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RESEARCH ARTICLE

POLYCYSTIC OVARIAN SYNDROME IN WOMEN WITH OBESITY.

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Key words:-

Polycystic ovarian syndrome, obesity, hyperandrogenism, hirsutisms, anovulation, infertility, acne vulgaris, irregular menstrual cycle.

Abstract

Introduction: Obesity becomes a recent worldwide epidemic and it is close associated with PCOS. Currently there are not enough researches which can let to understand the interplay between PCOS and its features including anovulation and infertility and androgen status and obesity.

The aim of the study was to identify relations between PCOS and obesity.

Methodology: Cross-sectional study was conducted for the period 2014-2016 and included 300 of patients with PCOS. The following categorical variables were studied: age, marital status, weight, BMI, family history, frequency of irregular periods, subfertility, hirsutism, acne, skin hyperpigmentation. The analyses were performed using the SPSS package version 17.0 (SPSS Inc., Chicago, IL, USA).

Results and conclusion: Current research showed that non-obese women with PCOS more often had family history of PCOS and were significantly more likely to have such symptoms as irregular menses, hirsutism, acne vulgaris and recurrent miscarriages than women with obesity and PCOS. However there is a need for more researches regarding to risk factors, etiology and pathogenesis of PCOS in order to identify the underlying causes.

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Introduction:-

Polycystic ovary syndrome (PCOS) – is pathology of the structure and function of the ovaries, which is manifested by ovulatory dysfunction and hyperandrogenism. PCOS is a reproductive disorder, and it disturbs 5-18% of female population in developed countries (Barthelmeß and Naz, 2015; Mortada and Williams, 2015; Nandi et al., 2012). According to the Rotterdam Criteria it characterized by hyperandrogenism, polycystic ovaries, and ovulatory dysfunction (anovulation) (Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop, 2004) and can also be associated with metabolic issues including obesity, insulin resistance, hyperinsulinemia, type 2 diabetes mellitus, cardiovascular, neurological and psychological problems, and even breast and endometrial cancers (Carmina et al., 2010). As well as PCOS is one the reason of female infertility (Conway et al., 2014).

Statement of the problem:-

Recently there has been growing interest in the field of PCOS studies. Despite of increased interest to this problem the etiology and pathogenesis of this disease has not been well understood. Over the past five years, there have been a lot of articles published on various aspects and attitudes about PCOS (Barthelmeß and Naz, 2015). And specific attention is paid to obesity (Conway et al., 2014; Caserta et al., 2014).

Obesity has become a recent worldwide epidemic in the past decades, especially in developed countries, where the prevalence of obesity reached 50% (Talmor and Dunphy, 2015). Obesity is undoubtedly a useful clinical predictor of metabolic abnormalities which can be detected in the early stages of PCOS and, sometimes, it even precedes its development. However, its exact prevalence is unknown, due to the lack of representative population-based data. The prevalence of obesity in women with PCOS is highly variable from 12.5 to 100% of PCOS women depending on age, ethnicity and geographic regions in the general population (Messinis et al., 2015; Lim et al., 2012; Zhao et al., 2010). In addition, the studies conducted till now do not make it possible to establish the direction of the association between PCOS and obesity, and the causes of this association. What is actually known from the studies performed so far is that PCOS and obesity are closely associated and that obesity, particularly the abdominal/visceral phenotype, worsens the metabolic and also the reproductive features of PCOS (Conway et al., 2014).

Significance of the Study:-

So, as it was shown in previous studies prevalence of obesity and PCOS were raised worldwide. The common rise of both has led us to link them together in some cause-and-effect manner. As women became fatter, they became more hirsute with fewer menses; the epidemics go side by side. However, this issue remains to be discussable, as currently there are not enough researches which can let to understand the interplay between PCOS and its features including anovulation and infertility and androgen status and obesity. Moreover we didn't find any studies, related to this subject, conducted in Jordan.

So current study can help to understand more clear is there any relations between PCOS and obesity, as well as it can help to find new pathogenesis ways for PCOS and new ways of treatment of this pathology that will lead to increase of reproductive health of women in Jordan.

Thus, current research was aimed to identify relations between PCOS and obesity. The main question of the study was:

Is there any impact of obesity on the rate of specific PCOS symptoms in Jordanian women?

Methodology:-

All study activities were approved by Institutional Review Board (IRB) committee at Jordan University and Faculty of Medicine and conducted based on Irbid private and public hospitals from December 1, 2015 to November 31, 2016.

Study design, population and sample of the study:-

Retrospective cross-sectional study was conducted and included 300 patients with PCOS, who got counselling in gynecological departments in Irbid private and public hospitals (distribution of patients among hospitals is represented in Table 1); all patients were divided on two groups: I (the main group) – women with obesity (n=135), II (group for compare) – women without obesity (n=165).

Criteria of inclusion in the Group I were: PCOS, obesity, age 14-49 years, voluntary informed consent to take part in current research.

Criteria of inclusion in the Group II were: PCOS, absence of obesity, age 14-49 years, voluntary informed consent to take part in current research.

Criteria of exclusion from the research were: absence of PCOS, age less than 14 and more than 49 years, refusal to participate in the study.

Terminology of the study:-

PCOS was diagnosed according to the Rotterdam Criteria: hyperandrogenism, polycystic ovaries (by ultrasound), and ovulatory dysfunction (anovulation) (Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop, 2004).

According to WHO an obesity criterion was BMI ≥ 30 (WHO, 1997).

Variables of the Study:-

The following categorical variables were studied: age of women, marital status, weight, body mass index (BMI), PCOS family history, features of PCOS such as irregular periods, infertility, hirsutism, acne, skin hyperpigmentation.

Data collection and Statistical Analysis:-

Data for this study came from medical records, were entered into a unified computer database and analyzed.

We used a case-control design to allow for quantitative comparison between the two groups. The results, expressed as the mean \pm SD, were compared using the chi-square test. One-way analysis of variance (ANOVA) or Fisher's exact test were used when the sample was small to detect group differences in the distribution of categorical variables. All statistical tests were two-sided with an α level of <0.05 . The odds ratio (OR) and 95% confidence interval (CI) were used to establish the proportional rate of differences between the study and control group. The analyses were performed using the SPSS package version 17.0 (SPSS Inc., Chicago, IL, USA).

Table 1 :- Distribution of patients among hospitals

Hospital	Frequency, absolute meaning	Percent, %
King Abdulla Hospital	116	38.7
Islamic Hospital	70	23.3
Ibn Alnafeis Hospital	70	23.3
Passma Prince Hospital	44	14.7

Limitation of the study:-

Some limitations of the study should be noted. The first one – the study was conducted on the limited area – only one city of Jordan, and study results can't be applied to the whole population of Jordan. And the second limitation – is relatively small sample.

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