

Low Viscoelastic Clot Strength, Platelet Transfusions, and Graft Dysfunction are Associated with Persistent Postoperative Ascites Following Liver Transplantation



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Background

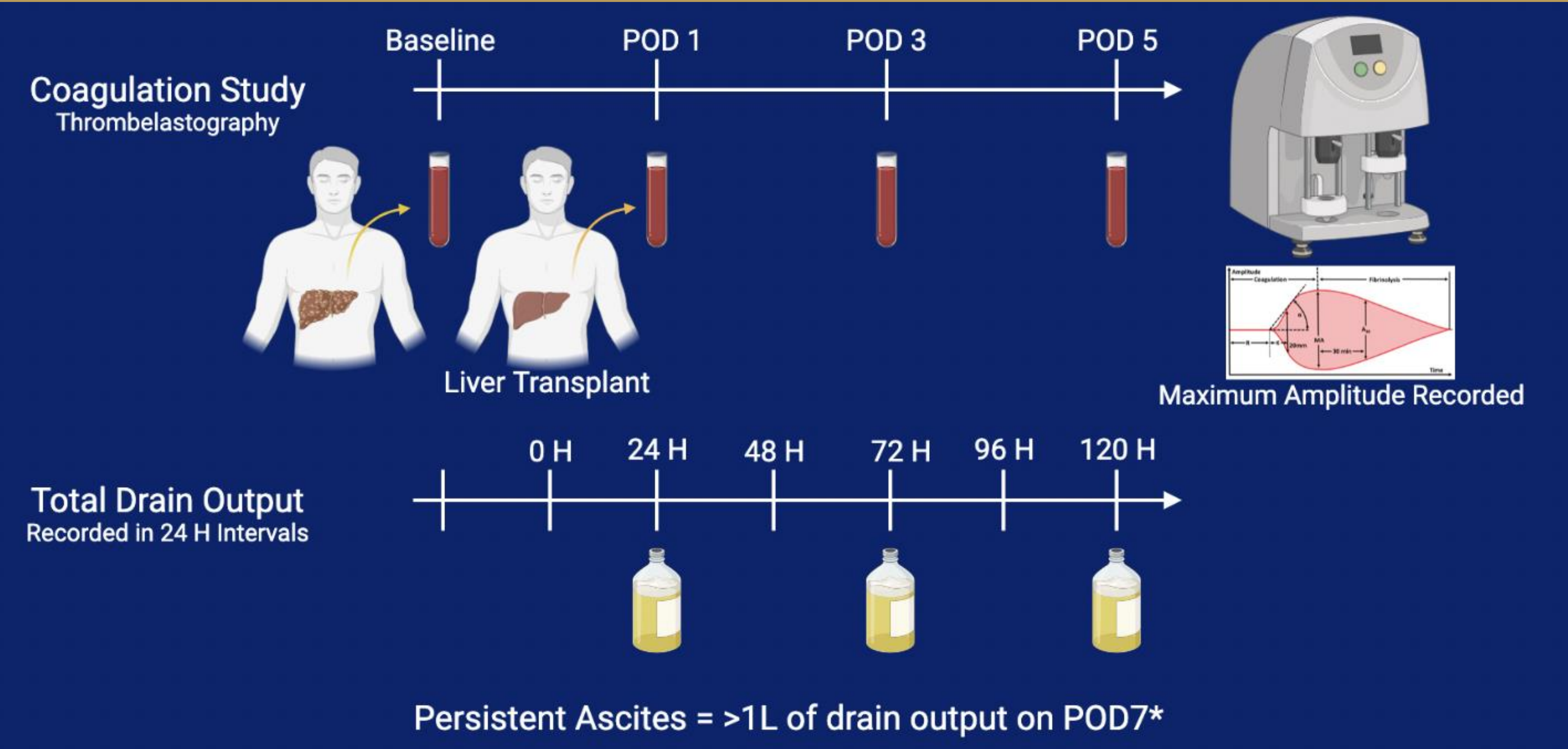
- Liver transplant (LT) patients frequently develop postoperative persistent ascites (PA), leading to worse outcomes, including increased morbidity, retransplant rate, treatment costs, and length of hospital stay.¹⁻⁵
- Platelets play a role in endothelial repair and permeability reduction.⁶
- We hypothesized that PA is associated with platelet dysfunction as measured by clot strength via viscoelastic testing.

Methods

- Retrospective study of 105 liver transplant recipients (2017–2022)
- Inclusion: Age >18, deceased donor LT, Child-Pugh Score ≥2
- Key measures: Pre/post-op platelet transfusions, MELD-Na scores, clot strength (MA on viscoelastic testing)

Persistent ascites after liver transplantation is linked to platelet dysfunction and increased platelet transfusions, leading to longer hospital stays and higher infection rates

