

Assessment the Level of Prolactin Hormone and Subfertility Women in Fertility Center of AL-Hussain Education Hospital in AL-Nasiriyah City

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Abstract:

Background: Infertility is a condition in which a couple is unable to conceive, after frequent sexual intercourse, for 12 months or more.

Objectives: To assess level prolactin hormone and subfertility women in fertility center of AL-Hussain education hospital in AL-Nasiriyah City and To find out the relationship between prolactin hormone and certain studied variables.

Methodology: A descriptive analytic study is conducted on non-Probability sample of (50) women from in fertility center of alhussain education hospital in AL-Nasiriyah City. This study has been conducted during the period of the October 1th 2015 to April 1st 2016. A questionnaire is used as a tool of data collection to fulfill according to the objectives of the study. A pilot study is carried out to test the reliability of the questionnaire and content validity which is carried out through 6 experts. A descriptive and inferential statistical are used to analyze the data.(what about the Control group)???

Results: The results showed that data recorded were indicated that Prolactin (PRL)was appeared significantly declining ($p < 0.04$) in 1st age group (16-26 yrs.) and 3rd age group (38-48yrs), increase in comparison with 2nd group (27-37yrs) which was declared that PRL level higher than 1st and 3rd age group, However show that there are increases of serum PRL level with regard to cultural level of patients in Faction College from another faction (illiteracy , secondary , institute & illiteracy).

Conclusions: The studies show that there are relationship between the ages when pregnant and the level of the hormone PRL, which increases the rate of infertility, The studies show there are level of education that's Positive influence on the level of PRL and thus positive influence for elevated percentage of infertility and The study shows that is the environment of pregnant women there are effected lead to increase percentage of infertility.

Recommendations: Advice the women the period age (27-37) that's more appropriate for pregnancy according to the result and conclusion of the study because low of hormone PRL, From the result study show must putting education programs to purpose continuous exam cycle for measure percentage of hormone PRL and device the women of don't take the hormone contraceptive to avoid overlap between hormones of through effected on the work of pituitary gland and use the natural contraceptive.

Key Index: Assessment, Prolactin Hormone, infertility

INTRODUCTION

Infertility is defined as the inability to conceive after one year of regular intercourse without contraception⁽¹⁾. There are two main types of infertility: primary and secondary a couple that has never been able to conceive has primary infertility whereas a couple who has been able to conceive in the past but is currently unable to do so has secondary infertility⁽²⁾. Prolactin (PRL), also known as luteotropic hormone or luteotropin, is a protein that in humans is best known for its role in enabling mammals, usually females, to produce milk; however, it is influential over a large number of functions with over 300 separate actions of PRL having been reported in various vertebrates⁽³⁾. Prolactin is a hormone that plays a role in fertility by inhibiting follicle stimulating hormone (FSH) and gonadotropin-releasing hormone (GnRH), the hormones that trigger ovulation and allow eggs to develop and mature. Hormonal disorders of female reproductive system are Comprised of a number of problems resulting from aberrant dysfunction of hypothalamic- pituitary-ovarian axis, these relatively common disorders often lead to infertility⁽⁴⁾. Thyroid dysfunction which is quite prevalent in the population affects many organs including male and female gonads, interferes with human reproductive physiology, which reduces the likelihood of pregnancy and adversely affects pregnancy outcome, thus becoming relevant in the algorithm of reproductive dysfunction⁽²⁾. Difficulty to conceive or subfertility constitutes a major psychological burden; Proper evaluation of these disorders involves a multidimensional diagnostic approach, with a pivotal contribution from clinical Laboratories⁽⁵⁾. Thyroid dysfunctions interfere with numerous aspects of reproduction and pregnancy, Therefore measurement of prolactin and thyroid hormones especially thyroid stimulating hormone (TSH), has been considered an important component of infertility work up in women⁽⁶⁾. Infertility may be primary if participation of either partner does not turn out to be successful in achieving pregnancy or secondary if couple has achieved a pregnancy previously but are having difficulty currently with Conception⁽⁷⁾. Fertility in men and women is regulated by a series of tightly coordinated and synchronized interactions within the hypothalamic pituitary-gonad axis. The operational characteristics of the reproductive axis leave little room for error. Reproductive tract structures are also at risk for the development of diseases that render them unfit or compromised in their primary role of reproduction. Disorders at any level of the system may lead to involuntary

infertility, which affects approximately 15% to 20% of couples, or approximately 11 million reproductive-age people in the United States⁽²⁾.

