

# Relation of Luteinizing hormone level in females escorted by multiple cysts on ovarian condition with some parameters in AL-Najaf city

Zahraa Mohammed Fakheir AL-Nafakh<sup>1</sup>, Nooralhuda Ghanem AL-Fatlawi<sup>2</sup>, Samah Amer Hammood<sup>3</sup>, Sabreen Ghanem Al-Fatlawi<sup>4</sup>, Almsaid Hayder<sup>4</sup>

<sup>1</sup>Department Biology, University of kufa, Iraq

<sup>2,3,4</sup>Department of Laboratory investigation, University of Kufa, Iraq

[zahram.atyah@uokufa.edu.iq](mailto:zahram.atyah@uokufa.edu.iq)

## Abstract

Multiple cysts on ovarian condition it is one of the generality hormonal troubles in adult females of generative prong give rise to unequal menstrual peroid, immoderate in frame or in facial hair, termination as well as sterility. Concerning 80% of adult female accompanied by multiple cysts on ovarian endure from menstrual dysfunction (oligo- menorrhea, an abnormal absence of menstruation) during several mark in their sexual life and in this study (regular and irregular menstrual cycle). Regular menstrual cycle (middle extent of the menstrual cycle amidst 22 and 41 days. Either none or extreme of 1 menstrual peroids with length<22 or>41 days through the former year. Irregular cycle (middle extent of the menstrual cycle admist 22 and 41 days. Two or more menstrual peroids with length<22 or>41 days through the former year. Multiple cysts on ovarian condition is a sex hormone disorders that can influence on marital satisfaction of affected married women. The objectives of this study is assessing the levels of LH hormone according to menstrual cycle state, marital state and height. method :37adult female were diagnosed with multiple cysts on ovarian condition and19 control women recruited from Abbas AL-Nafakh laboratory in AL-Najaf AL-Ashraf city during the period from4\1\2021to9\3\2021. Patients with multiple cysts on ovarian condition were divided into groups according to menstrual cycle (regular and irregular group), marital state (married and unmarried) and height. Results: the results of this study revealed a significant increase ( $P<0.05$ ) in LH hormone level in adult female with multiple cysts on ovarian condition in comparing with control group. This treatise also showed a significant difference ( $P<0.05$ ) in LH hormone level between regular and irregular group in women with multiple cysts on ovarian condition. Also, in this treatis this results also suggest no significant variances ( $P>0.05$ ) between married group and unmarried group in adult female with multiple cysts on ovarian condition and also there no significant variances ( $P>0.05$ ) between wedded and unwed group in control women, while it was found a significant variances ( $P<0.05$ ) in wedded group between patients and control women and also it was found a significant difference ( $P<0.05$ ) in unmarried group between patients and control women. Finally the present study have been shown positive correlation ( $P<0.05$ ) between LH hormone level and height in women with multiple cysts on ovarian condition.

**Keywords:** LH, Polycystic ovary, regular menstrual cycle, irregular menstrual cycle and height.

## Introduction

Multiple cysts on ovarian condition or (PCOS) it also have called hyper androgenic anovulation or Stein– Leventhal syndrome are group of signs result from a hormones imbalance in women. Signs or symptoms in close unequal or no menstrual periods, very heavy periods, over abundant in body and facial hair, pit, pelvic ache, trouble obtaining gravid, and spots of intense, darker, velvety skin [1]. The underlying disorder in multiple cysts on ovarian stay unknown; while, there is increasing assent that the clef features are androgen overabundant, insulin resistance, and abnormal condition in gonadotropin dynamic [2]. Endocrine with metabolic modification as towering serum concentrations of testosterone, insulin, luteinizing hormone and prolactin are common in multiple cysts on ovarian condition population. These latter may be have a profound implications for the long-term verdure of patients [3]. The level of hypothalamic gonadotropin release hormone (GnRH) check the pituitary secretion of luteinizing hormone and also follicle- stimulating hormone (FSH) whom vary

throughout the menstrual cycle and regulate [4]. Therefore, the levels of FSH and LH are critical for follicular development and subsequent ovulation [5]. The understanding of the u underlying PCOS pathogeny is still not clear because the heterogeneity of these disorders [6]. An increase in gonadotropin releasing hormone (GnRH) secretion which results in increased (LH) secretion is one of the reasons could be behind PCOS arising [7].

