

ORIGINAL ARTICLE

Survey of Down Syndrome Screening in 25-35 Years Old Women with Polycystic Ovarian Syndrome and Treated in the Ardabil City in 2016

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ABSTRACT

Polycystic ovary syndrome is the most common disease in women with infertility due to anovulation. Evidence suggests that disorder linked to abnormal hormone in the blood. The consequences of disease is not even absolutely clear on the first development of embryo's and disorders like Down syndrome. This study aimed to Down syndrome screening is 25-35 years old treated women with poly cystic ovary syndrome that is conducted in Ardabil in 2016. In this study 80 pregnant women, 25-35 years old, were studied. (40 pregnant women with poly cystic ovary syndrome and 40 pregnant women without polycystic ovary syndrome). Serum quantities of PAPP-A and β -hCG in blood samples obtained from subjects were measured. Demographic data and serum quantities of PAPP-A and β -hCG in both group were analyzed with the program SPSS 21, t-Test statistical method and regression analysis. The outcomes showed no significant differences in serum Levels of PAPP-A in both experimental and control groups. ($P>0.05$) But β -hCG serum levels in pregnant women with polycystic ovary syndrome was more than pregnant woman without the problems. ($p<0.05$). However regression analysis revealed that woman with poly cystic ovary syndrome don't have any higher danger of having a fetus with down syndrome than mothers without syndrome polycystic. This indicates polycystic syndrome might be associated with changes in serum quantities of β -hCG.

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

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INTRODUCTION

Down syndrome or trisomy 21 is the most common reason for mental retardation in children. The clear presence of an extra chromosome 21 full or extra little bit of chromosome 21 in cells of the fetus, (trans location) is the reason for the syndrome. The prevalence with this syndrome is 1 in 700 newborns in the absence of prenatal diagnostic tests. Down syndrome usually isn't inherited, so a body with Down syndrome may be born in a family group that have not any family history of the disease. Obvious symptom of the syndrome is severe mental disability, which can be often related to health problem such as for instance failure or impaired vision or hearing. Their education of disability can't be evaluated before baby is born. About 40 percent of down syndrome pregnancies to be aborted from eleven weeks of pregnancy to last week. Often babies born in the syndrome, about 9 infants die during in a year of birth. With complete medical, life of born infants with down syndrome can reach to 60 years [1-3]. In Robertsonian movement, the long arm of chromosome located on the long arm of another chromosome. And so a two-piece chromosome would accrued. When fertilization, if your normal chromosome along with a two-piece chromosome, a trisomic cell would be produced. The danger of experiencing a fetus with down syndrome increases with maternal age increase, and due to the increase of the possibility of chromosome segregation. One of many reason for infertility in women is anovulation. Polycystic ovary syndrome is the most common reason for infertility [4]. infertility related to polycystic ovary, very first time by stein and lonthal was explained in 1935. For many years this was known as stein leventhal syndrome. This disorder

was introduced as polycystic-ovarian disease. Today it is known as systematic disease that in addition to ovarian, other internal nodes are involved, infect, it is a metabolic disease. Clinical outward indications of the illness is really different that patients make reference to various medical groups such as for instance gynecologists, internal medicine, dermatologist, cardiologist, general practitioners and those who do cosmetic works. It is better this problem was considered as a challenge of insufficient stable ovulation with a variety of causes and clinical symptoms. (today's including insulin resistance, hypertension and hyper insulin and hyperandrogenism).

This mode when determined that an ovulatory polycystic ovary continue for some time. PCOS can be observed in 6 to 10 percent of women in child bearing age. (3.2- 5.4 million women in USA). Now it is famous that the emergence with this syndrome is the most common reason for male characteristics in women [5, 6].

In past, clinical diagnosis were centered on three symptoms including hirsutism, amenorrhea and obesity. Later is was revealed that PCOS is multi-factorial etiology and it's an extraordinary heterogeneity.

Approval procedures of screening tests for down syndrome and discovery of chromosome karyotyping method in 1950 revealed the main reason behind down syndrome. If the screening test of pregnant woman would be positive, or if people want to learn more certainty in cases of fetal aneuploidy syndrome, and or woman have a history of pregnancy with down syndrome, these tests included following method [7].

1- Amio synthesis test, 2- embryonic villus sampling 3- cardio- synthesis test.

In line with the previously listed, this study aimed to screening for down syndrome in 25- 35 years old woman with polycystic ovary syndrome treated in ardabian in 2016. So for this reason, the follow hypothesis is raised.

1. women with polycystic ovary syndrome have an increased threat of having a fetus with down syndrome than woman without polycystic syndrome.
2. PAPP-A serum amount of 25-35 years old treated women with polycystic ovary syndrome reduced.
3. B- hCG free amount of 25-35 years old treated women with polycystic ovary syndrome reduced.

