

# “Doc, Should I Accept This Offer or Not?”

*Robert M. Merion*

He is a fool who lets slip a bird in the hand for a bird in the bush.

—Plutarch

Every four hours, a patient dies awaiting a liver transplant.<sup>1</sup> This is a stark reality, whether it's your father, your wife, your best friend, or one of your favorite patients. The organ shortage continues unabated, and the quality of the average donor gets worse with each passing year.

It is in this context that patients and transplant professionals are faced with the increasingly difficult decision, in the middle of the night, whether to accept an offer of a donor liver with adverse characteristics, such as advanced donor age, or to eschew that offer and play the odds that another, more desirable, donor liver will be offered before the patient dies or becomes too sick to undergo a transplant with a reasonable expectation of recovery.

In an ideal world, where donor organs are plentiful in relation to the number of waiting candidates, such decisions would not be necessary. But in the real world, these choices are made on a regular basis. A useful examination of these issues is offered in this issue of *Liver Transplantation*.<sup>2</sup> Using Markovian decision analysis, Amin et al.<sup>2</sup> modeled the 1-year survival of candidates who accept a hypothetical expanded criteria donor liver today and compared it to the survival of candidates who refuse the offer and continue to wait for a standard criteria donor.

Conventional wisdom holds that expanded criteria donor livers should not be used for high risk candidates. The theory underlying such advice is that the imperfect function of a transplanted liver will be tolerated poorly by recipients with advanced disease and other comorbidities. Amin et al.<sup>2</sup> aver that such proscriptions are

ill-advised. Indeed, the authors suggest that candidates at high risk of death on the waiting list (model for end-stage liver disease [MELD] score greater than 30) would be wise to accept an expanded criteria donor liver, even if the probability of primary graft failure is very high. Moreover, the authors suggest that patients at low risk of death on the waiting list (MELD 11-20) should also accept expanded criteria donor livers, unless the risk of primary graft failure is upward of 23%.

Many assumptions underlie the modeling, and it is worthwhile to highlight some of them in judging the usefulness of this approach for guiding patient decision making. Let us consider the following: 1) the definition of the expanded criteria liver donor; 2) the definition and outcome of primary graft failure; 3) the use of 1-year survival as an endpoint; 4) limited availability of posttransplant survival data in the MELD era; and 5) assumptions about the availability of standard criteria donor livers.

There is not yet a consensus in the transplant community regarding the definition of an expanded criteria liver donor. The abstract presented by Feng et al.<sup>3</sup> at last year's meeting of the American Association for the Study of Liver Diseases showed that age alone is not a predictor of significantly higher risk of graft failure, with the exception of donors over 70 years of age. Only when factors in addition to age were added did the relative risk of graft failure compared to an ideal organ exceed 1.7. In any event, the acceptance or refusal of an offer of a given donor organ shouldn't be cast as a dichotomous choice between standard and expanded criteria. There is a broad spectrum of donor quality, and the important interactions between and among donor factors and recipient characteristics have not yet been completely elucidated. Expanded criteria donor livers are not all created equally.

Amin et al.<sup>2</sup> defined primary graft failure as a non-functioning graft within 1 month after receiving deceased donor liver transplantation, but also assumed that 25% of cases had spontaneous recovery. This concept is problematic, since the term “nonfunctioning” should imply that either patient death or retransplantation was required. Much of the subsequent results and interpretation depend on the incidence and outcome of primary graft failure. Among the 75% that did not have

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**Abbreviations:** MELD, model for end-stage liver disease.

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spontaneous recovery, it was estimated that 35% would die and 65% would be retransplanted.

In contrast to early graft failure, concerns have recently arisen regarding the incidence of late biliary complications in recipients of less than ideal donor livers. This may ultimately lead to higher rates of long-term allograft failure and death, not to mention the morbidity of biliary strictures; however, patients transplanted in the MELD era have not been followed long enough to generate meaningful inferences from actual data on this point. The authors' use of a second order Monte Carlo simulation provides an elegant way to partially circumvent the sparse posttransplant mortality data available for the MELD era, but doesn't help us with more long-term analysis.

If the use of expanded criteria donor livers does lead to much higher rates of retransplantation, it is conceivable that in the long run the overall number of successfully transplanted recipients could actually be reduced by this practice. And even if the transplantation of a high-risk liver is associated with a better prospect of survival than no transplant for an individual patient, perhaps society has an interest in a minimum absolute survival to ensure optimum use of the scarce supply of donor organs. This is an issue beyond the scope of the article, but one which continues to vex the transplant community.

The article's conclusions rest upon accurate depiction of the subsequent availability of a standard criteria donor liver. This question of availability is of paramount importance to the patient who is considering an offer of an expanded criteria donor liver today. A national average monthly probability of standard criteria donor liver transplant was used, which fails to account for the vast disparities in transplant access across the country, even within categories of MELD score. Further study of this question should include consideration of local transplant rates before the results of this important study can be translated into specific advice for patients awaiting liver transplantation.

Finally, the authors suggest that a major impediment to more widespread use of expanded criteria donor livers is the parochial concern of transplant programs that their publicly-available, center-specific, graft failure and patient mortality rates will be adversely affected by the use of these organs. Presently, a number of donor characteristics are used to generate the expected failure rates by center reported by the Scientific Registry of Transplant Recipients.<sup>4</sup> As the definition of an expanded criteria donor liver becomes accepted, it is possible that separate reporting of results of transplants of such organs could be instituted, as has been done in deceased donor kidney transplantation. Ultimately, as our understanding of expanded criteria donor livers improves, we should be able to better define the kinds of patients and circumstances in which these organs are best used. In the meantime, this article provides useful new insights along the way.

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