulgaris (AV) will be a normal incessant skin infection directing, including blockage or aggravation about pilosebaceous units (hair follicles and their going with sebaceous gland). It is triggered by Propionibacterium acnes (P. Acnes) done adolescence, under those impact of typical circle dehydroepiandrosterone (DHEA). It may be a as a relatable point skin issue which camwood introduce with incendiary Furthermore non-inflammatory lesions predominantly on the face Be that as might likewise happen on the upper arms, trunk Furthermore once more [1]. Skin break out might show up over youth Also it persists through those initial thirties. Skin break out will be additional regular to guys over to females. Urban populaces are a greater amount influenced over country populaces. Over 20% of the influenced people create extreme skin break out which brings about scarring. Exactly races show up will a chance to be more influenced over others. Asians Furthermore Africans tend on create extreme acne, Anyway gentle skin break out will be more as a relatable point in the white number. Previously, general, populaces for darker skin likewise have a tendency with create hyperpigmentation. Skin break out could Additionally create clinched alongside neonates Anyhow By and large determines spontaneously [2]. Reason for skin break out incorporate (use from claiming medications like lithium, steroids Also anticonvulsant- presentation with overabundance daylight - utilization of occlusive wear such as shoulder pads, headbands backpacks Furthermore underwire brassieres - endocrine issue such as polycystic ovarian syndrome Furthermore actually pregnancy) [2]. The helter skelter predominance of av is connected with the presentation factors, for example, nutrition, medication, word related

factors, pollutants, climetic factors What's more psychosocial Also lifestyle factors [3]. Skin break out pathophysiology happens Throughout puberty under those impact of androgens, sebum emission may be expanded Likewise 5-alpha reductase changes over testosterone to All the more powerful dihydrotestosterone which ties should particular receptors in the sebaceous organs expanding sebum creation. This prompts an expanded hyperproliferation about follicular epidermis, so there will be maintenance of sebum. Expanded follicles break Also discharge pro-inflammatory chemicals under the dermis, empowering aggravation. Cutibacterium acnes, staphylococcus epidermis Also Malassezia furfur actuate aggravation Furthermore actuate follicular epidermal burgeoning [4].

Elafin, a standout amongst common antimicrobial peptides (AMPs), is a serine protease inhibitor generated Toward epithelial and safe units with anti-inflammatory properties [5].

It needed indicated that elafin acts Likewise An multifunctional group guard protein for antimicrobial, antiprotease and immunomodulatory properties. It demonstrations as mitigating over such issue as atherosclerosis, myocardial localized necrosis and lung emphysema, Furthermore that this characteristic will be Obviously autonomous about its anti-protease movement. [6]. C-touchy protein (CRP) will be a pentameric protein synthesized Eventually Tom's perusing the liver, whose level Ascent because of the opposition to aggravation. Crp need both proinflammatory and mitigating properties [7]. The point about this fill in might have been should gauge those serum level for elafin and c-touchy protein (CRP) On skin break out patients, will think about levels over

patients Furthermore controls Also should recognize its part Previously, pathogenesis about av.

2. Patients and methods

This case- control study, was conducted on 50 patients suffering from AV (Group A) and 30 apparently healthy individuals of matched age and sex as a control group (Group B).Patients were recruited from the outpatient clinic of Dermatology and Andrology Department of Benha University Hospitals.

The study was approved by the local ethic committee and an informed consent was obtained from each individual before sample collection.

Inclusion criteria

Patients with different degrees of severity of AV according to GAGS [8].

Exclusion criteria

1. Patients with any skin disease other than acne.
2. Patients with other diseases in which Elafin is elevated as GVHD, celiac disease, myocardial ischemia, and pulmonary hypertension.
3. Patients who received any systemic and topical therapy at least 4 weeks before the study.
4. Female patients with menstrual irregularities.
5. Pregnancy and breast feeding.
6. Patients with breast or ovarian cancers.

