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Original Research Article

A study on thyroid dysfunction in acne vulgaris

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ABSTRACT

Background: This study was done to evaluate the role of thyroid function i.e., free T3, free T4 and thyroid stimulating hormone (TSH) in relation to the occurrence of acne vulgaris.
Methods: A total of 50 patients clinically diagnosed with acne vulgaris were subjected to a thyroid function test and results were evaluated.
Results: While all the 50 patients had normal free T3 and free T4 levels, 9 (18%) of the 50 patients displayed an elevated TSH level. Gender distribution among the patients with elevated TSH learned more towards the male population with 6 patients while there were only 3 female patients with elevated TSH.
Conclusions: There have been few studies regarding the role of thyroid function in acne vulgaris in relation to free T3, free T4 and TSH, though the presence of thyroid antibodies have been highlighted in quite a few studies. This study has shown the insignificance of thyroid function in acne vulgaris thus accentuating the negative.

Keywords: Acne vulgaris, Thyroid function test, TSH

INTRODUCTION

Acne vulgaris is a common chronic inflammatory disorder of the skin with a number of factors playing an important role in the pathogenesis of the disease. Hormonal abnormalities, increased sebum production, *Propionibacterium acnes*, inflammation and follicular hyperkeratosis are the major factors involved in the occurrence of acne with genetics and drugs playing a minor role.[1]

Acne is primarily a disorder affecting adolescent females but can also occur or persist into adulthood sometimes well into the 40's giving rise to the term adult acne.[2] While polycystic ovarian syndrome is a common hormonal cause of acne, the role of thyroid hormones in acne is still unclear.[3] Though a hypothyroid state brings down the rate of sebum secretion from the sebocytes, elevated thyroid stimulating hormone (TSH) along with thyroxine and testosterone increase the sebum secretion.[4] While there is a paucity of studies highlighting the role of thyroid function i.e., T3, T4 and TSH in acne, the role of thyroid antibodies have been well established.

In our study we have focused on T3, T4 and TSH levels in 50 patients clinically diagnosed with acne vulgaris.

METHODS

Study design

A cross-sectional study.

Study area

The study was conducted at Skin Outpatient Department at Sree Balaji Medical College and Hospital.

Study population

All patients attending skin OPD, clinically diagnosed with acne vulgaris.

Study method

The study was an observational study.

Sample size

Sample size was 50 (random sampling).

Study period

The study was conducted from January 2019 to March 2019.

Exclusion criteria

Not consenting to the study.

Inclusion criteria

Patients consenting to the study.

The recruited patients were subjected to full history taking, thorough general dermatological examination and thyroid function test.

Study procedure

The study was approved by the ethical and research committee. Each patient was given a written informed consent and the study was explained in detail. Once a detailed clinical examination was done, the patient was directed to a laboratory where 5 ml of blood was drawn on a fasting stomach to test for thyroid function. On review, the patient's reports were checked for any abnormalities and discussed with the patient. The results obtained were tabulated in Microsoft Excel and analyzed using SPSS software.

RESULTS

Of the 50 acne patients subjected to a thyroid function test, 24 (48%) were males and 26 (52%) were females ranging between the ages of 12 and 23 as shown in figures 1 and 2. While all the 50 patients had normal free T3 and free T4 levels, 9 (18%) of the 50 patients displayed an elevated TSH level (Figure 3).

Gender distribution among the patients with elevated TSH learned more towards the male population with 6 patients while there were only 3 female patients with elevated TSH (Figure 4).

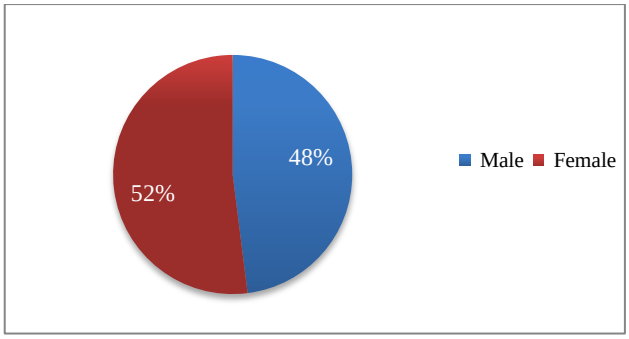

Figure 1: Gender distribution.

