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EDITORIAL

Tool Value: The Liver Donor Risk Index 8 Years On

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It has been 8 years since our group introduced the concept of a donor risk index (DRI), a composite measure of the risk of failure of deceased donor livers offered for transplantation.[1] The primary motivation was to provide a quantitative tool to assist transplant professionals in the evaluation of organ offers. Volk et al.[2] clearly demonstrated that physician intuition about risk is often wrong. We felt that the DRI would be an improvement over the intuitive assessment of individual donor characteristics and could provide a particular advantage for the simultaneous evaluation of multiple risk factors when relative importance and counteracting effects may be difficult to discern.

Later analyses of organs actually used for transplantation revealed clear practice patterns in the transplant community: higher risk organs as measured by the DRI were being preferentially transplanted into lower risk recipients. Moreover, contrary to the prevailing opinions of the time, observations about the large transplant survival benefit afforded to candidates with high Model for End-Stage Liver Disease (MELD) scores, even when they received high-DRI organs, led to changes in the liver allocation policy to discourage transplantation for candidates with low MELD scores.[3]

In 2009, the DRI was adapted for kidney donors.[4] For the past several years, a normalized version scaled from 0% to 100%, termed the kidney donor profile index (KDPI), has been available to transplant physicians and surgeons evaluating deceased donor kidney offers on the electronic DonorNet notification system.[5] The new deceased donor kidney allocation system, slated for implementation near the end of 2014, explicitly uses the KDPI as a component of the allocation algorithm. To date, however, the liver DRI has not been incorporated into electronic organ offer notification or used explicitly as a component of organ allocation policy.

It is clear that quantitative measures of donor quality such as the KDPI and the liver DRI are valued by the transplant community. Are they perfect? Certainly not. For example, the liver DRI does not include some factors that are well known to influence outcomes but are not universally available or collected (eg, steatosis). Even though such factors cannot be used in a modified DRI per se, they can be, should be, and are being used every day as additional inputs to the decision-making process. Nobody ever said that the DRI should be used in isolation. According to Feng et al.,[1] "quantitative assessment of the risk of donor liver graft failure using a donor risk index is useful to inform the process of organ acceptance." It is not the entirety of the process.

The liver DRI can, of course, be used for purposes other than the evaluation of organ offers. In this issue of *Liver Transplantation*, Mataya et al.[6] report a survey-based study of transplant providers and focus on the use of the DRI in counseling liver transplant candidates about donor risk. Unfortunately, the survey response rate (partial or complete survey completion) was only 37%, and the authors acknowledge that this may have led to biased results. Nonetheless, the results are interesting and raise important questions about the use and usefulness of the liver DRI.

Nearly two-thirds of the respondents were very familiar with the liver DRI, and this suggests that the dissemination of the concept has been substantial. Approximately 1 in 6 now explicitly include the liver DRI in their discussions with patients, and most of those who do not discuss it as a composite measure mention most or all of its components when they

Abbreviations: DRI, donor risk index; KDPI, kidney donor profile index; MELD, Model for End-Stage Liver Disease.

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discuss risk with candidates. It would have been interesting to learn what differentiates those physicians who include the liver DRI in their discussions from those who do not. Paradoxically, a majority of the respondents reported the belief that the liver DRI does not adequately describe the risk of graft failure or that some factors render it potentially misleading, yet nearly one-half (46%) believed that the inclusion of the liver DRI in patient discussions would improve shared decision making, and less than 25% believed that its inclusion would worsen it. Although the calculation itself may be off-putting to some, other similarly complex equation-based scores such as the MELD score and the KDPI have been made widely available and have been embraced. In liver transplantation, the MELD score is now discussed regularly with patients and families without undue reservations about scientific complexity.

There are other questions about the liver DRI that remain unanswered. We do not know what proportion of transplant physicians and surgeons currently use the liver DRI in organ acceptance decisions or would do so if it were available on DonorNet. In their survey, the authors did not inquire about the use of liver DRI calculators, although examples are available online[7] and as a downloadable smartphone application.[8] The liver DRI is like any other tool: you need to invest the effort to learn how to use it effectively.

Finally, we do not know what our patients—those really accepting the risk—want to know. Patient-centered research has the potential to dramatically improve our ability to provide helpful, meaningful, and timely information to those who entrust their lives and health to us. Carefully designed, scientifically sound studies evaluating the role of tools such as the liver DRI in these settings would go a long way to answering the question.

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