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Overview of Polycystic Ovarian Syndrome (PCOS) and Its Long-Term Health Impacts with Special Reference to Metabolic Syndrome



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ABSTRACT

This main objective of this mini-review is to provide a basic idea about **Polycystic Ovarian Syndrome**, very common among women of reproductive age besides providing a first-hand idea about its metabolic consequence and suggestive management so as to grow consciousness in general mass to avoid such syndrome from very early days of life.



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INTRODUCTION

Polycystic Ovarian Syndrome is a complex disorder of unknown etiology with a prevalence of 6-7% usually of multi-factorial origin, mostly genetic and environmental.

It's increasingly being found in higher prevalence in women of South Asian origin, who present at a younger age, often have lower BMI and a milder hyper-androgenic phenotype but have more severe symptoms and the highest prevalence of insulin resistance and metabolic syndrome [1-2]. **Pathophysiology of the metabolic syndrome**

Decreased peripheral insulin sensitivity or Insulin resistance plays the key role---there is compensatory hyperinsulinemia, and insulin acts synergistically with LH to increase androgen synthesis in theca cells, it inhibits the hepatic production of SHBG and IGF1-binding proteins, the net result being the presence of biologically active unbound testosterone in blood in increased amount. The hyperinsulinemia also leads to impaired suppression of release of free fatty acids (FFA) from adipose tissue. There is increased influx of FFA from the area of central obesity into the portal circulation, resulting in increased availability of substrate for Triglyceride production by the liver.

There is increased activity of hepatic lipase, which converts large lipoprotein particles into smaller more atherogenic particles, leading to reduced concentrations of HDL-cholesterol and increased LDL-cholesterol. [3-4]

Metabolic consequences of PCOS

- Insulin Resistance---later development of impaired glucose tolerance (IGT) and Type 2 Diabetes Mellitus (DM).
- Type 2 DM is increased in women with PCOS who are not obese(BMI <27), suggesting that PCOS is an independent risk factor for type 2 DM.
- Women with PCOS are at an increased risk of Type 2 DM if Obese(BMI>3), >40 yrs of age, have strong family history of Type 2 DM.
- Also, these women have increased cardiovascular risk factors such as obesity, hyperandrogenism, hyperlipidemia, hyperinsulinemia, there is increased risk of developing atherosclerosis resulting in hypertension, myocardial ischemia.

➤ There is a significant difference in prevalence of sleep apnea between PCOS and controls, even after controlled for BMI.[5]

DISCUSSION AND MANAGEMENT

- Loss of weight spontaneously reduces the basal level of insulin accompanied by a normalized glucose metabolism.
- Lifestyle modification reduces the likelihood of developing type 2 DM in later life by 58 %.
- Emphasis should be on regular exercise (30 minutes of sweat-inducing exercise) at least 4 days a week.
- Consumption of regular hypo-calorific balanced meals, avoiding junk foods.
- Insulin-sensitizing agents (Metformin and thiazolidinediones) and weight reduction drugs (Orlistat and sibutramine) reduce insulin resistance and hence risk of developing diabetes and metabolic sequelae but there is no robust evidence to support the use of these drugs for prevention of cardio-metabolic untoward effects or benefits from long-term use.
- Drugs are not superior to lifestyle intervention in improving cardio-metabolic risk and progression to type 2 DM.[4, 6]

CONCLUSION

Keeping in view the increasing trend of adoption of unhealthy lifestyle practices and dietary habits worldwide Polycystic Ovarian Syndrome (PCOS) is emerging as a common problem beginning early at adolescence nowadays. The concern is not only limited to an ovulatory oligomenorrhea, menstrual disorders or infertility, but its consequences on glucose metabolism and cardiovascular system needs to be highlighted from the very beginning. Motivating masses to maintain a healthy lifestyle should be the mainstay to manage the growing problem in the coming years.

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