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**ARTICLE OF THE MONTH**

Perito, et al. Split Liver Transplantation and Pediatric Waitlist Mortality in the United States: Potential for Improvement. Transplantation. 2019; 103(3): 552-557

**Abstract:**

“**Background.** In the United States, 1 in 10 infants and 1 in 20 older children die on the liver transplant waiting list. Increasing split liver transplantation could increase organ availability for these children, without decreasing transplants in adults. **Methods.** Using United Network for Organ Sharing Standard Transplant Analysis and Research data, we identified livers transplanted 2010 to 2015 that could potentially have been used for split transplant, based on strict criteria. Livers not suitable for pediatric patients or allocated to high-risk recipients were excluded. Number and distribution of potentially “split-able” livers were compared to pediatric waitlist deaths in each region. **Results.** Of 37333 deceased donor livers transplanted, 6.3% met our strict criteria for utilization in split liver transplant. Only 3.8% of these were actually utilized for split liver transplantation. 96% were used for a single adult recipient. Of the 2253 transplanted as whole livers, 82% of their recipients were listed as willing to accept a segmental liver, and only 3% were listed as requiring a cold ischemia time less than 6 hours. Over the same 5 years, 299 children died on the waitlist. In every United Network for Organ Sharing region, there were more potentially “split-able” livers than pediatric waitlist deaths. Thirty-seven percent of pediatric waitlist deaths occurred at transplant centers that averaged 1 or less pediatric split liver transplantation annually during the study period. **Conclusions.** This comparison, although not conclusive, suggests that we might be missing opportunities to reduce pediatric waitlist mortality without decreasing access for adults—using split liver transplant. Barriers are significant, but further work on strategies to increase split liver transplant is warranted.”

COMMENTS MADE BY CROUCH, CARA MD

**Summary:**

This article was selected from the March 2019 issue of Transplantation, though not directly related to anesthetic management of liver transplant patients, it is vitally important that we are aware of ongoing discussions amongst our surgical colleagues which may change their practice. There has been extensive discussion surrounding this topic lately and a shift in the frequency of split liver transplantation is a possibility in the future. As this article points out, the primary population that this would affect is pediatric patients who are on the waitlist. However, an increase in split liver transplants would impact the adult recipient as well, as they would now be receiving a smaller graft, which can be associated with complications. As transplant anesthesiologists, it is important to understand not only the debate surrounding split liver transplants but also the potential impacts on our patients, both adult and pediatric alike.

This article reviews data to identify potential “split-able” livers that theoretically could increase the availability of grafts for pediatric patients without reducing the number of adult transplant recipients. Criteria for identifying organs which could potentially be split were used to avoid high risk organs from the discussion. The authors found that 11% of the grafts from 2010-2015 met their criteria for potential split liver transplant, given that these would most likely be utilized for pediatric patients, PHS high risk characteristics ruled out 42% of those. This still left 2369 livers (6.3% of total transplants) that had the potential to be “split-able.” The vast majority of these grafts went to adult recipients as whole organs. One of the strengths of this article is the relatively conservative criteria that were used to identify “split-able” livers. In fact, the article highlights that 80% of deceased donor livers that were actually used for split liver transplantation were outside of their criteria.

As this article emphasizes, the number of potential organ splits outnumbers the pediatric waitlist deaths and increased utility of split grafts could drastically reduce, or even eliminate, pediatric waitlist deaths. This opportunity to increase access to organs for the pediatric population without affecting the number of adult recipients indicates we may be seeing many more split liver grafts in the future. The article does point out that it was previously believed that outcomes were worse with split liver transplants in the past, however, recent studies have cited similar graft function and survival. Regardless, there are still complications associated with splitting, including increased ischemic time and an increase in post-operative complications that we need to keep in mind.

**References:**

1. Perito, et al. Split Liver Transplantation and Pediatric Waitlist Mortality in the United States: Potential for Improvement. Transplantation. 2019; 103(3): 552-557

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