Analysis of Patients with PCOS According to Demographic Factors & Hormonal Assay in Babylon Government in Iraq

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Abstract

Introduction: PCO is a significant alteration in hormonal state that happen in females which lead to ovulatory reasons of subfertility & amenorrhea in reproductive period. Polycystic Ovarian Syndrome was collecting of presenting symptoms and signs.

If we had two of the following presenting sign and symptoms, we called this condition as PCO.

1. Oligomenorrhea & amenorrhea (menstrual and ovulating problem).
2. Signs of hyperandrogenemia (clinical or biochemical).
3. U/S features of polycystic ovaries which include (thick stoma on the periphery of the ovaries, which include multiple small follicles > 10 and largest one < 9 mm, while the ovarian size > 10 cm³).

Aims of the study: - analysis of Iraqi women in AL- Hilla city who present with problems in her menstrual cycle or fertility and assess their period of age when maximum symptoms and signs were appear, BMI, hereditary factors, occupation, residence, marital status, and laboratory investigation to confirm our diagnosis (FSH, LH, AMH, PRLACTIN, TESTESTERONE) then vaginal u/s was done for married women and abdominal u/s done for unmarried one.

Patients and Method: Case controlled study carried out for women that suffer from problems in her menstrual cycle and fertility from outpatient clinic in Babylon teaching hospital and some privet clinics, in period of 1 year from (June 2017 to June 2018).

100 complaining women were participated in this study randomly after verbal and written consent which taken from them.

Results: 100 women were shared in this study, we observed that percentage of infertility increase at the current time due to PCO for unknown reason, in addition to elevation percentage of PCOS frankly according to The Rotterdam criteria (symptoms and signs of presenting women), this multisystimic disorders disturb fertility to large extent because hormonal disturbances such as increase LH/FSH ratio, Prolactin & AMH also increase ovarian volume due to thick stromal layer of the ovary then we assess affecting factors and relieving factors, its relation to patients age, BMI, occupation, residence and her hereditary state and hormonal analysis to document the diagnosis.

Conclusions: Found fright increase of infertility in couples especially in our country in relative to the past, previously the incidence of infertility is about 12% of total couples and the incidence of PCO in general female about 35% (married or unmarred, may be due to delay discovery especially in unmarried group) & 45% in married women decreasing with progress of age

Keywords: Sociodemographic characters, Antimullarian hormone AMH, infertility, menstrual disturbance, Polycystic ovary PCOS, risk factors.
on body folds such as thighs & neck and history of gaining weight.(1)

Incidence of infertility in the world about 12%, but in actually, mostly in Iraq, it has more incidence than that written in books for a lot of causes which need a lot of studies & researches to know the real problem and try to find theirs probable explanations(2-6).

Various principles for diagnosis of Ovarian Syndrome, mostly have been recommended. The Rotterdam criteria which are highest largely used diagnostic criteria for PCOS.

It has been agree that female with Polycystic Ovary Syndrome had a possible connection with future health complications such as Metabolic disorders (such as diabetes mellitus), cardiovascular disorders & uterine hyperplasia, neoplasia and malignancy, insulin resistance, which was present in this disorder regardless of BMI, but exploited by obesity, mainly responsible for all these health complications(7). It was newly documented a compromised cardiopulmonary functional capacity strictly related to insulin resistance in women with these diseases (8). Hence, should be diagnosed as rapidly as possible to avoid and treat related disorders earlier if possible. Diagnosis of Polycystic Ovary Syndrome mainly depended on clinical features as diagnostic method for this syndrome. Also the occurrence of Polycystic Ovary Syndrome differ from region to region(3).

Causes of Polycystic Ovary Syndrome at this time is unknown, even though researchers reflect hereditary and ecological features had major causes for its presence. Main risk factor for it was having a family history of PCOS.

There is no cure for this syndrome but there are method to improve symptoms. This involve of lifestyle modifications like decreasing weight, well diet, taking adequate exercise, and leaving smoking if present. The prevalence of Polycystic Ovary Syndrome differs with diagnostic principles. PCO on U/S were distinguished in up to 25%-30% from reproductive aged females(4,6).

Anti-mullerian hormone, (AMH) was one of potential blood test for assessment of female fertility done at any time of the cycle, especially to detect ovarian reserve and there are other important test currently used in the last decades for evaluation of the remaining ovaries supply which is antral follicles count(9).

Fertility professionals repeatedly use a combination of fertility investigations to best assess female’s ovarian reserve, including transvaginal U/S to count the number of antral follicles & ovarian size and AMH levels.

