Syddansk Universitet

Polycystic Ovary Syndrome (PCOS) - Metabolic and Thrombotic comorbidity
A cross-sectional study
Aziz, Mubeena; Faber, Jens; Sidelmann, Johannes Jakobsen; Skouby, Sven O.

Publication date:
2010

Document version
Early version, also known as pre-print

Citation for published version (APA):
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 heterogenous group.

The syndrome is defined by at least 2 of the 3 following criteria (Rotterdam criteria 2003)
- Oligo- or anovulation
- Clinical signs of hyperandrogenism or biochemical hyperandrogenemia
- Sonographic evidence of at least one polycystic ovary

The syndrome has strong association to
- Obesity/ overweight
- Android fat distribution
- Infertility
- Insulin resistance (IR) (independent of bodyweight)
- Impaired glucose tolerance
- Dyslipidemia
- IF and hyperandrogenemia are associated with alterations in the hematologic and fibrinolytic system leading to endothelial dysfunction and vascular chronic low-grade inflammation.

Reports on hemostasis in PCOS are conflicting. There is a need for large longterm prospective cohort studies in a well-defined PCOS population investigating coagulation and fibrinolysis pathways and cardiovascular morbidity.

HYPOTHESIS
Women with PCOS are characterized by 4 main phenotypes and each phenotype has different risk for DM, CVD, and thrombosis (Figure 1).

The diagnostic CVD risk in women with PCOS can be predicted based upon well 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. To establish a PCOS database and bio bank based on a large well defined and well characterized population (Figure 2).

2. To optimize the clinical risk estimation for diabetes, CVD and thrombosis based on simple clinical and paraclinical algorithm.

3. Assessment of correlation betweenrisk biomarkers and the individual elements of the definition of PCOS.

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
- High-stakes and 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.

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

RESULTS
Data are being compiled from April 2010 - December 2011 and results will be published from 2012.

CONCLUSION/PERSPECTIVES
- Development of precisely clinical and paraclinical algorithm will enable better diagnostic, counseling and appropriate treatment of the women with PCOS.

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