Introduction

Polycystic ovary syndrome (PCOS) is a common disorder affecting 4% to 12% of women of reproductive age ***(Knochenhauer et al., 1998).***

Despite being heterogeneous in nature, the hallmarks of the disease are hyperandrogenism and chronic anovulation. Since its description in 1935 by **Stein and Levethal**, much has been learned about the pathophysiology of PCOS from its neuroendocrine underpinnings ***(Rebar et al., 1976)*** to an ever growing understanding of the link between obesity, insulin resistance (IR) and POCS ***(Gambineri et al., 2002).***

POCS is associated with abnormal carbohydrate metabolism and insulin resistance, with insulin sensitivity being decreased by 35-40% in PCOS patients regardless of body mass index (BMI) ***(Burghen et al., 1980).***

Women with PCOS have a significantly increased risk of glucose intolerance and the prevalence of undiagnosed diabetes mellitus in women with PCOS has been suggested to be seven-fold that of the normal population ***(Legro et al., 1999).***

Retrospective studies have also shown that PCOS increase the risk of hypertension, coronary vascular disease and myocardial infarction in later life ***(Lobo and Carmina, 2000).***

The lean woman with PCOS seems to have a form of insulin resistance that is intrinsic (and perhaps unique) to the syndrome and poorly understood ***(Diamanti-Kandarakis et al., 2003).***

The obese women with PCOS possesses not only the form of insulin resistance intrinsic to the syndrome, but also has an added burden of insulin resistance that is related to excess adiposity ***(Campbell and Gerich, 1990).***

Most PCOS patients have basal and glucose stimulated hyperinsulinaemia and the associated increased androgen production and disordered gonadotophin secretion cause chronic anovulation ***(Burghen et al., 1980)***.

Insulin-sensitizing agents such as metformin are increasingly used to treat infertility and hirsuitism in PCOS patients**.** However not all PCOS subjects are insulin resistant. Plasma insulin concentrations are usually measured experimentally, and rarely clinically. There is no clear reference range for insulin levels, but fasting hyperinsulinaemia is usually classified as insulin level greater than 17-20mU/ml ***(Glueck et al., 1999).***

Metformin has been shown to reduce fasting serum insulin; androgen and LH concentration and increase sex hormone binding globulin (SHBG) levels and also improves ovarian function with resumption of spontaneous ovulation in a proportion of women ***(Nestler et al., 1998).***

A reduction in hirsuitism and weight especially central obesity may occur in obese women treated with Metformin ***(Pasquali et al., 2000).***

As insulin resistance is associated with development of future glucose intolerance, there are potential long-term benefits of Metformin in this group, not all POCS women who are candidates for such treatment have insulin resistance ***(Taylor, 2000).***