A Study of Hormonal assay among adolescent patients with acne between 15 to 20 at tertiary health care centre

T V Ramana Rao[1], Kethireddi S Divya[2*], Ajay kumar Reddy Bobba[3]

[1,2]Assistant Professor, Department of Dermatology, Gayatri Vidya Parishad Institute of Health care and Medical Technology, INDIA.
[3]Assistant Professor, Department of Community Medicine, Pinnamaneni Siddardha Institute of Medical Sciences, INDIA.
Email: drtvramanarao94404@gmail.com

Abstract

Background: Acne vulgaris is a common disorder of the pilosebaceous unit. It means prevalence in adolescence is estimated to be 70-87%. **Aims and Objectives:** To Study Hormonal assay among adolescent patients with acne between 15 to 20 at tertiary health care centre. **Methodology:** After approval from institutional ethical committee a cross-sectional study was carried out in the Department of Skin And VD at tertiary health care centre during the one year period i.e. June 2017 to June 2018. All Male and Female patients who came to the OPD of Skin and VD were randomly i.e. 35 patients included over year with written and explained consent similarly 35 patients without Acne were included into the study. The statistical analysis was done by unpaired t-test and calculated by SPSS 19 version. **Result:** In our study we have found The average age of the patients age was (Yrs.) (Mean±SD) 25± 5.6 and of the Patients without Acne was 27± 4.78 which was comparable (p>0.05,t=1.82, df=68). The majority of the patients with Acne were Females as compared to Patients without Acne the sex ratio was 2.5 : 1 and 0.75 : 1 ; Female : Respectively in Patients with and Without acne this difference was statistically significant (p<0.01, χ^2 = 5.833, df=1). This could be explained by the fact that the Acne are produced in combination with PCOD in the females and the hormonal balance also more common in females. The average Serum level of the hormones like LH (mIU/ml) were 13.45 ± 8.21 and 5.12 ± 2.93 (p<0.005,t=5.65,df=68); FSH (mIU/ml) -6.43 ± 3.43 and 4.32 ± 4.12 (p<0.001,t=6.34,df=68), Prolactin (µIU/ml)-421±178.32 and 367.43 ± 115.23 (p<0.05,t=6.34,df=68), Testosterone (mg/ml) - 0.97 ± 0.52 and 0.38 ± 0.17 (p<0.01,t=6.34,df=68) were significantly higher in the patients with Acne as compared to Patients without Acne **Conclusion:** It can be concluded from our study that the problem of Acne was more common in Females as compared to Males and the hormones like LH, FSH, Prolactin, Testosterone were significantly higher in the patients of Acne as compared to without Acne patients.
Key Words: Hormonal assay, Acne vulgaris, LH (Luteinizing Hormone), FSH (Follicular Stimulating Hormone), Prolactin, Testosterone.

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INTRODUCTION

Acne vulgaris is a common disorder of the pilosebaceous unit. It means prevalence in adolescence is estimated to be 70-87%.[1] Its cutaneous manifestation is well known to clinicians and have been amply described. The endocrine causes and associated disease states are less commonly described. Acne is a chronic inflammatory disease of the pilosebaceous unit, characterized by seborrhea, formation of comedones, erythematous papules and pustules, less frequently by nodules, deep pustules, or pseudocysts and, in some cases, it is accompanied by scarring[2]. Follicular hyperkeratinization, excessive sebum production, hypercolonization of the duct by Propionibacterium

acnes, direct or indirect inflammation and recently, Matrix metalloproteinases (MMPs) have been included to have role in the pathogenesis of acne vulgaris[3,4]. Several hormones implicated in the regulation of sebaceous gland activity have been linked to acne. They include androgens, estrogens, progesterone, growth hormone, insulin, insulin-like growth factor-1 (IGF-1), corticotropin-releasing hormone (CRH), adrenocorticotropic hormone (ACTH), melanocortins and glucocorticoids[5]. The link between sebaceous gland activity and puberty has been recognized for many years[2]. Acne vulgaris first develops at the onset of puberty as a result of hormonal changes[6]. So we have done study to see the profile of hormone in comparison with the normal patients.

MATERIAL AND METHODS

After approval from institutional ethical committee a cross-sectional study was carried out in the Department of Skin And VD at tertiary health care centre during the one year period i.e. June 2017 to June 2018. All Male and Female patients who came to the OPD of Skin and VD were randomly i.e. 35 patients included over year with written and explained consent similarly 35 patients without Acne were included into the study. All information like age and sex were noted, the hormonal assay report of all the patients was also noted analyzed respectively in both the patients. The statistical analysis was done by unpaired t-test and calculated by SPSS 19 version.

RESULT

Table 1: Distribution of the patients as per the sex

	Patients with Acne (n=35)	Patients without Acne (n=35)	p-value
Age (Yrs) (mean ±SD)	25± 5.6	27± 4.78	p>0.05,t=1.82, df=68
Sex			
Male	10	20	p<0.01, χ^2 = 5.833, df=1
Female	25	15	

The average age of the patients age was (Yrs.) (Mean±SD) 25± 5.6 and of the Patients without Acne was 27± 4.78 which was comparable (p>0.05,t=1.82, df=68). The majority of the patients with Acne were Females as compared to Patients without Acne the sex ratio was 2.5 : 1 and 0.75 : 1 ; Female : Respectively in Patients with and Without acne this difference was statistically significant (p<0.01, χ^2 = 5.833, df=1).

