

ORIGINAL ARTICLE

Surveying of Serum factors changes in Women with PCOS

Elham Jabari Kalkhoran¹, Farnaz Farzaneh Dehkordi*¹, Shabnam Mohamad Hoseini²

¹Department of Biology, Ardabil Branch, Islamic Azad University, Ardabil, Iran.

²Medical Department, Ardabil Branch, Islamic Azad University, Ardabil, Iran.

corresponding author: Farnaz Farzaneh Dehkordi

email: Farzaneh_farnaz2007@yahoo.com

ABSTRACT

Polycystic ovary syndrome (PCOS) is the most common cause of infertility in women, as a result of lack of evolution. There is evidence that the disorder is associated with abnormal hormone in the blood. There is abnormal endocrine parameters in women with the syndrome which its effects on the evolution of egg cell is not clear yet. The present study aimed to surveying changes of serum factor in treated women with polycystic ovary syndrome, in Ardabil province in 2016. In this study, 80 pregnant women in 25-35 years old participated. (40 pregnant women with PCOS, 40 pregnant women without PCOS.) For this purpose, serum levels of PAPP-A and β -hCG were measured in blood taken from samples. Demographic data and serum level of PAPP-A, β -hCG in two groups were analyzed by SPSS 21 software and t-test statistical method. Results of study showed that serum level of PAPP-A has no significant difference in control and examination groups. ($p > 0.05$). But serum level of β -hCG in women with PCOS was more than in compare with women without PCOS ($p < 0.05$). It seems polycystic ovary syndrome is associated with changes in serum level of β -hCG.

Keywords: PAPP-A, β -hCG, polycystic ovary syndrome.

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INTRODUCTION

Polycystic ovary syndrome is the most common cause of infertility. It is affected 5-10% of women in childbearing age. PCOS is diagnosed by chronic an ovulation and increased level of androgen. It is most common cause of infertility in USA [1] This disease is characterized by hypoovarian, hirsutism, hyperandrogenism, insulin resistance and obesity [2]. It is reported that the disease is most common cause of the representation of masculine characteristics in women.[3]

IN PCOS, the risk of metabolic disease, type 2 diabetes, dyslipidemia, Hypertension and cardio vascular disease increased. Changes such as increase in androgens and insulin, insulin- resistance, changes in blood lipids and increase in LH/FSH rate [4]

In women with PCOS, distribution of carotid plaque and vessel wall thickness of the middle layer (Intima media) and increased level of homocysteine is more than women without PCOS[5]. It was also reported that some factors in serum of women with PCOS are changed. In this regard wetta and et.al reported that serum levels of PAPP-A MOM in women with PCOS is lower than women without PCOS. But [6] reported that serum level of PAPP-A in women with PCOS and in women without PCOS has no significant difference. Also some studies have examined the serum levels of β -hCG in women with PCOS. In this regard, [7] reported that serum level of MOM β -hCG in women with PCOS is lower. But results obtained from [6] studies showed that serum levels of MOM β -hCG in women with PCO is higher than women without PCOS.

So the present study investigated the changes of the serum factors in women with PCOS in Ardabil province. To achieve this objective, the following hypothesis is proposed:

First hypothesis: The serum levels of PAPP-A in 25-35 years old pregnant treated women with polycystic ovary syndrome was reduced.

Second hypothesis: The serum levels of β -hCG in 25-35 years old pregnant treated women with polycystic ovary syndrome was reduced.

MATERIAL AND METHODS

Present study is descriptive and cross – sectional, It investigated changes of serum factors in 25 – 35 years old pregnant women in 25-35 years old in Ardabil province in 2016. Sampling in this study is available by which 40 pregnant women in 25-35 years old in Ardabil province, with polycystic ovary syndrome were selected as population. For data collection, in present study, the results of laboratory testing of serum levels of β -hCG and PAPP-A with qual test were used as following:

1. alpha-feto protein (AFP)
2. human chorionic Gonadotropin (hCG)
3. Unconjugated Estriol (UE3)
4. inhibin-A

Questions were used as a checklists, and for analysis of obtained data used t-test and SPSS-22 software.

RESULTS

First hypothesis: *The serum levels of PAPP-A in 25-35 years old pregnant women with polycystic ovary syndrome was reduced.*

H₀: serum levels of MOM PAPP-A in 25-35 years old treated women with PCOS was not reduced (Sig>0.05).

H₁: serum levels of MOM PAPP-A in 25-35 years old treated women with PCOS was reduced. (sig<0.05, t>1.96).

Serum levels of PAPP-A in the present study was determined in two groups. It was analyzed by t-test and two groups test.

