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### Reply

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# Reply

## TO THE EDITOR:

We appreciate the comments of Ikegami et al. with regard to our recent study. Ikegami et al. pointed out that the use of a left liver graft (LLG) in living donor liver transplantation (LDLT) could be a good option with portal flow modulation (PFM). First, there is no doubt that donor safety should be prioritized in LDLT.<sup>(1)</sup> Therefore, the use of an LLG should always be taken into account during pretransplant evaluations. As Ikegami et al. described, the improvements in surgical techniques and patient selection have successfully expanded the indications of LLGs in LDLT. The importance of PFM has been well recognized for successful post-LDLT outcomes.<sup>(2)</sup> Interestingly, the Adult-to-Adult Living Donor Liver Transplantation Cohort Study consortium reported their experience with PFM in 2017, in which the benefits of PFM were not clearly observed.<sup>(3)</sup> However, possible wide variability of the indications of PFM among centers might mask its clinical impact. Therefore, we still agree that appropriate PFM should improve post-LDLT outcomes in selected cases.

In our study, the risk of graft loss (GL) in LDLT patients with ascites who received an LLG was higher than either those who received right livers or those without ascites who received LLGs.<sup>(4)</sup> Of note, the Organ Procurement and Transplantation Network/United Network for Organ Sharing registry does not include detailed data on graft size/weight or PFM. Therefore, we could not evaluate possible associations between posttransplant outcomes and these aspects.

The main message of our study was not necessarily to warn the risk of LLG use, but to emphasize the importance of standardized practice in challenging LDLTs. Based on the findings of our study, excellent LDLT outcomes using an LLG reported from experienced centers might not be reproduced nationwide.<sup>(3,4)</sup> Although higher utility of the LLG should increase transplant opportunities and decrease the risk of complications in living donors, our findings may indicate that the use of an LLG requires sufficient expertise in the pretransplant decision-making process and indications and techniques of PFM. Recipient selection should also be carefully decided because older age, moderate/severe ascites, or life support requirements were found to be risk factors for GL.<sup>(4)</sup> Although the use of an LLG has been increasing in the United States, center-level experience may not be sufficient enough to achieve comparable outcomes to those receiving right liver graft in LDLT.

In terms of donor age and post-LDLT outcomes, our results also showed that older donor age was an independent risk factor for GL.<sup>(4)</sup> Receiving an LLG from an older donor might amplify the risk of GL. The use of an LLG should be determined judiciously, especially in older donors.

In summary, an LLG should be used with caution especially in patients with ascites, older age and/or life support requirements. Accumulating experience with the use of LLGs would be important to standardize the practice, including appropriate PFM, which should lead to successful outcomes.

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