## Material and Methods

The study was performed on randomly selected 37 women with polycystic ovary syndrome and19 healthy women. having no history of diabetic mellitus and heart failure and other disease participated in this study.

Polycystic ovary syndrome was diagnosed by consultant doctors. The information of patients were obtained through a questions consisted of the name, marital state menstrual cycle (regular or irregular) height. 37women were diagnosed with multiple cysts on ovarian condition and19 control women recruited from Abbas AL-Nafakh laboratory in AL-Najaf AL-Ashraf city during the period from4\1\2021to9\3\2021. Patients were sub divided into

subgroups depending to, menstrual cycle, marital state (regular and irregular cycle) and height.

### Collection of blood samples

Blood specimens collected from all adult female during the early follicular phase of a spontaneous or progesterone stimulated menstrual period (day 3-5). Venous blood sample (5 ml) was collected from each woman of both PCOS and healthy control. The serum obtained by putting the blood samples in a clean dry plain plastic tube and allowed to clot at 37C for 30 minutes. The tubes centrifuged at 5000 run per minute for for 5 minutes, serum was collected and kept in freezer until used.

### Measurement o luteinizing hormone (LH) serum

Luteinizing hormone (LH) Eliza kit for the quantitative determination of LH hormone in human serum by immunoenzymometric assay was supplied by USA Biological.

### Statistical analysis

IBM SPSS statistics v23 windows software package were utilized for the analysis of this research's data (Version23.01, 2016) for windows 2010. The data have been ordered as the Mean  $\pm$  SE (i. e. the Standard Error), independent samples t -test has been utilized for the comparison between two. All figures had been constructed with the use of the EXCEL software from the Microsoft Office 2010. The value of P less than 00. 05 has been utilized as a statistically significant level [8].

## Results

### Effect of multiple cysts on ovarian condition on levels of luteinizing hormone

The serum concentration of luteinizing hormone (LH) in women with polycystic ovary syndrome and control groups are presented in figure (1). The results of this figure indicated a significant increase ( $P < 0.05$ ) in luteinizing hormone level in adult female with this disease ( $30.42 \pm 4.555$ ) comparing with control group ( $5.471 \pm 0.6780$ ).

