Polycystic Ovary Syndrome (PCOS) - Metabolic and Thrombotic comorbidity

A cross-sectional study

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Publication date:
2010

Document version
Submitted manuscript

Citation for published version (APA):

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Download date: 10. Jan. 2021
INTRODUCTION AND BACKGROUND

PCOS is the most common endocrine disorder among women in the reproductive age with a prevalence of 10%. Women with PCOS are a complex heterogeneous group.

The syndrome has strong association to obesity/overweight, android fat distribution, infertility, insulin resistance (IR, independent of bodyweight), impaired glucose tolerance, and dyslipidemia.

If IR and hyperandrogenism are associated with alterations in the hematologic and fibrinolytic system leading to endothelial dysfunction and vascular chronic low-grade inflammation. Reports on homostasis in PCOS are conflicting. There is need for large longitudinal prospective cohort studies in well-defined PCOS characterized population (Figure 2). HYPOTHESIS

Women with PCOS are characterized by 4 main phenotypes and each phenotype has different risk profile with regard to diabetes, thrombosis, and CVD (Figure 1).

The diagnostic CVD risk in women with PCOS can be predicted based on validated molecular biomarkers (inflammation, metabolism, thrombosis, endogenous sex steroids) combined with a precise clinical evaluation of phenotype including distribution of body fat.

There is correlation between dysmetabolic biomarkers and visceral obesity independent of BMI (body mass index).

OBJECTIVES

1. Based on the 4 phenotypes of PCOS ± IR, ± obesity: define clusters of biomarkers characterizing the 4 phenotypes.
2. Assessment of prevalence of abdominal obesity, metabolic syndrome (MS) and hemostatic derangements.
3. Study design.
4. To establish a PCOS database and bio bank based on a large well-defined and well-characterized population (Figure 2).

STUDY DESIGN

Multi-center cross-sectional clinical study.

METHODS

1. High-quality bio bank will be established with blood and urine samples from premenopausal 18-40-year-old women with PCOS. Patients will be recruited from 4 Copenhagen University Hospitals (Figure 2). Controls are required in the two of the three PICOLO projects, project 2 and 3.

2. The patients will be screened for metabolic and hematostatic abnormalities. DEXA-scan and Oral glucose tolerance test (OGTT) will be performed (Figure 2 + Table 1).

RESULTS

Data is being compiled from April 2010 – December 2011 and results will be published from 2012.

CONCLUSION/PERSPECTIVES

1. Development of precise clinical and paraclinical algorithm will enable better diagnostic, counseling and appropriate treatment of the women with PCOS.

2. Hematological parameters could potentially be used as indicators of risk of atherosclerosis and thrombotic disease in women with PCOS.