

Metabolic characteristics of polycystic ovarian syndrome that have long-term impact on one's health.

Kelsey Bent*

Department of Histology and Embryology, Hamidiye Faculty of Medicine, University of Health Sciences, Istanbul, Turkey

Introduction

PCOS is a distressing condition for women, frequently difficult for treating professionals to manage, and a difficult scientific problem for researchers. It is crucial that study findings are applied to understanding and action among women, healthcare professionals, and policy makers given how quickly PCOS research is developing. The most frequent endocrine condition in women of reproductive age is PCOS.

Insulin resistance and hyperandrogenism

In between 60% and 80% of instances, hyperandrogenism, a well-established factor to the pathogenesis of PCOS, is found. In between 50% and 80% of women with PCOS, insulin resistance is a pathophysiological factor, especially in those with more severe PCOS diagnosed according to National Institutes of Health (NIH) guidelines and in overweight women. On the other hand, according to more recent European Society for Human Reproduction (ESHRE)/American Society of Reproductive Medicine (ASRM) guidelines, slim women and women with milder PCOS appear to have less severe hyperinsulinemia and insulin resistance. Insulin resistance affects both metabolic and reproductive characteristics by boosting androgen synthesis, increasing free androgens, and decreasing sex hormone binding globulin (SHBG) [1].

Polycystic ovarian syndrome and obesity

In Western nations, obesity and excess weight are common chronic conditions. Both independently and by aggravating PCOS, obesity promotes hyperandrogenism, hirsutism, infertility, and pregnancy difficulties. In general populations, type 2 diabetes (DM₂) and cardiovascular disease are further increased by obesity and insulin resistance (CVD). Similar to this, obesity exacerbates PCOS's reproductive and metabolic characteristics [2].

Additionally, women with PCOS have elevated impaired glucose tolerance (IGT), elevated DM₂, and perhaps elevated CVD risk factors. The importance of PCOS for public health will grow as obesity rates rise. Improves insulin resistance, reproductive and metabolic characteristics, and is a primary therapeutic method for PCOS.

Diagnosis

The basic NIH diagnostic criteria based on oligomenorrhoea/

amenorrhoea and clinical or biochemical hyperandrogenism have been expanded in the 2003 Rotterdam or ESHRE/ASRM criteria to include PCO at ultrasonography in the core diagnostic criteria. PCOS symptoms and indicators have also been assessed. Ultrasounds of young women show that 25% of them have PCO, and the prevalence of PCOS has increased since PCO was added to the list of diagnostic criteria.

It should be highlighted that PCOS is a diagnosis of exclusion, therefore illnesses like hyperprolactinemia and thyroid dysfunction should be ruled out biochemically, while more uncommon conditions like Cushing's syndrome and virilizing tumours should be ruled out clinically. However, the diagnostic criteria for PCOS do not yet include cardiometabolic characteristics or insulin resistance. This is partly due to the absence of adequate insulin resistance measuring techniques, as these measurements are not currently advised in clinical practise [3].

PCOS clinical characteristics

As a result, women with PCOS may exhibit a range of severe clinical sequelae, such as psychological issues (lower quality of life, low self-esteem, depression, and anxiety), reproductive manifestations (hirsutism, infertility, and pregnancy complications), and metabolic consequences (insulin resistance, metabolic syndrome, IGT, DM₂, and possibly CVD). The appearance of PCOS can fluctuate throughout the life cycle due to the diverse nature of the condition and the range of clinical characteristics. PCOS is a chronic disorder with symptoms that often start in adolescence and involve psychosocial and reproductive manifestations before progressing to include infertility and growing metabolic issues over time. The metabolic consequences of PCOS, such as IGT, DM₂, and the metabolic syndrome, might, nevertheless, manifest in adolescence when obesity is prevalent [4].

Infertility and malfunction of the ovaries

The most common symptom of ovarian dysfunction is oligomenorrhoea/amenorrhoea, which is caused by persistent oligo-ovulation/anovulation. The dysfunctional uterine bleeding that results from chronic anovulation, however, can resemble more regular menstrual periods. More than 70% to 80% of women with PCOS present with oligomenorrhoea or amenorrhoea, which indicates ovarian dysfunction. 80% to

*Correspondence to: Kelsey Bent, Department of Histology and Embryology, Hamidiye Faculty of Medicine, University of Health Sciences, Istanbul, Turkey, E-mail: bentK87@sbu.edu.tr

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90% of those with oligomenorrhoea will have PCOS identified.

Only 40% of women with amenorrhoea will have PCOS identified as the aetiology since hypothalamic dysfunction is a more frequent culprit. The emergence of oligomenorrhoea later in life is frequently linked to weight increase, and it typically happens in adolescent. The Oral Contraceptive Pill (OCP) will then frequently cover up menstrual irregularity until it is discontinued, at which point the underlying irregular cycles will resume [5]. Unopposed oestrogen, endometrial hyperplasia, and high oestrogen levels in obesity can all contribute to menorrhagia. Despite the lack of proper evidence, it is widely advised that more than four cycles annually may safeguard the endometrium. According to more recent diagnostic criteria, PCOS can now also be identified in women who have regular menstrual periods.

Conclusion

PCOS is a prevalent complicated condition in women that has aspects related to the mind, the body, and the reproductive system. It is a chronic illness that manifests throughout life and has a significant negative impact on both health and the economy. Insulin resistance and hyperandrogenism both play a role in the pathophysiology of PCOS. Most PCOS patients, especially those who are overweight, have insulin resistance, which increases their risk of developing metabolic syndrome,

prediabetes, and diabetes type 2. Management should prioritise encouraging employees, educating the public, resolving psychological issues, and emphasising a healthy lifestyle with appropriate medical treatment.

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