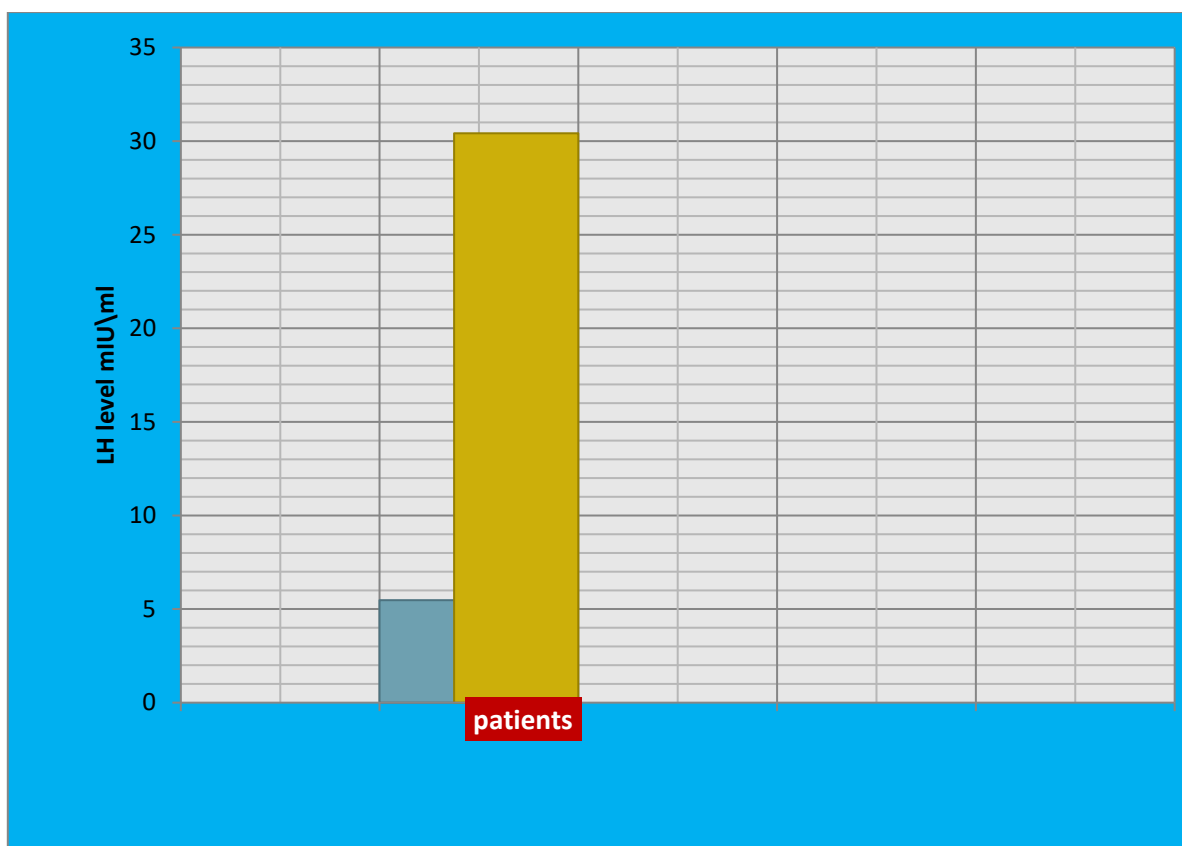


Figure (1) Luteinizing level in adult female with multiple cysts on ovarian condition and control group.

- Values are means  $\pm$ SE
- \*mean significant differences at ( $P < 0.05$ ) between patients and control groups.

### Comparison of luteinizing hormone between two groups of patients according to menstrual cycle state

The serum concentration of luteinizing hormone (LH) in two patient groups depending on menstrual cycle state (regular and irregular group) presented in figure (2). The result of this figure reveals a significant variance ( $P < 0.05$ ) seem between regular and irregular groups. So, the same figure indicated a significant increase ( $P < 0.05$ ) in irregular group ( $36.09 \pm 5.584$ ) comparing with regular group ( $12.77 \pm 2.256$ ).