(MATERIALS AND METHODS

Study Objectives:

1. To assess level prolactin hormone and subfertility women in fertility center of alhussain education hospital in AL-Nasiriyah City.
2. To find out the relationship between prolactin hormone and certain studied variables.

A study Period: A descriptive design was conducted to fertility center of alhussain education hospital in AL-Nasiriyah City from the period of the October 1th 2015 to April 1st 2016.

patients: A Purposive sample "Non - probability" of (50) women, who have attended fertility center of alhussain education hospital in AL-Nasiriyah City. (type of sample blood or serum ???)

(Study Design): A modified questionnaire and adopted by the others research studies⁽¹⁾. It considered a means for data collection. It consist of the followings parts:

Part I: These part includes students socio demographic and reproductive date (age, occupation , level of education, economic situation, age at marriage) (gravida, Para, number of abortion, time of pregnancy last)

Part II: includes test of prolactin hormone

Data analysis: (Collected data were verified and analyzed by statistical package Statistical Package for Social Science (SPSS) Version 20) analysis approach that includes, frequencies, percentages, mean of scores, standard divagation and graphical presentation of data; and inferential statistical data analysis approach that include Chi-squared test

RESULTS

Table (1): Show correlation among serum prolactin level $\mu\text{g/L}$ and age group. Values were expressed at (means \pm SD)

Age	. No	PRL Mean \pm SD
16-26	27	23.83 \pm 10.60
27-37	18	34.52 \pm 16.71
38-48	5	26.98 \pm 16.13
Total	50	27.99\pm14.2

Table (2): Show correlation among serum prolactin level $\mu\text{g/L}$ and education level group. Values was expressed at (means \pm SD)

Level of education	No.	PRL Mean \pm SD
Illiteracy	5	15.48 \pm 3.79
Primary	14	30.04 \pm 9.65
Intermediate	10	31.30 \pm 10.24
Secondary	7	19.79 \pm 9.30
Institute	7	21.11 \pm 12.63
College	7	43.19 \pm 21.95
Total	50	27.99\pm14.25

Table (3): Show relation among serum prolactin level $\mu\text{g/L}$ and occupational groups, values were expressed at \pm SD.

occupational	N	PRL Mean \pm SD
Housewife	21	30.89 \pm 10.65
Free business	6	26.97 \pm 12.88
Student	17	27.41 \pm 17.56
Employee	6	20.53 \pm 16.77
Total	50	27.99 \pm 14.25

Table (4): Show relation among serum prolactin level $\mu\text{g/L}$ and environment groups, values were expressed at (means \pm SD).

environment	N	PRL Mean \pm SD
urban	31	27.56 \pm 14.47
rural	19	28.70 \pm 14.23
Total	50	27.99 \pm 14.25

Table (5): Show relation among serum prolactin level $\mu\text{g/L}$ and social groups (lifestyle). Values were expressed at (means \pm SD).

lifestyle	No	PRL Mean \pm SD
not enough	20	23.670 \pm 9.7398
enough	17	32.265 \pm 19.0143
enough to some extent	13	29.054 \pm 11.7655
Total	50	27.992 \pm 14.2477

Table (6): regression test for study parameters (marriageable age, No. of pregnancies, births, abortion) and PRL levels $\mu\text{g/L}$.

Reproductive	No	Mean
PRL	50	27.992 \pm 14.25
Marriageable age	50	19.58 \pm 4.28
Number of pregnancies	50	0.68 \pm 0.91
The number of births	50	0.44 \pm 0.79
Number of abortions	50	0.24 \pm 0.56
Period between pregnancy and last	50	1.60 \pm 2.30

Table (7): person regression analysis between serum PRL and study parameters in sub infertility women

PRL	Marriageable age	Number of pregnancies	Number of births	Number of abortions	Period between pregnancy and last
Pearson Correlation	.094	-.200-	-.069-	-.110-	0.033
Sig. (1-tailed)	0.258	0.081	0.317	0.223	0.410