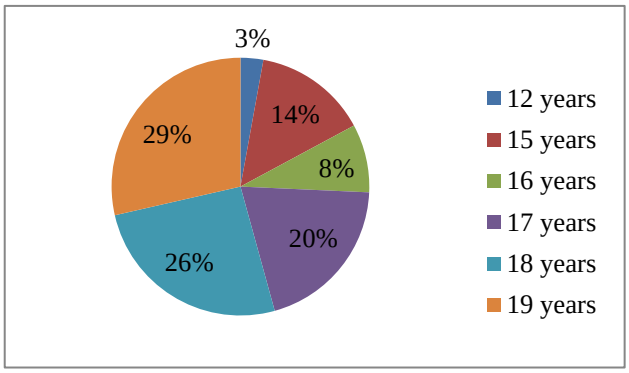

Figure 2: Age distribution.

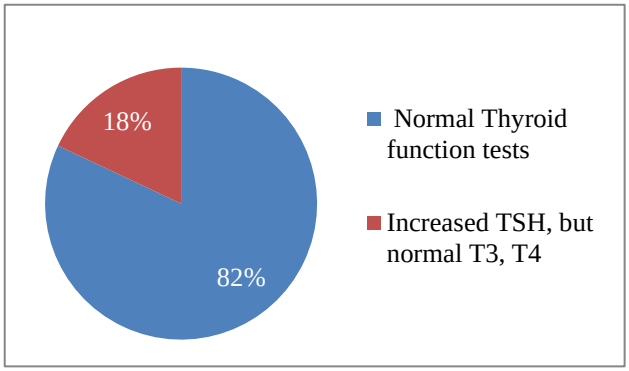

Figure 3: Thyroid function test.

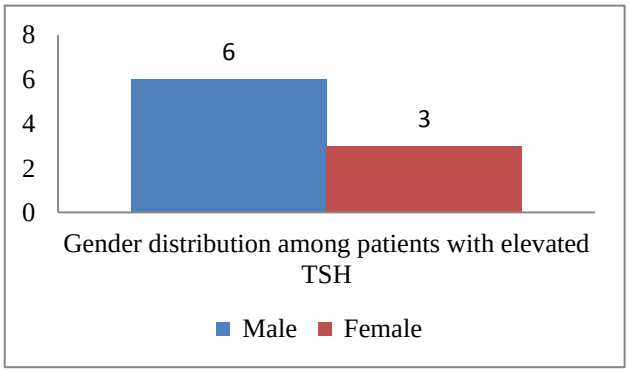

Figure 4: Gender distribution among patients with elevated TSH.

DISCUSSION

Acne though also seen in individuals post adolescence, commonly occurs between the ages of 12-25 years as proven by a study done by Lynn et al.[5] In our study as well, the patients were between the ages of 12 and 23 years (Figure 2).

Lynn et al also found a female preponderance of acne vulgaris which was the same in our study as well, with 52% females and 48% males (Figure 1).[5]

Out of the 50 patients in our study, 9 patients exhibited an elevated TSH. Another study by Stewart et al recorded 11 patients out of 119 with an elevated TSH.[6] On comparing the two studies statistically, our p value was 0.1086 and hence deemed insignificant.

Out of the 9 patients who exhibited an elevated TSH, 6 patients were male and 3 were female. This male preponderance has to be taken in question and further analysed since our study in general exhibited a female preponderance.

While the role of elevated TSH in acne vulgaris has been proven insignificant in this study, it is essential to do a thyroid screening in patients with acne especially in the post adolescent age for both TSH as well as thyroid antibodies.

CONCLUSION

There have been few studies regarding the role of thyroid function in acne vulgaris in relation to free T3, free T4 and TSH, though the presence of thyroid antibodies have been highlighted in quite a few studies. This study has shown the insignificance of thyroid function in acne vulgaris thus accentuating the negative.

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Ethical approval: The study was approved by the institutional ethics committee

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