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Polycystic ovary syndrome (PCOS): Predictors of response to Metformin treatment

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CONTEXT: Insulin-resistance is a common even if not mandatory feature of PCOS. Metformin has been shown to improve metabolic abnormalities, decrease androgen levels and restore ovulatory function. Nevertheless, its extensive use is contained by highly variable compliance and response rate
OBJECTIVE: To identify reliable predictors of response and compliance of Metformin therapy in PCOS patients
METHODS: Prospective non-randomized study
PATIENTS: 105 PCOS patients meeting ESHRE/ASRM 2003 Rotterdam criteria treated with Metformin 1500 mg/daily
INTERVENTIONS: At inclusion, before treatment, all patients underwent a complete clinical evaluation, an endocrine/metabolic lab assessment and a TV-ultrasonography. Subsequently they were submitted to semestral checks of all parameters
MAIN OUTCOME MEASURES: The recovery of regular menstrual cycles, BMI reduction in overweight patients, decrease of hyperandrogenemia/hyperandrogenism, insulin-resistance mitigation, lipid profile normalization. Therapy outcomes were compared to baseline data to notice the degree of variation of every single output through the Student's t-test for unpaired samples
RESULTS: 12 months of Metformin treatment achieved good results in terms of mean BMI (p=0.006), Free Androgen Index (p=0.02), HOMA-IR (p=0.0001) reduction and recovery of ovulatory cycles (p=0.02). Unexpectedly higher baseline insulin-resistance did not automatically improve all therapy outcomes and HOMA-IR index, in overweight patients, was inversely related to an easier weight and visceral adiposity containment. BMI, androgenemia, LH/FSH ratio and baseline insulin-resistance proved to be singularly markers of efficacy in terms of ovulatory cycles restoration and hyperandrogenemia reduction.
Drop-out patients clearly showed at baseline lower endocrine-metabolic impairment
CONCLUSIONS: Metformin is effective in the treatment of PCOS, better tolerated in patients with major endocrine-metabolic derangement. The diverse sensitivity to therapy may lie in the heterogeneity of PCOS population and must be read with regard of the single treatment output

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