OXIDATIVE STRESS IN NORMAL WEIGHT WOMEN WITH POLYCYSTIC OVARY SYNDROME: EVALUATION OF COENZYME Q10 AND MALONDIALDEHYDE.


It is well known that insulin resistance (IR) is associated with polycystic ovary syndrome (PCOS). Oxidative stress (OS) is, in turn, related to IR, with a vicious cycle. Mechanisms underlying reciprocal influences between IR and OS are still poorly understood. The physiopathology of normal weight PCOS is more complex even if IR is reported in such situation.

In order to investigate parameters of OS in normal weight PCOS and the relationships with hormonal and metabolic parameters, we have evaluated the concentrations of Coenzyme Q10 (coQ10), a component of mitochondrial respiratory chain, also endowed with antioxidant properties, in plasma of PCOS patients (n=7, age 20-25 ys, mean BMI 24,8±2,6) and normal menstruating women (n=7, age 20-25 ys, mean BMI 22,0±2,5). Also malondialdehyde (MDA), a product of lipid peroxidation, was evaluated.

CoQ10 levels were determined by HPLC according to Takada et al. and MDA levels were determined spectrophotometrically at 535nm by TBARS assay. The following results in plasma (mean ± SD) were observed:

PCOS patients (n=7): Testosterone (ng/ml) 0,77 ± 0,25; DHEAS (ng/ml) 3478 ± 184,5; HOMA index 1,01 ± 0,64; MDA pmol/ml 7020 ± 6780; MDA pmol/mg 122,62 ± 63,1; CoQ10 pmol/ml 577,2 ± 114,1; CoQ10 pmol/mg 6,8 ± 2,0.

Controls (n=7): Testosterone (ng/ml) 0,55 ± 0,10; DHEAS (ng/ml) 2742,3 ± 701,66; HOMA index 1,03 ± 0,2; MDA pmol/ml 12380 ± 6025,0; MDA pmol/mg 188,2 ± 80,55; CoQ10 pmol/ml 495,6 ± 106,2; CoQ10 pmol/mg 4,86 ± 0,94.

These preliminary data suggest that OS is not simply related to IR in normal weight PCOS. They need to be extended to furnish further insight into the mechanisms of hyperandrogenism in such a condition and to give a rationale for a therapeutic employment of antioxidants in PCOS.