

Polycystic ovary syndrome (PCOS) is one of the most common endocrinopathies occurring in 5-10% women in their fertile years. The incidence of impaired glucose tolerance and diabetes mellitus type 2 is significantly increased in PCOS. Hyperinsulinaemia and insulin resistance are present in a relevant number of PCOS women. In our projects we therefore concentrated on various aspects of insulin secretion in PCOS women. We used different approaches and calculations, which are complementary to each other and provide a more detailed insight into possible beta cell dysfunction. Aims of our studies were 1) examine how the beta cell function is influenced by the family history of DM 2, 2) examine the insulin pulsatile secretion, 3) examine the secretion of incretins and 4) examine the prevalence of glucose intolerance and its potential prediction in PCOS women.

1) Decreased insulin sensitivity was observed only in PCOS women with the positive family history of DM 2 in comparison to healthy controls. If these women have normal glucose tolerance, they compensate the decreased insulin sensitivity by the increased insulin secretion.

2) Lean PCOS women had similar insulin pulsatile secretion patterns with the exception of broader insulin peaks in comparison to healthy controls. Insulin sensitivity was not associated with any of the parameters describing insulin pulsatile secretion.

3) We observed higher GIP and lower active GLP-1 concentrations during the late phase of oGTT in PCOS women in comparison to healthy women.

4) Impaired fasting glucose was present in 12 %, IGT in 9,4 % and DM 2 in 1,6 % PCOS women. We did not find any proper parameter, that could be useful for the early detection of IGT and/or DM 2 in women affected with PCOS. Therefore, we recommend to perform oGTT in each patient with the diagnosis of PCOS