Introduction: PCOS, one of the most common endocrine disorder among reproductive-aged women, is often related with overweight and obesity, but it is still unknown if obesity leads to the disease development or is a result of hormonal and metabolic disorders. The aim of the study was to compare clinical, hormonal and biochemical parameters among women with PCOS with and without overweight or obesity.

Material and methods: The retrospective study included 3597 patients diagnosed with PCOS using Rotterdam criteria. The patients were divided into two groups according to BMI. The first group was composed of 2082 women with BMI higher than or equal 25 kg/m2 and the second group was formed by 1515 patients with BMI below this value. The groups were age-matched (24.3±4.2 vs 24.3±3.9 years; p=0.31). Hormonal and metabolic state was assessed.

Results: PCOS women with BMI above than or equal 25 kg/m2 had significantly higher arterial blood pressure (p<0.01) and severity of hirsutism (p<0.01). They also had higher serum level of testosterone (p<0.01), dehydroepiandrosterone sulfate (p<0.01) but lower concentration of follicle-stimulating hormone (p=0.04), luteinizing hormone (p<0.01), estradiol (p=0.04) and cortisol measured at 16 (p<0.01). Moreover, overweight and obese patients had higher level of total cholesterol (p<0.01), LDL-cholesterol (p<0.01), triglycerides (p<0.01) and lower concentration of HDL-cholesterol (p<0.01). Serum levels of insulin (p<0.01) and glucose in 0, 60 and 120 minute (p<0.01) of oral glucose tolerance test were significantly higher in overweight and obese patients in comparison to PCOS women with BMI below 25 kg/m2.

Conclusions: Clinical and biochemical features differed among patients diagnosed with PCOS with and without increased BMI. Overweight and obese patients had significantly worse metabolic disturbances.