Cardiac Output in End-Stage Liver Disease Increases Proportional to the Degree of Liver Dysfunction

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Background: End-stage liver disease is associated with significant systemic and haemodynamic alterations that affect cardiac function. Cirrhotic cardiomyopathy remains an ill-defined entity among cardiologists. Understanding the complex interplay between liver dysfunction and cardiac function can lead to a better understanding of the compensatory mechanisms of the heart in liver failure.

Methods: Consecutive patients that underwent pre-liver transplant (LT) workup between 2010–2017 were included. All patients underwent a resting echocardiogram. Cardiac output (CO) was prospectively recorded at baseline by pulsed-wave Doppler examination and systemic vascular resistance (SVR) was calculated as 80× (mean arterial pressure (MAP)/CO). Severity of liver disease was characterized by the model of end-stage liver disease (MELD) and Child-Pugh scores.

Results: 560 patients were included (mean age 57.5 ± 7.7, 74.8% male). Mean MELD score was 19 ± 7 and Child-Pugh Score was 9 ± 3. There was an inverse linear relationship between the severity of liver disease by MELD score and baseline SVR (ρ 0.40, p < 0.001). As SVR reduced, there was also a significant rise in baseline CO with a strong inverse correlation between the two variables (ρ 0.86, p < 0.001). There was a significant linear correlation between the severity of liver disease and baseline CO with both scores (MELD ρ 0.42, p < 0.001; Child Pugh ρ 0.44, p < 0.001).

Conclusions: Baseline CO increased with the severity of liver dysfunction due to a reduced afterload. A higher resting CO may lead to patients encroaching on their cardiac reserve at rest. This may provide a pathophysiological mechanism that supports a limited role for beta-blockers in end-stage liver cirrhosis.

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Cardiovascular Outcomes of Transradial Versus Transfemoral Access Cardiac Catheterization: Insights From the CADOSA Registry


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Background: Transradial access (TRA) is effective in reducing vascular complications compared to transfemoral access (TFA), however, older patients and also women, may have more complex vascular anatomy and so radial access may be challenging in these patients. This study compared in-hospital outcomes of TRA and TFA angiography in a real-world setting.

Methods: Consecutive angiography procedures from 2012–2016 for patients with stable angina or acute coronary syndrome were included from CADOSA (Coronary Angiogram Database of South Australia). Using propensity score analysis, we estimated the subgroup effects of gender and age (≤55 yrs vs. >55 yrs) and for in-hospital NACE (composite of death w/n 24 hrs, MI, stroke or major bleeding) between TRA and TFA procedures.

Results: From 13,811 procedures, 28% were TFA, 34% were women, 34% were PCI and 46% were MI. The overall NACE was 1.5%. A reduced NACE was evident in TRA compared to TFA in the overall propensity matched cohort (OR 0.38 95% CI, 0.23–0.63, p < 0.001). This was also significant in women (OR, 0.44; 95% CI, 0.23–0.83; p = 0.012), in >55 yrs cohort (OR, 0.49; 95% CI, 0.36–0.80; p = 0.004) with a trend towards significance in men (OR, 0.62; 95% CI, 0.36–1.06, p = 0.083). There was a significant reduction in bleeding risk in all cohorts (see Figure: Propensity Matched Effect of Access Site on Bleeding by Gender and Age).

Conclusion: A reduction in NACE risk with TRA is evident for both young and older patients, and particularly...