MATERIAL AND METHODS

In this study, down syndrome are reviewed in the 25-35 years of age women with polycystic ovary syndrome. The population is all pregnant ladies in 25-35 years of age in 2016 in ardabil. Sampling in this study are available thus 60 pregnant woman in 25-35 years of age with treated polycystic ovary syndrome and 60 women that are pregnant without polycystic ovary syndrome were selected as sample. The analysis data were collected from laboratory tests and questions in the form of checklist.

This study reviewed first trimester screening for down syndrome in 25-35 years of age women treated with polycystic syndrome in Ardabil province. The analysis try to look for a significant risk between mothers with polycystic ovary syndrome and health mothers.

Altogether, 90 women which in reference to pregnancy first trimester (11 week- 13 week and 6 days). Referred to genetic counseling center in Ardabil province were selected for the study.

This population include 40 women that are pregnant with polycystic ovary syndrome and 50 healthy pregnant women.

Diagnosis in women with PCOS was centered on shape, clinical and necessary test and ultrasound tests which had been done by specialist previously.

The control group consisted of mothers or women who themselves and their loved ones had no history of polycystic ovary syndrome, of studied with following criteria:

- 1- age between 25-35 years of age
- 2- without smoking history
- 3- without polycystic ovary syndrome.
- 4- Having ultrasound confirmed by gynecologist.

After referring to genetic counseling center, mothers first should complete questionnaire in the reception. The very first questionnaire include personal information and wanted panel, second part include obstetrical history (the first day of menstruation, exact day of ultrasound, exact age of fetus to day and week, quantity of parity and), third element of questionnaire is determining the real history of insulin dependent diabetes, smoking history, family history of mental retardation and paralysis.

Then mother identifies the sampling section with ultrasound's tab with NT and NB. Blood sample taken from mother, samples are transferred to a centrifuge for the separation of blood serum. After serum separation, the serum provided for the lab to measure serum level of B-hCG and PAPP-A.

Cobas-E 411 device were use to measure serum level of B-hCG and PAPP-A. In order to standardize, the numerical values of markers were reported as Multiple Of Median. (MOM). So that a better comparision to be made between serum markers.

data for analysis of descriptive statistic criteria such as mean and standard deviation were use to data analysis, to examine the hypothesis, T-test and regression analysis were used.

RESULTS

First hypothesis:

Women with PCOS have a higher risk of having a fetus with down syndrome than women without PCOS.

H₀: The risk of having a fetus with down syndrome is not the same in two groups.

H₁: The risk of having a fetus with down syndrome is the same in two groups.

Table (1): observed and expected frequencies of fetus with down syndrome in two groups.

	Observed frequencies	expected frequencies	difference
Healthy fetus in terms of down syndrome	71	26.7	44.3
Suspected of having down syndrome	6	26.7	-20.7
Fetus with down syndrome	3	26.7	-23.7
total	80	-	-

Table (2) Kh₂ test to examine the risk of having a fetus with down syndrome in two groups.

	Fetus with down syndrom
The statistic level of K ₂	110.725
Degree of freedom	2
Significance level	0.000

Due to the significance level is less than 0.05, three fore H₀ hypothesis is null. In sense that the risk of having a fetus with down syndrome between the two groups is same. In other words it can not be claimed that mothers with polycystic ovary syndrome have a higher risk of a fetus with down syndrome than healthy mothers.

Second hypothesis:

PAPP-A serum level in 25-35 years old women treated with polycystic ovary syndrome reduced.

Table (3): study of differences between MOM-PAPP-A serum level in mothers with polycystic ovary syndrome and women without PCOS.

variables	group	mean	SD	T-value	Significance level
Level of MOM-PAPP-A	without PCOS	1.1015	0.6721	0.611	0.257
	with PCOS	1.0210	0.4976		

According to table (2) the average serum level of MOM-PAPP-A in women with polycystic ovary syndrome was slightly lower than MOM-PAPP-A serum level women without PCOS. But it is observed that the absolute values of t is less than 1.6, and its significance level is higher than 0.05. Therefore difference between the mean of MOM PAPP-A is not significant. In other words, test scores in the present study showed that serum level of MOM PAPP-A in 25-35 years old women with polycystic ovary syndrome has not reduced in compare with women without polycystic ovary syndrome. This result showesthat second hypothesis is null.

Third hypothesis:

B-hCG serum level reduced in 25-35 years old women with polycystic ovary syndrome.

Table (3) study od differences in serum level of MOM B-hCG between 25-35 years old women with POCS and women without PCOS.

variables	group	mean	SD	T-value	Significance level
MOM-B-hCG level	women with PCOS	1.4830	1.4930	1.964	0.011
	women without PCOS	1.1905	0.8922		

Data from (table 3) showed that average level of MOM B-hCG serum in women with POCS is less than average level of MOM B-hCG in women without PCOS. But it is observed that the absolute value is more than 0.05. Therefore this is not a significant difference between the mean of MOM B-hCG. In other words,

results of tests shows that in present study serum levels of MOM B-hCG in 25-35 years old women treated with POCS and women without PCOS has not reduced. This results shows that the second hypothesis is null.