Table 2: Distribution of the patients as per the Hormonal assay

Hormone	Patients with Acne (mean ±SD) (n=35)	Patients without Acne (mean ±SD) (n=35)	p-value
LH (mIU/ml)	13.45 ± 8.21	5.12 ± 2.93	p<0.005,t=5.65,df=68
FSH (mIU/ml)	6.43 ± 3.43	4.32 ± 4.12	p<0.001,t=6.34,df=68
Prolactin(μIU/ml)	421±178.32	367.43 ± 115.23	p<0.05,t=6.34,df=68
Testosterone (mg/ml)	0.97 ± 0.52	0.38 ± 0.17	p<0.01,t=6.34,df=68

The average Serum level of the hormones like LH (mIU/ml) were 13.45 ± 8.21 and 5.12 ± 2.93 (p<0.005,t=5.65,df=68); FSH (mIU/ml) -6.43 ± 3.43 and 4.32 ± 4.12 (p<0.001,t=6.34,df=68), Prolactin(μIU/ml)-421±178.32 and 367.43 ± 115.23 (p<0.05,t=6.34,df=68), Testosterone (mg/ml) - 0.97 ± 0.52 and 0.38 ± 0.17 (p<0.01,t=6.34,df=68) were significantly higher in the patients with Acne as compared to Patients without Acne

DISCUSSION

Acne vulgaris is a common skin disease, affecting more than 85% of adolescents, women being affected more frequently than men[8]. It is seen in nearly 100% of individuals at some time during their lives[9]. For some, it is temporary and resolves by the mid-20s; however, more severe cases often take longer to resolve, and it can persist into adult years in as many as 50% of individuals[7,9]. Although it does not affect overall health, its impact on emotional well-being and function can be critical, especially active acne and its sequel, like permanent scarring, leaves psychological stress that do

not always correlate with the clinician's assessment of severity at one point in time[10,11]. The psychological fallout in acne patients includes much higher rates of clinical depression, anxiety, anger, suicidal thoughts, and even suicide itself[12]. Increasing age of affliction with acne can proportionately affect the quality of life in various ways, including employment, social behavior, and body dissatisfaction[11]. The more severe the acne, the greater the negative impact on quality of life (QOL)[9]. The impact of acne on a patient's psychological and emotional well-being is comparable with that of chronic systemic disease processes such as diabetes, asthma, arthritis, and

epilepsy[11]. Acne is often a chronic disease and not just a self-limiting disorder of teenagers. The following characteristics have been used to define its chronic state: a prolonged course, a pattern of recurrence or relapse, manifestation as acute outbreaks or slow onset, and a psychological and social impact that affects the individual's quality of life. Factors that have been linked to a chronic course include stress-related production of adrenal androgens, P. acnes colonization, familial background, and specific subtypes of acne (conglobata, keloidal, inversa, androgenic, scalp folliculitis, and chloracne)[6]. In our study we have found The average age of the patients age was (Yrs.) (Mean±SD) 25± 5.6 and of the Patients without Acne was 27± 4.78 which was comparable (p>0.05,t=1.82, df=68). The majority of the patients with Acne were Females as compared to Patients without Acne the sex ratio was 2.5 : 1 and 0.75 : 1 ; Female : Respectively in Patients with and Without acne this difference was statistically significant (p<0.01, χ^2 = 5.833, df=1). This could be explained by the fact that the Acne are produced in combination with PCOD in the females and the hormonal balance also more common in females. The average Serum level of the hormones like LH (mIU/ml) were 13.45 ± 8.21 and 5.12 ± 2.93 (p<0.005,t=5.65,df=68); FSH (mIU/ml) -6.43 ± 3.43 and 4.32 ± 4.12 (p<0.001,t=6.34,df=68), Prolactin(µIU/ml)-421±178.32 and 367.43 ± 115.23 (p<0.05,t=6.34,df=68), Testosterone (mg/ml) - 0.97 ± 0.52 and 0.38 ± 0.17 (p<0.01,t=6.34,df=68) were significantly higher in the patients with Acne as compared to Patients without Acne Megha Kataria Arora [13] *et al* found that serum testosterone, progesterone, glucocorticoids, insulin and insulin-like growth factors are increased in patients with acne vulgaris and serum estrogen levels are low in patients. B Balachandrudu *et al*[14] found that Pathogenesis of acne involves a complex interplay of most of the hormones in the Body, which are affected by various endogenous and exogenous stress factors. Hence, a thorough evaluation of the hormonal profile must be done in resistant acne and acne associated with systemic diseases keeping in view the hormonal pathogenesis of acne.

CONCLUSION

It can be concluded from our study that the problem of Acne was more common in Females as compared to Males and the hormones like LH, FSH, Prolactin, Testosterone were significantly higher in the patients of Acne as compared to without Acne patients.

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