Title: The prognostic utility of coronary angiography in pre-operative cardiac evaluation for liver transplantation

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Background: Coronary artery disease (CAD) is associated with increased mortality and morbidity in patients who have undergone orthotopic liver transplantation (OLT).[1] Coronary angiography (CA) is recognized as the gold standard for CAD assessment, but non-invasive stress tests (NIST) and traditional risk factors are generally more widely used during pre-operative evaluation. The purpose of our study was to assess the prognostic utility of CA in the pre-OLT evaluation process.

Methods: We conducted a retrospective study of 420 patients who underwent OLT at our tertiary care facility from 2009 to 2020. 134 patients were referred for CA based on NIST results and traditional CAD risk factors. Coronary stenosis (CS) was defined as the presence of $\geq$50% diameter stenosis in at least one coronary artery. The primary outcome was a composite of all-cause mortality or major adverse cardiac events (MACE) within 90 days of OLT. MACE was defined as new-onset systolic heart failure, myocardial infarction, cardiac arrest, and stroke.

Results: 50 patients out of 134 who underwent CA were found to have CS. There was more mortality or MACE in patients with CS compared to patients without CS (14.0% vs. 1.2%, p=0.008). 36 out of 134 patients who underwent CA were found to have CS even after negative NIST results. Among patients with negative NIST results, those with CS had higher mortality or MACE than those without CS (16.7% vs. 1.7%, p=0.021). The presence of CS was independently associated with mortality or MACE (OR = 17.86 [95% CI 2.32 – 421.97], p = 0.019).

Conclusion: NISTs and traditional risk factors for CAD may not be as reliable in the OLT population based on cardiovascular changes that occur in end-stage liver disease. Identification of CS by CA is essential in pre-OLT evaluation as it confers independent prognostic value for 90-day all-cause mortality and MACE after OLT.

References

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