Association of liver dysfunction with outcomes after percutaneous coronary intervention - a systematic review and meta-analysis

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Background: Liver dysfunction is currently receiving renewed attention as a major risk factor in patients undergoing cardiac surgery, including surgical treatment of coronary artery disease (CAD). Since percutaneous coronary intervention (PCI) for CAD treatment is much less invasive, the influence of liver dysfunction on outcomes after PCI may not be relevant.

Purpose: To assess the association of liver dysfunction with PCI outcomes.

Methods: We systematically searched three libraries (MEDLINE, Web of Science and The Cochrane Library) selecting all studies including patients with liver dysfunction who underwent PCI. A meta-analysis of studies comparing outcomes in patients with and without liver dysfunction who underwent PCI was performed. Primary outcome was short-term mortality. Secondary outcomes were major adverse cardiovascular events (MACE), bleeding and acute kidney injury. Random-effects model was performed.

Results: Five studies were selected and the data from 10,710,317 patients were included in the final analysis. Included studies were published between 2015 and 2021, all were observational risk-adjusted cohort studies, and two were national databases. In comparison with the absence of liver dysfunction, patients with liver dysfunction were associated with higher short-term mortality (OR, odds ratio: 2.97, 95% CI, confidence interval: 1.23-7.18, p=0.02), higher MACE (OR 1.42, 95%CI 1.08-1.87, p=0.01), and higher bleeding rates (OR 2.23, 95%CI 1.65-3.00, p<0.01). There was no significant difference regarding acute kidney injury (OR 1.20, 95%CI 0.50-2.87, p=0.69).

Conclusions: The analysis suggests that liver dysfunction is a major risk factor in patients undergoing PCI. It is independently associated with higher risk of short-term mortality and also with an increased occurrence of MACE and bleeding, without significantly affecting renal function.