**Materials and Method**

One hundred female (married and unmarried) were taken in this cross sectional study randomly, Their histories about important related symptoms such as (acne, amenorrhea and excessive hair growth) were recorded, their age between (21 - 44) years, for married patients, period of infertility (3 -20) years, their BMI (24-37)Kg/m², occupation (employer, housewife), Residence (urban, rural area), risk factors (obesity, hereditary factors) and others past medical disease (diabetes, hypertension, asthma, epilepsy). Then their hormonal analysis (FSH, LH, Prolactin, AMH) were done, also their ovarian size by U/S, at day 2-4 of the cycle.

**Polycystic Ovary Syndrome:** was irritating conditions for females, often challenging for treatment. PCOS is the most common endocrine defect in reproductive-age women.

**Results**

Figure 1 shows that the percentage of PCO in women which is diagnosed clinically (sign and symptom) represented 33.0%
Table 1: Mean and standard deviation of variables of the women with PCO

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean ± SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH</td>
<td>12.19±4.55</td>
<td>(3.9-18)</td>
</tr>
<tr>
<td>FSH</td>
<td>5.97±1.8</td>
<td>(3.6-9.9)</td>
</tr>
<tr>
<td>LH/FSH ratio</td>
<td>2.07±0.77</td>
<td>(1.08-3.75)</td>
</tr>
<tr>
<td>AMH</td>
<td>6.62±2.17</td>
<td>(2.2-9.0)</td>
</tr>
<tr>
<td>Prolactin</td>
<td>33.97±10.36</td>
<td>(22.0-50.0)</td>
</tr>
</tbody>
</table>

Table 2 shows the associated symptoms that 100.0% of women with PCO had amenorrhea and 57.6% had hirsutism.

Table 2: Distribution of the sign and symptom of infertile women with PCO.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amenorrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>33</td>
<td>100.0%</td>
</tr>
<tr>
<td>Absent</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100.0%</td>
</tr>
<tr>
<td>Hirsutism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>19</td>
<td>57.6%</td>
</tr>
<tr>
<td>Absent</td>
<td>14</td>
<td>42.4%</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Figure 2: Correlation between AMH and ovarian size of the women with PCO. (positive correlation)

Figure 3: Correlation between AMH and age of the women with PCO. (reversed or negative correlation)
Table 3 shows that t test was conducted to show the mean difference of AMH, prolactin and LH/FSH ratio according to the presence of PCO in infertile women. It was significant mean differences in all circumstances (P value < 0.05)

<table>
<thead>
<tr>
<th>Study Variable</th>
<th>PCO</th>
<th>N</th>
<th>Mean ± SD</th>
<th>t-test</th>
<th>P –value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMH</td>
<td>Yes</td>
<td>33</td>
<td>6.62±2.17</td>
<td>9.831</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>67</td>
<td>2.46±1.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolactin</td>
<td>Yes</td>
<td>33</td>
<td>33.97±10.36</td>
<td>2.137</td>
<td>0.035*</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>67</td>
<td>29.16±10.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LH/FSH ratio</td>
<td>Yes</td>
<td>33</td>
<td>2.07±0.77</td>
<td>8.979</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>67</td>
<td>0.78±0.38</td>
<td></td>
<td></td>
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</tbody>
</table>

*P value ≤ 0.05 was significant.

Discussion

Since women with PCOS are very sensitive to gonadotrophin stimulation, information of age related AMH is clinically important. Wiser et al, and found that the decline in level of AMH as the age progresses was linear and slower in PCOS when compared to normal women without PCOS (9).

Ovarian size correlates negatively with age. A percentile normogram will be useful to inform a woman about her ovarian reserve relative to her age group. The ovarian reserve decline rate relative to age group is important because of the declining fertility with increasing age (7).

The prevalence of PCOS is conventionally estimated at 4% to 8% of all reproductive age female, from studies performed in Spain, Greece and the USA (10-13). The prevalence of PCOS world has recently been shown to be 18% (17.8 ± 2.8%) in the first community-based prevalence study based on current Rotterdam diagnostic criteria (14), while in our study the prevalence of PCOS in Iraqi women in AL-Hilla city was estimated about 33%, which is higher than the percentage in the world.

PCOS has also been noted to affect 28% of unselected obese and 5% of lean women (15-18). Hopefully, lifestyle intervention including dietary, exercise and behavioral therapy, stop smoking if present and leave sedentary life as can as possible, improves the symptoms and signs of this syndrome (19).

Also, there is not significant correlation between occupation of the women and their residence.

There is dramatic increased in incidence of PCOS in our country than the world which lead to frightened condition in the present(irregular cycle and infertility) and in the future from its late complications such as metabolic disorders (diabetes mellitus), increased cholesterol level in the blood, heart problem and uterine complications which include typical endometrial hyperplasia, atypical endometrial hyperplasia and lastly may end with endometrium carcinoma.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

Conflict of Interest: The authors declare that they have no conflict of interest.

Funding: Self-funding

References


