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Women with Polycystic Ovary Syndrome and their Prolactin Levels in Analysis

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INTRODUCTION

Women with and without Polycystic Ovarian Syndrome (PCOS) have different amounts of prolactin (PRL). The aim of this study was to compare the PRL levels of women with PCOS to those of the control group before and after correcting for potential confounders. A thorough search was carried out in PubMed and Web of Science from the beginning. PRL levels were determined by a random-effects model utilising weighted mean differences (WMDs) and their corresponding 95% confidence intervals (CIs). Publication bias was assessed using the Egger test. 32 papers were included in the meta-analysis, and the Rotterdam criteria were used to evaluate PRL levels in 13,737 controls and 8551 PCOS patients. The weighted mean difference (WMD) of PRL level was substantially higher in women with PCOS than in controls, according to the pooled effect size. There was no sign of confounding in the meta-regression finding after controlling for age, BMI, and continent of origin. Eurasian PCOS patients showed considerably greater PRL levels than the control group when PRL levels were sub grouped by continent of origin; however, this differentiation was not really significant to women from Asia, Europe, and South America at that time. In conclusion, participants with PCOS had significantly higher PRL levels than patients with Rotterdam-diagnosed PCOS. The presence of mildly raised PRL levels may be a sign of PCOS.

DESCRIPTION

Polycystic Ovary Syndrome (PCOS) is the most prevalent endocrine disorder during the premenopausal period. This meta-analysis, which included 32 observational studies carried out in different regions, provided evidence to support the idea that PRL levels are significantly higher in PCOS-affected women than in non-PCOS affected women. It is regarded as a polygenic condition with several components. Additionally, compared to the control group, Eurasian PCOS patients' PRL levels were substantially greater. Numerous physiological systems, including reproduction, growth and development, metabolism, immune-regulation, brain function, and behavioural regulation, are influenced by the polypeptide hormone prolactin (PRL). PRL is secreted by pituitary lactotroph cells.

Estrogen, dopamine receptor antagonists, and Thyrotropin Releasing Hormone (TRH) all promote PRL synthesis. Additionally, a variety of physiological, genetic, and compulsive conditions can cause lactotroph cells to increase their PRL emission, which results in hyperprolactinemia. Some of the physiological conditions include pregnancy, lactation, stress, and extreme activity. Medications-induced hyperprolactinemia (DIH), non-functioning pituitary adenomas (NFPA), essential hypothyroidism, PCOS, persistent renal failure, and liver cirrhosis are examples of obsessive conditions.

Another cause that raises PRL levels is macroprolactinemia. A big PRL molecule called macroprolactin predominantly attaches to antibodies but has no biological impact. When this molecule is present, prolactin clearance by the kidneys may be decreased and serum prolactin levels may increase at the same time. It may also explain why several of these disorders' correlations with PRL, especially the link between its levels and PCOS, are currently under investigation.

CONCLUSION

Meta-regression analysis revealed no significant effects of age, BMI, or continent of origin on study heterogeneity. Age and body fat composition have been hypothesised to affect PRL secretion. Size of visceral fat mass and PRL release were strongly associated. In other words, because they have higher visceral fat mass, obese women secrete more PRL. Additionally, a study showed that from the age of 20.