Third hypothesis:

Serum level of mom B-hCG in 25-35 years old women treated with polycystic ovary syndrome has reduced.

Table (3) study of differences in serum level of MOM B-hCG in 25-35 years old women with PCOS and women without PCOS.

variables	group	mean	SD	T-value	Significance level
MOM-B-hCG level	women with PCOS	1.4830	1.4930	1.964	0.011
	women without PCOS	1.1905	0.8922		

Data obtained from tables (3) shows that the mean serum level of MOM B-hCG in women with PCOS is less than mean serum level of MOM B-hCG in women without PCOS. Also it is observed that absolute value of t is more than 1.96, and significance level is less than 0.05. Therefore difference between two groups is significant. The other words result of test shows that in present study, serum level of MOM B-hCG has reduced in two groups of 25-35 years old women. This results show that third hypothesis is confirmed.

DISCUSSION

Current study aimed to gauge screening for down syndrome in 25-35 years of age women treated in Ardabil in 2016. In this study 80 women that are pregnant participated. (60 pregnant females in 25-35 years of age with PCOS, and 40 women that are pregnant without PCOS).

Data were analyzed using questionnaire, blood sample, extracted information regarding serum amount of MOM B-hCG and PAPP-A in the clinical laboratories. Data analysis was performed using SPSS21 software and T-test and regression analysis in two independent groups.

In this study three women (7.5 percent) without PCOS had fetus with down syndrome. 4 women (16 percent) were suspected of having a fetus with down syndrome. Also women with PCOS hadn't fetus with down syndrome. 3 women (7.5 percent) of the group were suspected of having a fetus with down syndrome. Results obtained from study of serum amount of PAPP-A in 25-35 years of age women treated with PCOS revealed that the mean of serum amount of MOM PAPP-A in women group with PCOS is slightly less than mean of serum amount of MOM PAPP-A in healthy women. But link between T-test in two groups showed that this difference is not significant statistically. Quite simply, results of present study revealed that the serum amount of MOM PAPP-A in 25-35 years of age women treated with PCOS had no difference in compare with women without PCOS. This result is the same with link between Hacivelioglu *et al.* [7]. They suggested that serum amount of PAPP-A in women with PCOS and women without PCOS has no significant difference. Also results from study of lowering of serum amount of B-hCG in 25-35 years of age women treated with PCOS revealed that the mean of serum amount of MOM B-hCG in group with PCOS is less than the mean of serum level of MOM B-hCG in women without PCOS. Also according to the absolute value of t, that will be more than 1.96, and significance level that will be 0.05, it's concluded that there is an important difference involving the mean of MOM B-hCG. Quite simply, link between test revealed that in present study the serum amount of MOM B-hCG in 25-35years old women with PCOS and women without PCOS has reduced.

Hacivelioglu *et al* [7] suggested that the serum amount of MOM B-hCG in women with PCOS is higher than women without PCOS. In a study at 21 medical center in 9 counties, results obtained from 77 women that are pregnant were analyzed. In this study information put down in groups in terms of mother age, fetus age and time of sampling, the worth of PAPP-A and free HCG were ,measured during 8-10 weeks of pregnancy. Results compared with control group. There was an important difference in results obtained from two groups. So your mean of PAPP-A in pregnancy women experiencing down syndrome was 1.79 times more, and the mean of free HCG in these people was 0.43 times less tan healthy women. In the screening program counting stop = 1:300. DR value was achieved 0.63 and false was 5.5 percent. So using F HCG and PAPP-A tests in 10 weeks of pregnancy is much better than dual experiments in second trimester (HCG, AFP). It resembles triplex experiments at 15 to 22 weeks of pregnancy. Finally, in study of the fact women with polycystic ovary syndrome have a higher risk of having a fetus with down syndrome than in healthy mothers. Results showed that there is no significance difference between having PCOS and having a fetus with down syndrome. For testing of the hypothesis, regression analysis was used. Quite

simply, mothers with PCOS has no higher risk of having a fetus with down syndrome when compared to healthy women. There is no similar study in connection with this specific study.

CONCLUSION

Results obtained from this study revealed that the serum level of PAPP-A in 25-35 years old women treated with polycystic ovary syndrome has not reduced. But level of free B-HCG in 25-35 years old women with polycystic ovary syndrome has reduced. In other words, the results suggest that women with PCOS have not just a higher risk of having a fetus with down syndrome than mothers without PCOS. In line with the results, the following suggestions are given for future research. The 2nd phase of screening is suggested, then to attain one last result. Also further studies are necessary to review the pathogenesis with this disease and its role in the serum Level of PAPP-A and B-hCG. Therefore it is suggested that this is reviewed in other statistical population. In future research definitive diagnosis of polycystic ovary syndrome, it's suggested that other method used.

Eventually, it's suggested that the connection between serum level of B-hCG in women with PCOS and having a fetus with other disorder could be studied.

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