Journal of Reproduction & Contraception doi: 10.7669/j.issn.1001-7844.2014.03.0133
2014 Sep.; 25(3):133-145 E-mail: randc_journal@163.com

• ORIGINAL PAPER •

Study on the Clinical and Endocrine Characteristics of Polycystic Ovary Syndrome with Different Ovarian Morphology

Zhi-ping HU, Tian-shu PANG, Ying WANG, Jie QIAO, Mei-zhi LI
Reproductive Medical Center, Peking University Third Hospital, Beijing 100191, China

Objective *To evaluate the differences of the clinical manifestation and endocrine situation in patients with different ovarian morphology of polycystic ovary syndrome (PCOS).*

Methods *A total of 234 PCOS patients were enrolled according to the ovary morphology and divided into three groups: 112 patients with B-polycystic ovary morphology (both two ovaries were PCOM, B-PCOM), 50 with U-PCOM (only one ovary was PCOM) and 72 with N-PCOM (none was PCOM). There were 39 infertile women without PCOS as control group. Data were analyzed by using SPSS 15.0 software.*

Results *There was no statistical difference in body mass index (BMI) among the three groups of PCOS. The endometrial thickness increased in patients with B-PCOM and decreased with N-PCOM. The levels of testosterone, androstenedione and luteinizing hormone increased in PCOS groups, especially in N-PCOM patients. HOMA-IR increased, HOMA-β, disposition index (DI) and $\Delta I_{60}/\Delta G_{60}$ decreased in patients with N-PCOM compared with in B-PCOM and U-PCOM groups. Higher level of total cholesterol (TC) and lower level of high-density lipoprotein (HDL)-C existed in PCOS patients, especially in N-PCOM. There were positive correlations between oligo-anovulation, endometrial thickness, LH/FSH ratio, fasting insulin (FINS), the area under curve of glucose(AUC_{GLU}) and PCOM, while there was a negative correlation between HOMA-IR and PCOM.*

Conclusion *There are relationships among hyperandrogenism, hyperinsulinemia, insulin resistance (IR) and ovary morphology in PCOS patients. PCOS patients without PCOM have more serious IR and hyperandrogenism.*

Key words: polycystic ovary syndrome (PCOS); polycystic ovary morphology (PCOM); hyperandrogenism (HA); insulin resistance (IR)

Corresponding author: Ying WANG; Tel: +86-13911688652; E-mail: wangying02114@bjmu.edu.cn

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders, which affects 6%−10% of reproductive-aged women[1]. This syndrome is not a well-defined entity and shows the great variation and heterogeneity in clinic, menstrual disorders, infertility, acne, obesity and polycystic ovary morphology (PCOM) are typical clinical manifestations. Further more, insulin resistance (IR), hyperinsulinemia and hyperlipidemia increase with age.

Anovulation and hyperandrogenism (HA) are the main manifestations of PCOS. There is still a controversy on the diagnosis criteria so far. In the year of 1992[2], National Institutes of Health/National Institute of Child Health and Human Development (NIH/NICHD) drew up the first diagnostic criteria which was widely recognized, including oligoanovulation, HA and/or clinical manifestations of HA. Then European Society of Human Reproduction and Embryology/American Society For Reproductive Medicine (ESHRE/ASRM) revised this criteria in 2003 as Rotterdam Criteria[3], meeting at least 2 of the following 3 standards: menstrual disorder (menstrual cycle >35 d and/or <21 d); clinical signs of HA (hirsutism and/or acne and/or HA); and polycystic ovaries on ultrasound (12 or more follicles 2−9 mm in diameter in each ovary). Other conditions, such as congenital adrenal hyperplasia, androgen-secreting tumors, and Cushing's syndrome, need to be ruled out on clinical examination, by assessing testosterone and 17-hydroxyprogesterone (17-OHP) levels, and performing the rapid dexamethasone suppression test. Participants were with 17-OHP levels higher than 25.44 nmol/L and/or testosterone levels higher than 6.94 nmol/L, and/or cortisol levels higher than 195 nmol/L. But many scholars believe that HA is the basic pathogen of PCOS, PCOM also exists in other diseases, particularly functional hypothalamic anovulation. However, it is not specific. In the year 2006[4], experts in Androgen Excess Society defined HA as the requirement of PCOS diagnosis, but not to be widely recognized. Several researchers find that simple PCOM perhaps is the early clinical manifestation of PCOS, some patients with only PCOM, without irregular menstruation and hirsutism, have the tendency to develop PCOS, the levels of testosterone and androstenedione are higher than people without PCOM, but within the normal range[4].

Whether the ovary morphology or HA can be considered as the necessary diagnostic features for PCOS, there is a controversy. We still follows the 2003 Rotterdam Criteria[3] in China. There are fewer researches exploring for whether there is an influence of PCOM on clinical manifestations, endocrinology and metabolism. This is the purpose of this study.

Materials & Methods

Subject

PCOS patients were recruited in the Reproductive Medical Center of Peking Univer-