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A REVIEW ON POLYCYSTIC OVARY SYNDROME (PCOS)

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ABSTRACT :

Polycystic Ovary Syndrome is the most prevalent endocrine disorder that affects between 6-15% of women of reproductive age worldwide. Polycystic ovarian morphology, hyperandrogenism, and irregular menstrual periods are the few symptoms that are commonly associated with polycystic ovarian syndrome. This condition has a profound impact on psychological, metabolic, and reproductive health, increasing the likelihood of anxiety, depression, type 2 diabetes, cardiovascular disease, and infertility.

INTRODUCTION

Polycystic Ovary Syndrome is a complex, chronic condition characterized by endocrine dysfunction. It affects 6-15% of women who are of reproductive age, depending upon ethnicity and diagnostic criteria. In addition to systemic metabolic problems like insulin resistance, Obesity. PCOS causes long-term metabolic and psychological effects in addition to reproductive difficulties.

HISTORICAL BACKGROUND

PCOS is firstly described by Irving f. Stein and Michael L. In 1935, Leventhal discovered that the condition affected the entire body and had a broader range of symptoms. As the diagnostic criteria for the NIH in 1990 shifted its focus to ovulatory dysfunction and hyperandrogenism, one of the changes was the definition of polycystic ovary syndrome. In 2003, the criteria for diagnosing polycystic ovarian morphology were expanded to include the presence of two or more traits, making it necessary for a diagnosis to be made. These evolving classifications still impact diagnostic and treatment approaches today and reflect the intricate and varied nature of PCOS.

WORKING PRINCIPLE OR MECHANISM

The imbalance in the hypothalamic pituitary-ovarian axis is the underlying cause of polycystic ovary syndrome (PCOS). This dysregulation leads to an increased LH:FSH ratio, causing the GnRH pulse to occur more frequently. Ovulation occurs when the ovarian theca cells are stimulated by increased levels of LH, which also inhibits the growth of follicles. By reducing the production of hepatic sex binding globulin and directly increasing ovarian androgen production, insulin resistance, which affects 50-70% of PCOS patients, worsens hyperandrogenism. Chronic low-grade inflammation and dysfunctional adipose tissue also contribute to metabolic disturbances.

APPLICATIONS IN CURRENT PRACTICE

PCOS management requires a personalized strategy. Oral contraceptives (COCs) are the first treatment for irregular menstruation. Metformin is often used to treat insulin resistance and can support ovulation. Letrozole includes common medications for inducing ovulation for women seeking fertility. Weight loss 5-10% often restores ovulation function and creates a very important diet and physical therapy lifespan. Like psychological therapy, pharmacological treatment for depression and anxiety is recommended, as is cognitive behavioural therapy. Vitamin-D dietary supplements, acupuncture and anti-inflammatory diets are examples of new integrative therapies. Sub-diagnosis or overdiagnosis results from inconsistent diagnostic criteria. Various symptoms make treatment more difficult. Many pharmaceutical treatments are not always successful, or side effects are not negatively affected. Another issue is access to care, especially in resource-limited environments. Furthermore, our knowledge of the course of the disease is limited by the lack of extensive long-term testing of young PCOS.

LIMITATIONS AND CHALLENGES

Despite progress, Managing PCOS still presents a number of difficulties. Underdiagnosis or Overdiagnosis result from inconsistent diagnostic criteria. Treatment is made more difficult by the variety of symptoms. Many pharmaceutical treatments are not always successful or have negative side effects.

Another problem is access to care, especially in environments with limited resources. Furthermore, our knowledge of the course of the condition is limited by the paucity of extensive, long-term investigations on adolescent PCOS.

FUTURE PROSPECTS AND RESEARCH OPPORTUNITIES

The aim of future research is to develop universal diagnostic criteria, including imaging, genetic and biochemical indicators. The use of anti-Mullerian hormone (AMH) as a diagnostic and predictive device will be examined in ongoing research. Promising future directions are personalized genomic regulatory drugs and microbial transport therapy. By understanding the fetal causes and epigenetic inheritance of PCOS, precautions can be completely changed. A collaborative multicenter longitudinal study is required to investigate the development of PCOS, particularly in various age and ethnic groups.

CONCLUSION

PCOS is a complex syndrome that has a major impact on metabolic, psychological, and reproductive health. Its management requires a integrated, multidisciplinary approach with patient specific care planning. Despite recent improvements in our knowledge and management of PCOS, there are still large gaps in diagnosis, long-term care, and outcome-based therapy. To overcome these obstacles and enhance the lives of those affected, more research is necessary.

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