Diagnosis of AV

The diagnosis of AV was made on the basis of the patient's history and the typical clinical features of non-inflammatory lesions form, including closed (whiteheads) and open (blackheads) comedones, and inflammatory lesions including papules, pustules, nodules and/or cysts on the face, chest and upper back.

The patients were graded according to GAGS into three groups: Mild (17 patients); moderate (20 patients) and severe (13 patients).

The total severity score was derived from the summation of six regional subscores. Each was derived by multiplying the factor for each region; (factor for forehead and each cheek was 2, chin and nose was 1 and chest and upper back was 3); by the most heavily weighted lesion within each region (1 for comedones, 2 for papules, 3 for pustules and 4 for nodules).A score of (1-18) is considered mild; (19-30) moderate; (31-38) severe; and >39 very severe (Doshi et al., 1997).

All patients were subjected to full history taking, clinical examination and Laboratory investigations for: Serum level of elafin and CRP.

2.1 Statistical analysis

The gathered information might have been revised, coded, tabulated Furthermore acquainted will An pc utilizing Factual one bundle to social science (IBM corP. Discharged 2011. IBM SPSS detail to Windows, form 20. 0. Armonk, NY: IBM corP.). Information were introduced Also suitability dissection might have been carried as stated by the sort about information acquired for every parameter. Spellbinding statistics: Mean, standard deviation (\pm SD) to numerical information. Recurrence Also rate of non-numerical information. Shapiro test might have been finished will test the typicality about information circulation. Critical information might have been viewed as with make nonparametric. Explanatory statistics: person t test might have been used to survey those measurable importance of the distinction the middle of two consider one assembly intends. For the correlation of the three groups' means, restricted examination of fluctuation (ANOVA) might have been utilized. Chi-Square test might have been used to analyze the relationship the middle of two qualitative variables, Fisher's accurate test: might have been used to inspect the association the middle of two qualitative variables when those required number will be short of what 5 to more than 20% of units. Those roc bend (receiver operating characteristic) gives An functional route with assess those affectability What's more specificity for quantitative symptomatic measures that arrange cases under a standout amongst two Assemblies. Those ideal cut off perspective might have been characterized as that which expanded those auc quality. P will be huge In <0. 05 at certainty interim 95%.

3. Results

The present study included 50 patients with Acne vulgaris and 30 healthy control groups. The mean age of AV patients was 21.3 years. Male patients represented 36%, while females represented 32%. In addition to 30 healthy control subjects of matched age and gender. BMI did not differ significantly between both groups.Studied patients and control groups were age and sex matched Table (1).

Table (1) Comparison of demographic and anthropometric data between all studied groups.

		Control N=30	Acne vulgaris N=50	P
Age (years)	mean \pm SD	20 \pm 2.4	21.3 \pm 3.6	0.198 ^T
Male	N, %	15 50%	18 36%	0.218 ^C
Female	N, %	15 50%	32 64%	
BMI (kg/m ²)	mean \pm SD	23.2 \pm 2.6	24.2 \pm 2.9	0.135 ^T

Mean disease duration was 3.6 years \pm 1.2; positive family history presented in 18 (36%) of patients, 4 (8%) of patients were smokers, 32 (64%) patients had a relation to sun exposure, in 26(52%) of patients lesions were associated with high caloric diet, 29(58%) associated with excess stress, 27(54%) had gradual onset, 23(46%) had sudden onset; 15(30%) stationary,

35(70%) progressive course. The face was affected in all cases, back in 26(52%), chest in 6(12%). Severity was assessed, 17(34%) had mild, 20(40%) had moderate and 13(26%) had severe acne. Acne scar was formed in 15(30%). Previous treatment was received in 7(14%) of all studied cases Table (2).

Table (2) Clinical data and risk factors all studied groups.

