Effect of Pemafibrate, a Selective Peroxisome Proliferator-activated Receptor? Modulator (SPPARM?), on the Lipid Profile, Liver Function, and Liver Fibrosis among Patients with Non-alcoholic Fatty Liver Disease: A Systematic Review and Meta-Analysis

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Background: Metabolic dysfunction associated steatotic liver disease (MASLD) and Metabolic dysfunction associated steatohepatitis (MASH) are prevalent conditions linked to obesity and metabolic disturbances, with potential complications such as cirrhosis and cardiovascular risks (1). This systematic review and meta-analysis aimed to evaluate the efficacy of Pemafibrate, a drug targeting fat and sugar metabolism genes, in treating patients with MASLD/MASH.

Methods: Databases such as MEDLINE, Web of Science, Cochrane Library, and Scopus were searched until September 2023 to identify relevant studies. Selected studies underwent a thorough quality assessment using tools like ROB-2 and the NIH Quality Assessment Tools. Comprehensive Meta-analysis software was used for statistical evaluations, with a focus on lipid profiles, liver function tests, and fibrosis measurements.

Results: A total of 13 studies were included; 10 of them were included in the quantitative analysis. Our findings showed that pemafibrate significantly decreased LDL-C (ES= -9.61 mg/dL, 95% CI: -14.15 to -5.08), increased HDL-C (ES= 3.15 mg/dL, 95% CI: 1.53 to 4.78) (2,3-13), and reduced triglycerides (TG) (ES= -85.98 mg/dL, 95% CI: -96.61 to -75.36). Additionally, pemafibrate showed a marked reduction in liver enzyme levels, including AST, ALT, GGT, and ALP, with significant effect sizes and p-values. For liver stiffness outcomes, pemafibrate decreased APRI (ES= -0.180, 95% CI: -0.221 to -0.138).

Conclusion: Pemafibrate, with its enhanced selectivity and safety profile, presents as a pivotal agent in MASLD/MASH treatment. Its lipid-regulating properties, coupled with its beneficial effects on liver inflammation markers, position it as a potentially invaluable therapeutic option.

Keywords: MASLD, MASH, Pemafibrate, PPARS, Lipid profile, Liver fibrosis, Liver stiffness

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