Myo-inositol has been demonstrated to improve insulin sensitivity in insulin resistant patients with PCOS since it improves the insulin post-receptor pathways. Since previous reports suggested that also alpha lipoic acid has specific positive effects on glucose control, we aimed to evaluate the specific effects of a combination of alpha lipoic acid and myo-inositol on insulin resistance in obese patients with PCOS. We studied a group of obese PCOS patients (n=34, BMI= 30.5±0.3) according to the revised 2003 Rotterdam consensus diagnostic criteria. Among the enrolled PCOS patients 16 out of 34 had diabetic relatives (parents and/or grandparents). Patients were administered a combination of alpha lipoic acid (400 mg) and myo-inositol (1 gr.) (Sinopol, Laborest, Italy) every day for at least 12 weeks. Patients underwent to baseline hormone determination and to an oral glucose tolerance test (OGTT) before and at the 12th week of treatment. After the treatment interval HOMA index decreased significantly as well as the glucose-induced insulin response. Interestingly the treatment did not change insulin dynamics in normo-insulinemic PCOS while significant insulin decrease was observed in hyperinsulinemic PCOS patients. In addition 87.5% (14 out of 16) of the PCOS patients with diabetic relatives resulted to be among the hyperinsulinemic patients, showing also the significant decrease of the insulin plasma levels in baseline conditions (from 14±2.1 to 9.0±0.7 µU/ml, p<0.05).

In conclusion the combination of alpha lipoic acid plus MYO was effective in improving insulin sensitivity in obese PCOS patients that resulted to be hyperinsulinemic under OGTT. Moreover the more peculiar and relevant positive changes were observed in obese PCOS with diabetic first grade relatives.