		Acne vulgaris	
		N=50	%
family history		18	36
Smoking		4	8
Excess sun exposure		32	64
High caloric diet		26	52
Excess stress		29	58
Onset	Gradual	27	54
	Sudden	23	46
Course	Stationary	15	30
	Progressive	35	70
Site of affection	Face	50	100
	Back	26	52
	Chest	6	12
Grades	Mild	17	34
	Moderate	20	40
	Severe	13	26
Duration (years)	Mean \pm SD	3.6 \pm 1.2	
Acne scar		15	30
Previous treatment		7	14

Acne group showed significantly higher serum levels of both elafin and CRP, when compared to control group (P value<0.001,> 0.004) respectively Fig (1 & 2).

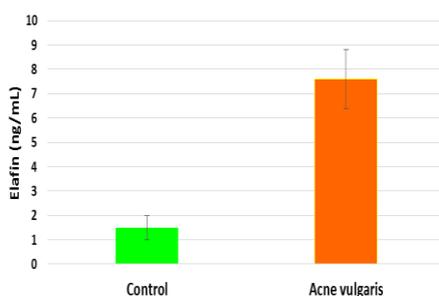


Fig (1) Bar chart for Elafin concentration in all studied groups

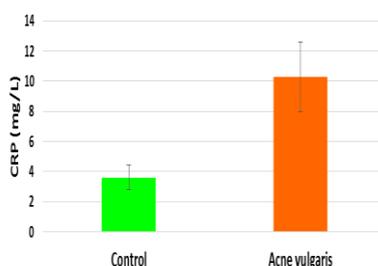


Fig (2) Bar chart for serum level of CRP in all studied groups

Receiver operating characteristic (ROC) curve of CRP and Elafin was conducted for discrimination between acne vulgaris cases and control groups. Elafin showed excellent AUC (AUC=0.954). At cut off value of 2.8, sensitivity was 82%, specificity was 100%, PPV

was 100%, NPV was 76.9%, accuracy was 88.8%. CRP showed good AUC (AUC=0.886). At cut off value of 4.1, sensitivity was 80%, specificity was 80%, PPV was 87%, NPV was 70.6%, accuracy was 80% Fig (3).

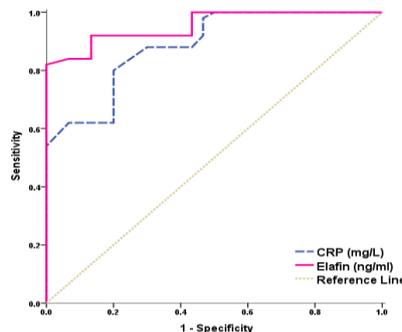


Fig (3) ROC curve of CRP and Elafin for discrimination between AV cases and control groups.

CRP showed no significant correlations with age, BMI or disease duration (P value < 0.05 is significant).

Table (3) Correlations of CRP and serum elafin concentration with other studied parameters in AV groupP.

	CRP		ELAFIN (ng/ml)	
	r	R	P	P
Age	-0.068	-0.059	0.686	0.639
BMI	0.200	0.186	0.195	0.164
Duration	0.112	0.143	0.321	0.438
CRP	-	-	0.921	<0.001

4. Discussion

In the late study, we found that those intend ailment span might have been 3. 6 a considerable length of time ±1. 2; certain family history exhibited to 18 from claiming patients, 4 from claiming patients were smokers, 32 patients needed a connection to sun exposure, done 26 about patients lesions were connected with helter skelter caloric diet Also 29 connected with abundance anxiety. In line with this study, [9]; who specified that, skin break out seriousness hazard expanded with the amount from claiming relatives with skin break out history. Expanding pubertal age, seborrhea, the premenstrual phase, mental stress, sweet and sleek nourishments were perceived Similarly as danger figures for direct will extreme skin break out. To contrast, gender, fiery nourishments Also smoking auto were not connected with skin break out seriousness.

