

Rehabilitation Care of Women with PCOS: A Case Study

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Abstract

Background: The most widely recognized endocrine problem is Polycystic Ovary Syndrome (PCOS) that shows during puberty with menstrual irregularities, acne and hirsutism. The fundamental imperfections in PCOS are still unclear, so insulin resistance and metabolic syndrome are most common in both healthy weight and as well as in obese patients. Numerous treatments are offered for women related to PCOS including weight loss, gonadotropins, metformin, DASH diet, letrozole and laparoscopic ovarian diathermy.

Case presentation: This case report 35-years-old female presented for evaluation of obesity, menstrual irregularity and amenorrhea, and had no received any kind of hormonal treatment. Luteinizing hormone and serum testosterone level were elevated, while follicle stimulating hormone and estradiol level was normal.

Conclusion and Outcome: Metformin and DASH diet was best treatment choice for PCOS patient that requires further examination before to being suggested on a long term basis and successful treatment outcome.

Keywords: Polycystic ovary syndrome • Luteinizing hormone • Follicle-Stimulating hormone • DASH diet • Metformin

Introduction

The most prevalent hormonal abnormality among women is Polycystic Ovary Syndrome (PCOS) in their reproductive age with unclear etiology. It may cause of many negative effects including multiplicity of systems of human body, like endocrine, metabolic psychological and reproductive system. Round about 50% of patients with PCOS have metabolic syndrome including dyslipidemia, insulin resistance and obesity. The pathophysiology related to PCOS still unclear, although there is evidence that both environmental and genetic factors play important role resulting in impaired insulin sensitivity and ovarian hyperandrogenism [1-5]. This increases the risk for diabetes and heart disease and contributes to infertility. Means of poly-cystic is 'many cysts' and the ovaries in a woman's body are where the eggs are produced. Signs of the syndrome can present as early as puberty, so the symptoms of this syndrome include elevated androgens, hirsutism, irregular or no menstrual cycles, insulin resistance and difficulty getting pregnant. Furthermore, previous studies reported that type-2 diabetes, obesity, cardiovascular diseases, endometrial cancer has been associated with PCOS and Oxidative Stress (OS) also included.

In case of infertility involved some mechanisms, may be ovarian hyperandrogenism, including Luteinizing Hormone (LH) hypersecretion, hyperinsulinemia, relative Follicle-Stimulating Hormone (FSH) insufficiency and high Anti-Mullerian Hormone (AMH) inhibiting aromatase activity. Another study related to diet and its effect on metabolic outcomes should be examined in women with PCOS and seem to have a greater appetite, consume more energy-dense high Glycemic Index (GI) foods and saturated fat, have inadequate fiber intake and have low scores for PCOS-related quality of life,

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although their overall energy intake, physical activity and resting metabolic rate are similar to controls. Here we report a case of an adult woman with PCOS, who has been treated with metformin (1.5 year) and DASH diet (3 months).

Case Report

In August 2020, a 35-year-old female presented for evaluation of obesity (Type 1), menstrual irregularity and amenorrhea, and had no received any kind of hormonal treatment. She was referred from other health center, and presented with a complaint of amenorrhea, severe abdominal pain during periods, higher intra-abdominal fat and hyperandrogenism. She has no personal habits of such as cigarette smoking and alcohol consumption. She had no family history of PCOS and any hormonal related disease, also her both parents were of normal weight.

Patient Assessment

She was obese with height was 62" (inches) and weight 80 kg, BMI (Body Mass Index) 32.3 kg/m², ideal body weight 50 kg, blood pressure 140/90, irregular history of menstrual cycle, and patient having junk and fast food with sedentary lifestyle which helps to aggravate the disease. While the patient dislike the banana, and carbonated drinks in her daily life. The patient skin was dry, had mild acne, dry mouth, yellowish eyes, yellow teeth, dark brown lips due to dehydration because participate water intake was less and brittle nails was seem during clinical assessment. Luteinizing hormone and serum testosterone level were elevated, while follicle stimulating hormone and estradiol level was normal. The patient had marginally raised fasting blood glucose while she also had severe hyperinsulinemia during the test, hemoglobin level was very low, *H. pylori* high as well as lipid profile was seem abnormal during lab test examination. Whole abdomen USG showed; left ovary measurement- 9.50 × 2.38 × 3.56 cm in size, right ovary measurement- 5.75 × 1.99 × 3.21 cm in size and mild fatty liver seen in the periphery of the women ovaries, evocative for polycystic ovary. The patient pelvic ultrasound was done (Figure 1).

The patient was assessed by a physiotherapist and a nutritional therapist and also given lifestyle guidance to reduced current weight as well as increase physical activities. The patient already use metformin 1.5 g/day to improve her glucose tolerance and induce menstruation although, patient recently started DASH diet in order to improve her condition. Within 12 months, patient was reduced 6.5 kg of her body weight; improved glucose tolerance and also slightly improved lipid profile while patient use just metformin. After



Figure 1. Pelvic ultrasound report.

1.5 year of treatment with metformin and DASH diet, weight was 69.7 kg and BMI decreased. The patient lipid profile more improved and also fasting blood glucose and insulin levels were normal. The PCOS lingered but now menses were normal without progesterone medication. The patient still on DASH diet and metformin therapy because she still overweight [6-10].