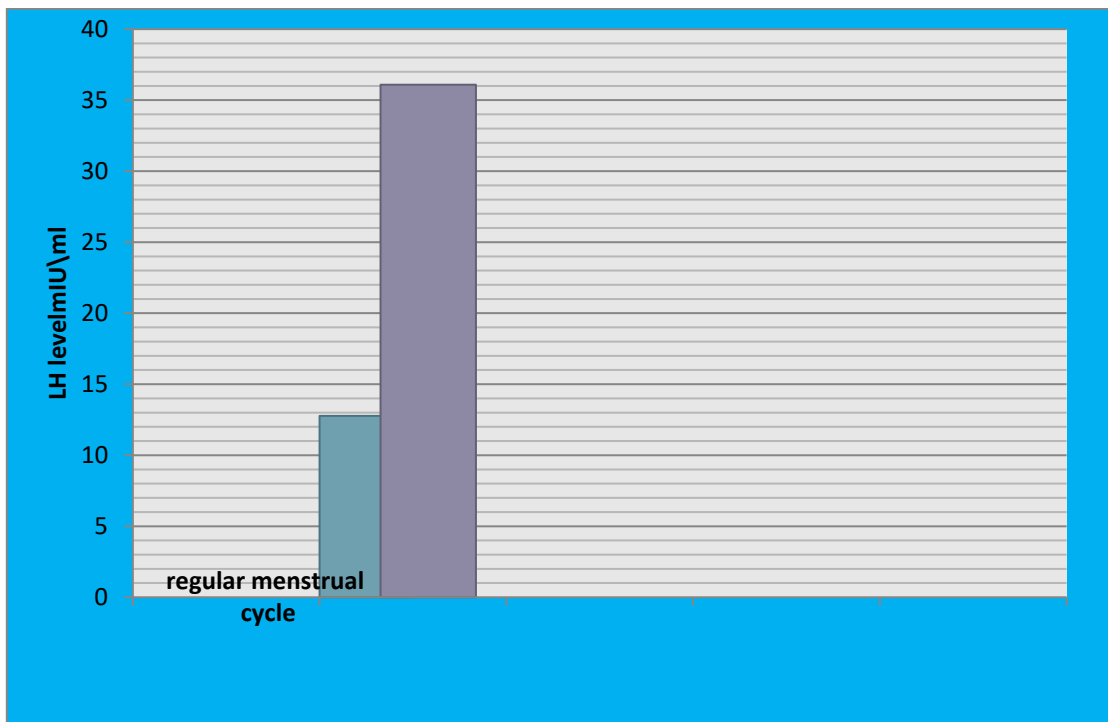


Figure (2) Luteinizing hormone level between regular and irregular group in adult female with multiple cysts on ovarian condition

- Values means±SE
- Different letter a,b refer to a significant differences (P<0. 05) between two groups of patients

Comparison level of luteinizing hormone in adult female with multiple cysts on ovarian condition and control group according to marital state

This results in figure (3) indicated no significant variances

(P>0. 05) between married and unmarried group of patients and also no significant differences (P>0. 05) between wedded and unwed group in control group. While this result reveals a significant increase (P<0. 05) in married group of patients (29. 52 ± 6. 497) comparing with married group of control group (5. 760 ± 0. 9135) and a significant increase (P<0. 05) in unmarried group of patients (30. 44 ± 6. 055) comparing with unmarried group (5. 150 ± 1. 056) of control group.

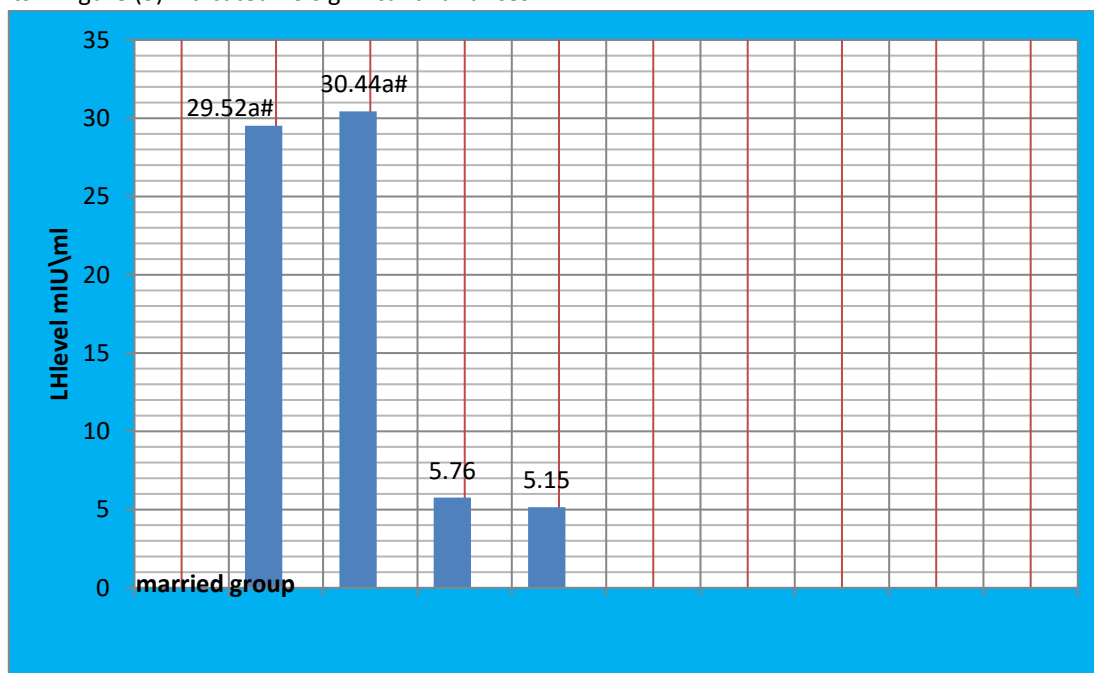


Figure (3) luteinizing hormone level in married and unmarried group between patients and control groups -Values mean±SE