The results showed the PRL was appeared significantly declining ($p < 0.04$) in 1st age group (16-26 yrs.) and 3rd age group (38-48yrs), in contrast with 2nd group (27-37yrs) which was declared that PRL level higher than 1st and 3rd age group (Table 2) show that there are increases of serum PRL level with regard to cultural level of patients in Faction College from another faction (illiteracy , secondary , institute & illiteracy). Furthermore, the (primary & intermediate) appeared that PRL level slightly raised in comparison to others group except college group. However, that variation were significantly decreased at ($p < 0.002$) with progress of education level. However in as show in (table 3), declared that there in increment mean of serum PRL level of housewife and free business more than mean of PRL level of student & employee, but though

did not show significant change between that groups ($p > 0.05$) Moreover with regard to location patients (urban & rural) the result appeared that the mean of PRL level was increased of rural sub infertility women in comparison to urban women , though that increased did not show significant change (table4). However, the result showed that data with regard to lifestyle of patients women , was appeared there in increased in mean PRL level of enough lifestyle on comparison to (not enough & enough extent) but those increment though did not significant change ($p > 0.05$) table (5) One the other hand to assess the relationship between the levels of serum PRL level in sub infertility women, the person regression analysis was used to evaluate the data, the result indicated that PRL level of dependent variable had an inverse correlation between PRL and number of pregnancies, birth & abortion (0.200, 0.069, 0.110) respectively, while conversely these PRL level result appeared positive association with marriageable age and period between pregnancy of last (table 7)

DISCUSSION

An excess of prolactin above a reference laboratory's upper limits, or "biochemical hyperprolactinemia," can be identified in up to 10% of the population⁽⁸⁾. Women with oligomenorrhea, amenorrhea, galactorrhea or infertility must have serum prolactin levels measured.

Our study revealed that serum prolactin level in age group (27-37 years) of sub-fertile women (34.52 \pm 16.71 $\mu\text{g/L}$) appeared significantly more than that in the age group (16-26 years) (23.83 \pm 10.60 $\mu\text{g/L}$) and (38-48years) (26.98 \pm 16.13 $\mu\text{g/L}$). However, epidemiological studies of hyperprolactinemia are difficult to interpret because the diagnostic criteria vary so widely that the disease may be easily over-diagnosed. This would severely hamper any attempt to define incidence and prevalence of the condition and the related risk factors, and would limit the possibility of clarifying to what extent adenomyosis contributes to clinical symptoms⁽⁷⁾.

Furthermore, it might be difficult to establish the precise prevalence of hyperprolactinemia because some patients might not have symptoms of elevated prolactin levels, or have unspecific symptoms. However, it occurred most frequently in females between 20-30 years of age⁽⁹⁾

These results (which)?? were in agreement with our results, the high incidence of hyperprolactinemia in this age group could be occurred because this age group represent the age of peak fertility in which women usually visit gynecologists for medical investigation.

This study also showed that women with high education level showed significantly more serum prolactin level, while no significant correlation between serum prolactin and job or location of the sub-fertile women.

There appear to be wide variations in the incidence of hyperprolactinemia between racial groups, ethnic groups, economic status and different geographic regions⁽⁷⁾.

An inverse correlation between PRL and number of pregnancies, number of births & abortion (0.200, 0.069, and 0.110) respectively were recorded in this study. This could be occurred because prolactin inhibits pituitary secretion of LH and FSH and subsequent deterioration of ovarian function which resulted in infertility and decrease the pregnancy rate, number of births and decrease the incidence of abortion because of low pregnancy rate⁽⁸⁾.

We can conclude that the sub fertile women should be investigated for hyperprolactinemia. High prolactin level could be the cause of infertility. Medical therapy has traditionally involved agonists of the physiologic inhibitor of prolactin, dopamine with or without ovarian stimulants. Surgical removal of tumor's associated with prolactin is indicated in patients with nonfunctional pituitary adenomas or other nonlactotroph adenomas associated with hyperprolactinemia and in patients in whom medical therapy has been unsuccessful or poorly tolerated⁽¹⁰⁾.

CONCLUSIONS

our study or our results show that there are relationship between the ages when pregnant and the level of the hormone PRL, which increases the rate of infertility, The studies (which studies must be include the researcher name, title and Date) show there are level of education that's Positive influence on the level of PRL and thus positive influence for elevated percentage of infertility and The study shows that is the environment of pregnant women there are effected lead to increase percentage of infertility.

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