

Treatment with Metformin and Combination of Metformin Plus Pioglitazone on Serum Levels of IL-6 and IL-8 in Polycystic Ovary Syndrome: A Randomized Clinical Trial.

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ABSTRACT

Elevated serum levels of inflammatory mediators in conditions such as PCOS reflect a low-grade chronic inflammation and this has been attributed to be associated with insulin-resistance in PCOS. Therefore, insulin-sensitizing agents are suggested to improve both reproductive as well as metabolic aspects of PCOS. This study aimed to compare the effects of metformin taken alone with that of a combination of metformin and pioglitazone on menstrual cycle, hormonal parameters, insulin resistance, and inflammatory biomarkers in women with PCOS. One hundred and six women with PCOS participated in the study. All subjects were randomized into two-arm intervention groups (Arm 1 and 2). Participants in Arm-1 received metformin (500 mg BD) daily while those in Arm-2 a combination of metformin (500 mg BD) and pioglitazone (15 mg BD) for 12 wks. Serum levels of IL-6 and IL-8 were measured using ELISA whereas insulin resistance was assessed using HOMA-IR. At baseline women with PCOS had significantly elevated circulating concentrations of IL-6 and IL-8. Treatment decreased IL-6 in both the groups, however, only the combination group showed a significant decrease ($p=0.005$). Serum IL-8 level had a significant decrease after treatment in both groups ($p < 0.001$). HOMA-IR and insulin levels also decreased in both the groups (both $p < 0.001$). Testosterone, FSH, and prolactin significantly decreased in both groups. LH also decreased in both groups, however, the change was significant only in the combination group ($p=0.013$). Combination of metformin and pioglitazone therapy was more effective as compared to metformin alone in reducing the levels of IL-6 and IL-8 as well as insulin resistance in PCOS.