COMPARATIVE STUDY OF CLINICAL AND METABOLIC PROFILES BETWEEN LEAN AND OBESE POLYCYSTIC OVARY SYNDROME (PCOS) PATIENTS

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The PCOS is the commonest endocrine disorder in reproductive-aged women, with a prevalence of 6–10%. It is a leading cause of infertility and is also associated with an increased risk of metabolic syndrome, diabetes mellitus type II, cardiovascular disease, and endometrial cancer. PCOS affects 30% of infertile women. A majority (60%) of women with PCOS have an above-average or high BMI, insulin resistance (IR), menstrual symptoms, and the typical male pattern of baldness, acne, and hirsutism. In addition, the pathology of PCOS is related to IR and hyperinsulinemia.

Study- It is an observational comparative study of cross-sectional design

Study setting- Department of Obstetrics and Gynecology, R.G.Kar Medical College and Hospital

Study Period- 18months
Data was collected from 420 patients visiting Department of Obstetrics and Gynecology OPD in reproductive age group, with various symptoms such as menstrual irregularity, metabolic syndrome, acanthosis nigricans, hyperandrogenic features, infertility. Diagnosis done based on Rotterdam criteria. Lean and obese categorized based on BMI. Ethical approval was obtained prior to commencement of study.

Menstrual irregularity was seen in 91.2% of patients — 87.6% in lean and 94.8% in obese. Hirsutism was present in 73.3% of lean and 82.8% of obese women. Infertility occurred in 2.9% of lean and 9% of obese patients. Mean LH/FSH ratio was 1.35 in lean and 2.59 in obese. Total testosterone was 133.12 ng/dl in lean vs 153.36 ng/dl in obese and free testosterone was 3.43 pg/ml in obese vs 4.13 pg/ml in lean. Free testosterone was 3.43 pg/ml in lean vs 4.13 pg/ml in obese. Fasting insulin was significantly higher in obese (15.24 mg/dl) than in lean (11.84 mg/dl) patients. Fasting glucose was 103.05 mg/dl (lean) vs 126.05 mg/dl (obese), and postprandial glucose was 152.26 mg/dl vs 183.56 mg/dl respectively. LDL cholesterol was 134.28 mg/dl (lean) vs 171.64 mg/dl (obese), while HDL was 44.90 mg/dl vs 42.72 mg/dl.

This study highlights obesity's strong influence on the metabolic and reproductive health of women with PCOS. Obese patients showed higher insulin resistance, adverse lipid profiles, and greater risks of diabetes, cardiovascular disease, and infertility due to hormonal imbalance and ovulatory dysfunction. Obesity is therefore a key modifiable factor in PCOS management. Weight reduction through lifestyle changes and medications like OCP, metformin or GLP-1 agonists can improve metabolic control, fertility, and overall quality of life.

ISBN Number : 978-81-995582-9-8 Crossref