

## LETTER TO THE EDITOR

# Reply: Viability assessment and transplantation of fatty liver grafts using end-ischemic normothermic machine perfusion

To the editor,

We would like to thank Tsai and colleague for their interest in our study on end-ischemic normothermic machine perfusion (MP) for transplantation (LT) of fatty liver grafts<sup>[1]</sup> and expand on some points they raised.

First, we agree on the importance of recipient factors as determinants of LT outcomes. In our practice, high-risk grafts are normally allocated to size-matched low-Model for End-stage Liver Disease recipients with HCC and limited additional comorbidities. Therefore, graft dysfunction accounts for much of LT morbidity. However, selecting the “ideal” recipient might not always be possible, and we do believe that recipient factors are an integral part of the viability assessment. Donor-recipient matching is a fine art, and avoiding overlapping of donor, logistical, and recipient risk factors is an exercise that transplant professionals are familiar with. MP data should integrate rather than replacing the process of organ offer evaluation and matching to the appropriate recipient.<sup>[2]</sup> The interplay between donor, recipient, logistical, and MP data generates a risk assessment based on a continuous scale, whereas the decision to accept an organ is binary and thus depends on the definition of acceptable risk.





Recipient factors are also potential confounders in MP trials. Retrospective studies should take baseline recipient characteristics into due consideration.<sup>[3]</sup> Also, in randomized controlled trials, accidental imbalance in recipient factors could skew outcomes and should be controlled by appropriate randomization techniques. The alternative would be excluding some classes of recipients and limiting the translatability of findings to everyday clinical scenarios.

Second, we agree on the importance of longer follow-up. In our study, we chose to focus on short-term outcomes because fatty grafts are usually problematic early after LT. However, this might represent a limited perspective, which leads to the problem of study design and end points.<sup>[4]</sup> How long should patients be followed up, and which end points should be evaluated? As LT outcomes are already excellent, a study targeting graft survival would be impractical and require a prohibitive sample size. Given the timing of most

ischemia-reperfusion injury–related complications, evaluating 1-year arterial and biliary complication-free survival<sup>[5]</sup> could represent a good compromise between feasibility and clinical significance.

## CONFLICTS OF INTEREST

The authors have no conflicts to report.

Damiano Patrono<sup>1</sup>   
 Riccardo De Carlis<sup>2</sup>   
 Luciano De Carlis<sup>2</sup>   
 Renato Romagnoli<sup>1</sup> 

<sup>1</sup>General Surgery 2U—Liver Transplantation Center,  
 AOU Città della Salute e della Scienza di Torino,  
 Turin, Italy

<sup>2</sup>Department of General Surgery and Transplantation,  
 ASST Grande Ospedale Metropolitano Niguarda,  
 Milan, Italy

## Correspondence

Damiano Patrono, General Surgery 2U—Liver  
 Transplant Center, A.O.U. Città della Salute e della  
 Scienza di Torino, University of Torino, Corso Bramante  
 88-90, 10126, Torino, Italy  
 E-mails: [damiano.patrono@unito.it](mailto:damiano.patrono@unito.it); [damiano.patrono@gmail.com](mailto:damiano.patrono@gmail.com)

## ORCID

Damiano Patrono  <https://orcid.org/0000-0002-4096-4504>

Riccardo De Carlis  <https://orcid.org/0000-0003-3697-1653>

Luciano De Carlis  <https://orcid.org/0000-0002-9133-8220>

Renato Romagnoli  <https://orcid.org/0000-0001-8340-8885>

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**Abbreviations:** LT, liver transplantation; MP, machine perfusion.

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