Figure 1. Experimental Design



Results

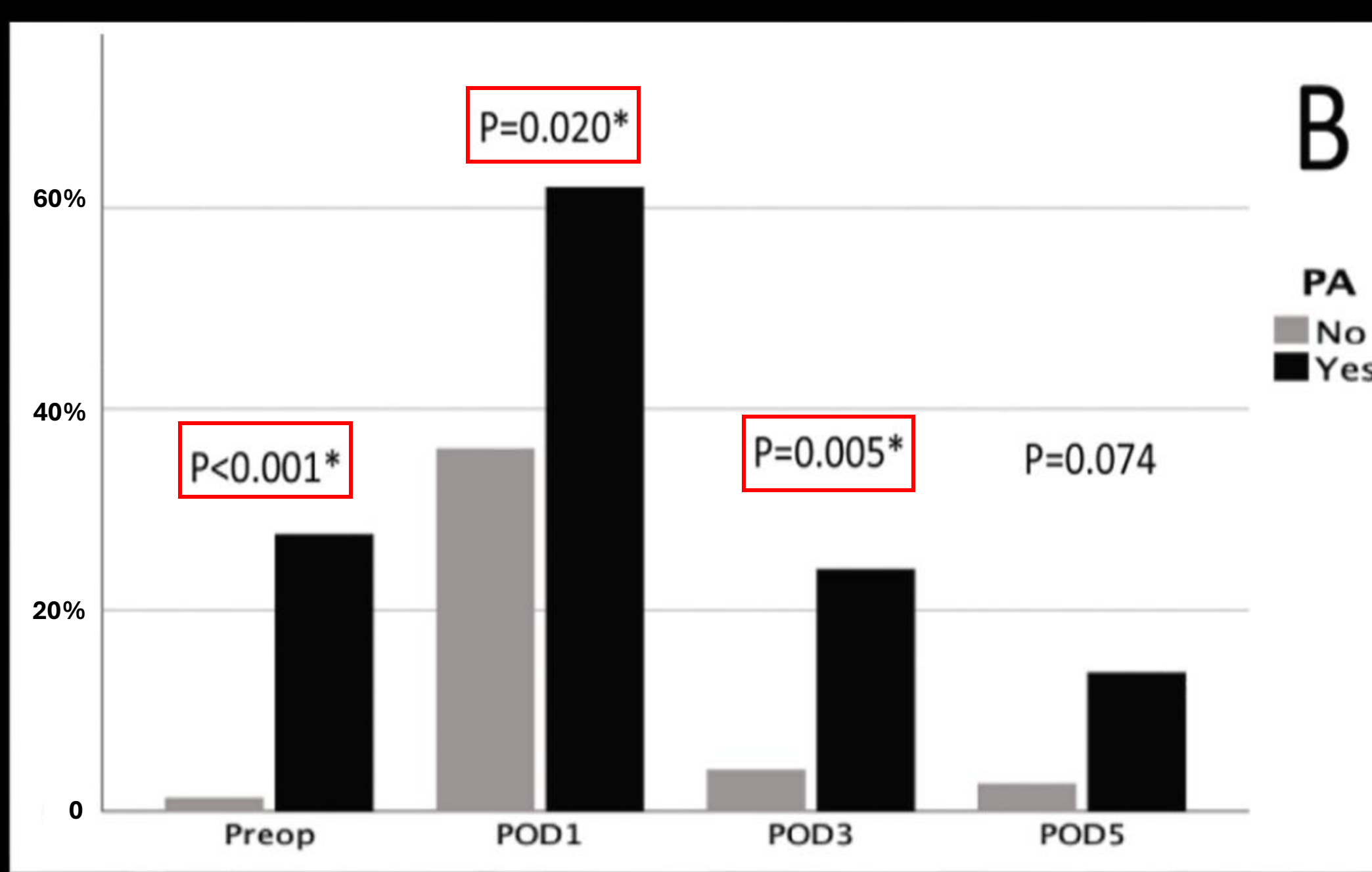
Patient Characteristics:

- 105 LT recipients, median age: 53 years, 37% female
- Median MELD-Na: 24
- 86% of LTs were donation after brain death
- PA group had higher pre-op MELD-Na (p=0.024), higher donor AST (p=0.027), creatinine (p=0.044), lower donor INR (p=0.043)

Postoperative Findings

- Significantly greater drain output on POD 1 – 7 in PA group
- Significantly decreased MA on POD5 in PA group (Fig. 2A)
- Larger proportion of patients with PA receiving platelet transfusions at baseline and on POD 1 and POD3 (Fig. 2B)

Figure 2B. Percent Patients Receiving Platelet Transfusion



- Patients with PA had a 24.5 higher adjusted odds of receiving platelet transfusions preoperatively (p= 0.006).
- Patients with PA had significantly greater odds of having higher MELD-Na score and lesser odds of have MA greater than 40mm postoperatively
- Patients with PA had:
 - Significantly longer hospital days [17 (14–47) vs 10 (7–17) P < 0.001]
 - Higher rates of intraabdominal infection (10% vs 1% p = 0.011), and
 - Higher but non-significant rate of graft loss (17% vs 9% p = 0.247).

Conclusions & Future Directions

- PA occurs in ~28% of LT patients and is linked to platelet dysfunction.
- Pre-op platelet transfusion is a key predictor of PA.
- Combination of pre/post-op factors predicts PA risk.
- Future studies should evaluate the impact of platelet transfusions on PA incidence and balance benefits vs. thrombosis risk.

References

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Figure 2A. Median Maximum Amplitude (MA)