Discussion

PCOS is the endocrine disorder mostly common in ages 18 and 44 years of women. The mechanism of anovulation in PCOS women is ambiguous, but there is indication of apprehended antral follicle development, that turn may be caused by unusual interaction of Luteinizing Hormone (LH) and insulin on granulosa cells. In a workshop conducted by Rotterdam in 2004 revealed that PCOS is a disorder of ovarian dysfunction. They also suggested that for the establishment of a diagnosis the two of the following criteria should be present: Firstly, anovulation for >6 months and secondly clinical and/or biochemical evidence of hyperandrogenism, and also polycystic ovaries on ultrasound. Moreover, the other disorders that imitate the PCOS phenotype should be omitted. According to the required criteria for PCOS were accomplished in this patient and she had biochemical as well as clinical signs of hyperandrogenemia and polycystic ovaries on ultrasound. Hormones such as gonadotropin and also estradiol levels were indicated normal, therefore eliminating the primary ovarian failure or hypo or hypergonadotropic hypogonadism. In addition, Hyperprolactinemia and late-onset congenital adrenal hyperplasia were excluded because of normal prolactin and 17-OH progesterone levels. During adolescence the PCOS is generally underdiagnosed. More than 95% of adolescence have been detected PCOS with irregular menses. Many individual were started their treatment via oral contraceptive pill which may mask the condition until the pregnancy is strived. Clinicians should note that abnormal menses, such as cycles shorter than 21 days or longer than 35 days, are often associated with PCOS. A marked increase in serum testosterone (8.7 nmol/l, a few times the upper ordinary reach), with a normal DHEA-Sulfate (DHEAS) level, is highly suggestive of an androgen-secreting ovarian tumor. At the point when DHEAS is also expanded (16.3 mmol/l), this recommends an adrenal androgen-secreting tumor.

The scope of PCOS phenotype is extensive which integrative female with no proof of clinical and biochemical hyperandrogenism rather than dysfunctional polycystic ovaries. The patient had moderate symptoms of hyperandrogenemia and the serum testosterone level was risen [11-17]. A testosterone is the essential circulating androgen in women's that produced from ovarian and adrenal precursors, processed in peripheral tissues. Clinician was seen that some girls with PCOS may have a normal androgen levels with modest hirsutism related to adult with PCOS. The assessment of total testosterone utilizing a dependable immunoassay is prescribed to determine hyperandrogenemia. Androgen-secreting tumors are rare in adolescent yet

ought to be rejected. A stamped percentage increase in serum testosterone (8.7 nmol/l, a couple of times the upper standard reach), with a typical DHEA-sulfate (DHEAS) level, is highly reminiscent of an androgen-emitting ovarian tumor. Exactly when DHEAS is additionally extended (16.3 mmol/l), this suggests an adrenal androgen-emitting tumor. In the physiopathology of PCOS insulin resistance play a very important role. Various studies documented that during the period of puberty insulin secretion are enhanced due to the decreased level of insulin sensitivity. Kim et al. conducted a research on adolescent girls who were diagnosed with the PCOS. Their clinical features showed a significant increased secretion of insulin as well as decreased insulin sensitivity as compared with the weight matched controls. However, in our patient lifestyle changes and also metformin therapy ameliorated the abnormalities included as hyperinsulinemia and impaired glucose tolerance. In study PCOS patients reported a high prevalence of impaired glucose tolerance and type 2 diabetes mellitus in first degree relatives, suggesting a genetic component to impaired glucose metabolism in the PCOS patients. Most importantly, our patient parents had metabolic syndrome than the normal weight.

Studies investigated that lifestyle modifications are the first intervention among the women of PCOS who are overweight and obese so through diet and exercise and with the management of weight, glucose intolerance can be managed. In addition, with the usage of Metformin insulin sensitivity and glucose metabolism can be enhanced and also irregular menses and hyperandrogenism in the adolescents. Lipid profile also managed by the Metformin and the Dietary Approaches to Stop Hypertension diet known as the DASH diet, has been shown to be useful for weight reduction with reduceing insulin and androgen levels in female with PCOS. An investigation on overweight females with PCOS who followed the DASH diet for about 2 months reduce weight and had appreciably lower insulin. Here this patient DASH diet include 45% of CHO, 25% of Protein and 30% of fat with moderate to high amounts of fiber with an emphasis on anti-inflammatory foods such as fish, legumes, green tea, and low-fat dairy included and limited chicken, red meat, table salt and added sugars. A second study of overweight female with PCOS demonstrated that eating the DASH diet for 12 weeks improved weight reduction while decreasing BMI, fat mass, and androgen levels. Interestingly, inquiries regarding how long treatment should be proceeded and long term wellbeing remain to be answer. Another study led by Kostopoulou et al. revealed that the valuable impacts are lost not long after treatment is stopped. It appears that PCOS is a deep rooted condition. Thus, patients ought to be deliberately observed during adolescence and from that point in adulthood.

Conclusion

This case was unique of a patient complicated with of amenorrhea, higher intra-abdominal fat and hyperandrogenism who obtained a positive outcome by the appropriated treatment and diagnosis. This insinuates adherence to

the low-calorie DASH diet may present advantageous therapeutic potential for PCOS females.

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