

## STRESZCZENIE W JEZYKU ANGIELSKIM

### Introduction

Polycystic ovary syndrome (PCOS) is an endocrine disorder which, in addition to hiperandrogenism, is associated with metabolic diseases such as insulin resistance, hyperlipidemia, hypercholesterolemia, and hypertension. The aim of the doctoral thesis is to analyze the relationship between nutritional determinants and nutrition status and metabolic disorders in women with PCOS, and to develop appropriate recommendations in diet therapy.

### Methods

A group of women with PCOS and a control group were invited to the study. The analysis of nutrition status included anthropometric parameters, body composition assessment (air plethysmography), and body fat distribution (dual-energy X-ray absorptiometry). Nutrition intake was analyzed by food frequency questionnaire based on which there were assessed diet quality scores: Pro-Healthy-Diet-Index (pHDI-10), Non-Healthy-Diet-Index (nHDI-14), High-Glycemic-Diet-Index-7 (hGIDI-7), Low-Glycemic-Diet-Index-4 (lGIDI-4), High-Sugar-Diet-Index-4 (hSDI-4), and High-Saturated-Fats-Diet-Index-8 (hSFDI-8). The severity of metabolic disorders was determined using blood biochemical parameters (fasting glucose and insulin, lipid profile: total cholesterol, LDL, HDL, triglycerides). Plasma Atherogenicity Index (AIP) was calculated from triglycerides and HDL. In addition, the level of physical activity and nutritional knowledge of the patients was estimated.

### Results

The research showed that women with PCOS were characterized by higher total body fat and lower nutritional knowledge, compared to women from the KON group. In addition, women with PCOS were characterized by a lower intensity of consumption of pro-healthy products pHDI-10 and low GI products lGIDI-4. In addition, high consumption of low GI (lGIDI-4) products was associated with reduced AIP among women with PCOS (Publication 3).

Principal component analysis allowed to distinguish three patterns of lifestyle, nutrition and nutritional status (DLP): western (WDLP), prudent (PDLP) and active (ADLP). The Western pattern (WDLP) was characterized by a higher content of visceral adipose tissue, the frequency of consumption of: animal products, sweets, sweetened beverages, processed cereal products, "fast-food" and fried products, and a lower frequency of consumption of plant products. The prudent pattern (PDLP) was associated with a high frequency of consumption of plant products, dairy products, the number of meals consumed during the day, and more

frequent and prolonged intense physical exercise. An active lifestyle and diet pattern (ADLP) was associated with high visceral fat content, frequency of plant-based foods, high physical activity, and low frequency of consumption of fast-food and fried foods. Women with elevated LDL >135 mg/dL and triglycerides >150 mg/dL had higher adherence to WDLP (OR 7.73 CI95% 1.79, 33.2;  $p < 0.05$ ) and (OR 3.70 CI95% 1.03, 13.27,  $p < 0.05$ ). Low adherence to PDLP was associated with a more than three-fold higher risk of elevated total cholesterol (>200 mg/dL).

### **Conclusion**

Nutritional status, eating behavior and the level of nutritional knowledge differ between the group of women with PCOS and the control group. Frequent consumption of pro-healthy and low GI products of plant origin reduces the risk of metabolic disorders in women with PCOS. Intense physical activity may also be an important aspect reducing the risk of metabolic disorders in women with PCOS.

16. 06. 2023 / J. Bykowska-Denk