

Effect of treatment with insulin sensitizer on arterial properties, metabolic parameters and liver function in patients with nonalcoholic fatty liver disease: A randomized, placebo-controlled trial.

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**Background:** Insulin resistance has an important role in the development of nonalcoholic fatty liver disease (NAFLD) and is involved in both pathological processes: hepatic steatosis and atherosclerosis. Therefore, treatment of NAFLD with insulin sensitizers is likely to have a favorable effect towards hepatic steatosis and cardiovascular outcomes. Measurement of arterial stiffness provides useful information regarding vascular health and may serve as a marker of atherosclerosis as well as a surrogate for cardiovascular morbidity and mortality risk.

**Aims:** The present study investigated the effect of metformin on arterial properties, metabolic parameters and liver function in patients with NAFLD.

**Methods:** In randomized, placebo controlled study, 63 patients with NAFLD were assigned to one of two groups: Group 1 received daily metformin; Group 2 received placebo. Pulse wave velocity (PWV) and augmentation index (AI) were performed using SphygmoCor (version 7.1, AtCor Medical, Sydney, Australia). Metabolic measures were determined at baseline and at the end of 4-month treatment period.

**Results:** Among metformin treated patients: PWV and AI decreased significantly during the study. Significant declines in fasting glucose, triglyceride, alkaline phosphatase and a significant increase in HDL-cholesterol were observed. CRP and ALT decreased and serum adiponectin increased marginally. In placebo group: neither PWV nor AI improved significantly during the treatment period. ALT, AST and adiponectin did not change in placebo group.

**Conclusions:** Metformin treatment was associated with significant decrease in PWV and AI in NAFLD patients. This beneficial vascular effect was accompanied by an improvement in glucose and lipid metabolism as well as liver function. The findings of the present study suggest that beneficial vascular effect of metformin may lead to decrease in future cardiovascular events in this population.