

Endothelial Dysfunction in Non-Alcoholic Fatty Liver Disease: An Updated Meta-Analysis

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Abstract : Endothelial dysfunction is a precursor to atherosclerosis, and flow-mediated dilatation (FMD) in the brachial artery is the commonest method to evaluate endothelial function in humans. Non-alcoholic fatty liver disease (NAFLD) is one of the most common liver disorders encountered in clinical practice. An earlier meta-analysis had quantitatively assessed the degree of endothelial dysfunction using FMD. However, the largest study investigating the relation of FMD with NAFLD was published after that meta-analysis. In addition, that meta-analysis did not include some studies, including one from our centre. Therefore, an updating the previous meta-analysis was considered important. We searched PubMed, Cochrane Library, Embase, Scopus, SCI, Google Scholar, conference proceedings, and references of included studies till June 2017 to identify observational studies evaluating endothelial function using FMD in patients with non-alcoholic fatty liver disease. Data was analyzed using MedCalc. Fourteen studies were found eligible for inclusion in the meta-analysis. Patients with NAFLD had lower brachial artery FMD as compared to controls, standardized mean difference (random effects model) being -1.279%; 95% confidence interval (CI), -1.478 to -0.914. The effect size became smaller after addition of the recent study with the largest sample size was included compared with the earlier meta-analysis. In conclusion, patients with NAFLD had low FMD values indicating that they are at a higher risk of cardiovascular disease although our results suggest the effect size is not as large as reported previously.

Keywords : endothelial dysfunction, flow-mediated dilatation, meta-analysis, non-alcoholic fatty liver disease

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