- The same letter refer to no significant variances (P>0. 05) between different groups in same patients
- # intend significant differences (P<0. 05) in same groups between patients and control groups

## Correlation between luteinizing hormone level and height

The result of correlation and linear regression between luteinizing hormone level and height in patients are

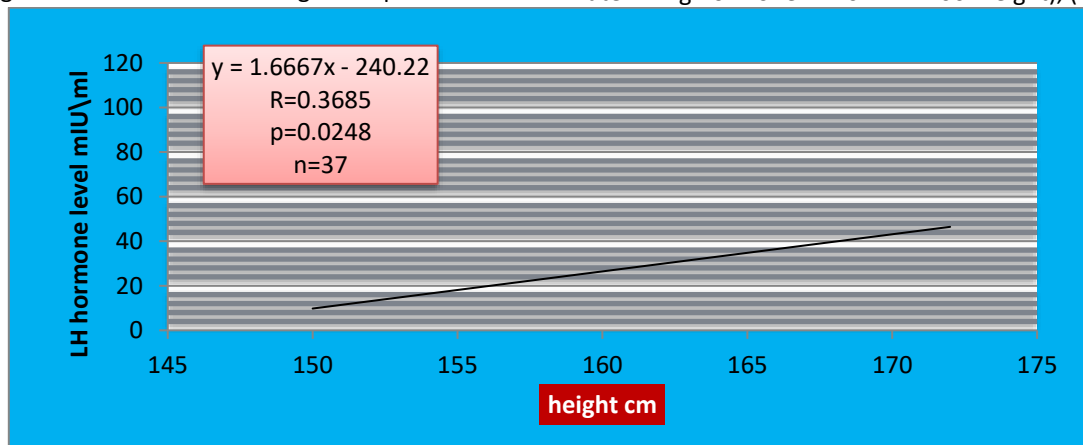


Figure (4) the correlation between luteinizing hormone level and height in adult female with multiple cysts on ovarian condition

## Discussion

The current project showed the mean serum LH was significantly higher in PCOS women compared with control subjects. This has been also seen in other studies. Previous study was found that plasma luteinizing level hormone was highly significant in women with polycystic compared with control group [9]. Also there were significant increase LH hormones in PCOS group, which are comparable with the previous studies results [10]. This elevation may give an explanation about increased male hormones production in ovary, or due to increase pulse frequency or episodic secretion of LH as reported previously [11]. Raised LH has qualified in adult female with hyperandrogenism of another reasons, such as androgen-secreting ovarian neoplasm [12]. Androgens have able to deform gonadotropin released by their aromatization to estrogens hormones [13]. Although levels of androgen in the normal male domain put down gonadotropin release in normal adult female [14]. Androgen levels do not straightway convert gonadotropin release in adult female with multiple cysts on ovarian condition or in normal adult female [13, 15]. Exposure of ovaries to rise LH concentration through the per. Penetrate of LH the follicle and causes coming early completion of the oocyte maturation and decrease its chances of fertilizing and implantation of follicular growth is harmful to the developing oocyte [16]. This study also presented a significant difference ( $P < 0.05$ ) amidst regular with irregular groups and Luteinizing hormone was highly significant in irregular group compared with regular group. Many studies proved the same results [17], while another study indicated that increase in LH hormone were noted in the regular group compared with irregular group [18]. The present study showed no significant differences between married and unmarried group in women with multiple cysts on ovarian condition and also no significant differences between married and unmarried group in

indicated:

1-The presence of a significant positive correlation ( $P < 0.05$ ) between luteinizing hormone level and height in women with polycystic ovary syndrome ( $r = 0.3685$ , luteinizing hormone =  $-240.22 + 1.667 \text{height}$ ), (figure4).

healthy women while a significant increase between married and unmarried group of patients compared with healthy women. Study of Khalaf [19] proved no significant difference was reported between both groups (married and unmarried group) of multiple cysts on ovarian patients in this respect, while LH elevated in married group compared to unmarried group of patients. The present study reveals the positive correlation between luteinizing hormone and the height in women of polycystic ovary syndrome. Previous studies showed the positive correlation between luteinizing hormone and height of patients [20, 21].

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