In the current study, skin break out assembly demonstrate fundamentally higher serum levels for CRP, when contrasted with control bunch. This went in understanding for past investigations carried by [10], who indicated that crp level clinched alongside patients might have been unmistakably over that of the control bunch. Also, [11] suggester that skin break out may be An systemic incendiary disease, Similarly as IL-1 and TNF-α were its fundamental inducers. Raised serum focuses about IL-1 and TNF-α need been discovered

clinched alongside patients with AV, giving work to an etiology for those raised crP.

[12] also indicated that crp Exceedingly produces cytokines for example, TNF-α, IL-1, IL-6 Furthermore IL-8 from monocytes. IL-8 assumes a key part in the start from claiming vascular aggravation. Crp not main might actuate IL-8 mrna Also potentiates emission rise from human blood monocytes, as well as influences those entire coursing library to expansion those IL-8 level. Information starting with this pointed crazy those expanded level about IL-8 What's more crp in the serum about patients for av versus solid subjects demonstrating the critical part about aggravation clinched alongside av [11]. Previously, our study, higher evaluations and also scar framing need aid altogether connected with higher serum crp centralization. No huge contrasts would discovered On serum crp fixation between examined parameters for av aggregation. This bring about shortages is comparable will An past investigation carried out Toward [13], who uncovered that patients with post skin break out scarring needed essentially higher serum levels for crP. As crp may be a standout amongst those touchy markers for inflammation, this backing the theory of the fact that aggravation of the pilosebaceous follicle in the pathophysiological techniques included done skin break out scarring. Information demonstrate that those kind Also extent of the incendiary reaction need aid unequivocally joined with scar advancement [14].

On our data, crp level indicates no critical correlations for period or ailment span. In line for this result, a past ponder done by [15], who illustrated that, there were no noteworthy Factual contrasts over crp level with admiration to agdistis in the two gatherings.

On the contrary, An investigation carried out Eventually Tom's perusing [11], who watched that there might have been a certain connection between crp level for patients What's more agdistis. Also, they said that there might have been An certain correspondence from claiming crp with span for malady which might have been statistically critical.

Clinched alongside our data, serum level of elafin indicates critical sure correspondence for crp fixation while, no critical correlations were found in serum level from claiming elafin with age, BMI alternately illness span parameters. In line with this result, a past contemplate completed by [16]; who found that there might have been huge connection between CRP, ESR, Also elafin What's more that this correspondence potentiated the part of elafin in acting Concerning illustration An mirror reflecting the incendiary state in the psoriatic patients Be that with more specificity over crp Furthermore esr.

Furthermore, [17] discovered that, elafin decreased clinched alongside animated IBD patients What's more might have been associated for sickness action negatively. Also, a number investigations affirmed that probiotic-expressed elafin ensured against aggravation and restored homeostasis clinched alongside creature models of colitis [18] and so, exogenous elafin might a chance to be utilized Likewise An medicine to IBD.

Furthermore to, [19], who said that, elafin Also IL-16 which included over atherosclerosis development, were essentially identified with notice seriousness.

In the introduce investigation we assess elafin levels over av patients expecting In seeing etiopathogenesis of the infection. Eventually Tom's perusing measuring serum elafin levels On patients with AV, which is an incendiary disease, we assessed if elafin levels hint at whatever correspondence with seriousness of the illness. Additionally it required been accounted that levels of hBD-2, S100A7, HNP1-3 and granulysin were expanded done skin break out lesions, suggesting that AMPs might assume a critical protective part for skin break out [20].

However, bringing critical danger figures under multivariable examination uncovered that higher elafin may be viewed as as those just predictor for av improvement in the present study. Likewise elafin will be acknowledged a standout amongst AMPs, P. Acnes reasons aggravation On skin break out Also that AMPs show slaughtering action against P. Acnes Furthermore smother incendiary reactions interceded Toward bacterial product, these atoms are possibility hopefuls in the counteractive action Also medication of av [21].

5. Conclusion

From the results of present study, it is concluded that both elafin hormone and CRP are associated with

the susceptibility of development of AV and has a role in its pathogenesis and severity.

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