Table (1): Surveying differences of serum levels of MOM PAPP-A between pregnant 25-35 years old women with PCOS and healthy women.

| Variables | group | Mean | Standard Deviation | t-value | Significance level |
|--------------|----------|--------|--------------------|---------|--------------------|
| PAPP-A Level | Healthy | 1.1015 | 0.6721 | 0.611 | 0.257 |
| | With PCO | 1.0210 | 0.4916 | | |

According to table (1), It is considered that, the mean serum levels of MOM PAPP-A in group with polycystic ovary syndrome is slightly lower than mean of serum levels of MOM PAPP-A in healthy women group. But it is observed that the absolute values of (t) is less than 1.96 and a significance level is higher than 0.05. Therefore the difference between the mean of MOM –PAPP-A was not significant. So H₁ hypothesis is rejected. In other words the results showed that in present study, Serum levels of MOM PAPP-A has no significance difference between in pregnant 25-35 years old women with PCOS and healthy women, and It is at the same level in two groups. This result shows that the first hypothesis of this study is rejected.

Second hypothesis: *The serum levels of β -hCG in 25-35 years old pregnant women with polycystic ovary syndrome was reduced.*

H₀: serum level of MOM β -hCG in 25-35 years old pregnant and treated women with PCO was not reduced (sig>0.05)

H₁: serum level of MOM β -hCG in 25-35 years old pregnant and treated women with PCOS was reduced (sig<0.05, t>1.96)

The serum level of MOM β -hCG in the present study was determined in two groups. The results were analyzed by t-test.

Table (2): surveying of difference of MOM β -hCG serum level between 25-35 years old pregnant women with PCOS and healthy pregnant women.

| Variables | group | Mean | S.D | t-value | Significance level |
|------------------------|----------|--------|--------|---------|--------------------|
| MOM β -hCG level | health | 1.4839 | 1.4930 | 1.064 | 0.011 |
| | With PCO | 1.1905 | 0.8922 | | |

According to table (2), It is considered that average serum levels of MOM β -hCG in women with PCOS is below than average serum levels of MOM β -hCG in healthy women. However it is observed that absolute values of t is more than 1.96 and significance level is slightly lower than 0.05. Therefore there is a significant difference between the average serum levels of MOM β -hCG in two groups. In other words, results of tests showed that in present study serum levels of Mom β -hCG in 25-35 years old pregnant women with polycystic ovary syndrome and healthy women has been reduces. So a result, second hypothesis of this study is confirmed.

DISCUSSION

The present study aimed to survey changes of serum factors in 25-35 years old pregnant women treated with PCOS in Ardabil province in 2016. In this study, 80 pregnant women participated. Data were analyzed using questionnaires, blood sample and collected information from the serum levels of β -hCG and PAPP-A in medical laboratories by SPSS21 software and t-test in two independent groups.

In study of reduction in the serum levels of MOM PAPP-A in 25-35 years old women treated with PCOS, results showed that, the average serum levels of MOM – PAPP-A in women group with PCOS was slightly lower than the average serum level of MOM PAPP-A in healthy women group. But results of t-test in two independent groups showed that there is no significant difference. In other words, results of presents study showed that serum levels of MOM PAPP-A in 25-35 years old pregnant women treated with PCOS and healthy women has no significant difference. This result is consistent with [6] Studies. They reported that serum levels of PAPP-A in women with PCOS and healthy women has no significance difference. But it is not consistent with [8] studies. They reported that serum levels of PAPP-A in women with PCOS is lower than women without PCOS.

Furthermore, in study of reduction is serum levels of MOM β -hCG in 25-35 years old women treated with polycystic ovary syndrome, results showed that average serum level of MOM β -hCG in women with PCOS is lower than MOM β -hCG serum level in healthy women. According to t absolute values that are higher than 1.96, and its significance level is less than 0.05, it is observed that differences between two groups of average serum level of MOM β -hCG is significant. In other words, results of tests showed that, in present study, serum levels of MOM β -hCG in 25-35 years old pregnant women with PCOS and in healthy women has reduced. This results are consistent with [7] They reported that serum level of MOM β -hCG in pregnant women with PCOS is lower. While it is not consistent with [6] They reported that serum level of MOM β -hCG in pregnant women with PCO. Is higher than women without PCOS.

In a study conducted in 21 Medical centers in a countries, 77 pregnant women participated. They were grouped in terms of age, gestational age and time of sampling obtained data were analyzed statistically. Two serum factors (MOM β -hCG and MOM PAPP-A) were measured at 8-10 week of pregnancy. Results compared with the control group. There was a significant differences between two groups. So that the mean value of PAPP-A serum level that involved with down syndrome was 1.79 times more and mean value of F-HCG was 0.45 times lower than healthy women. In screening program, with counting cut off = 1:3000, DR value and false positive was equal to 0.63 and 5.5 respectively. There for FHG and PAPP-A tests in the tenth week of pregnancy is better than double test in second trimester (HCG and AFP) of pregnancy. Similar results were obtained in three times test (uF₃, AFP and HCG) in the 15-22th week of pregnancy [9]

CONCLUSION

The results of this study showed that serum level of PAPP-A in 25-35 years old pregnant women treated with polycystic ovary syndrome has not reduces. But free β -hCG level in pregnant women treated with PCOS has reduced.

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