Challenges in Organizing a Transplantation System

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Over the years liver transplantation (LT) has become the mainstay of treatment for the multitude of patients with end-stage liver disease. Unfortunately, it has also become a victim of its own success, because the improved results of LT have led to a significant increase in the number of patients on the liver transplant waiting list, while the number of liver transplants does not show a proportionate increase; the result of this is more than 2,000 patients dying each year on the waiting list, awaiting a LT [1]. This underscores the need for a fair and balanced allocation system, whereby priority is given to the sickest people on the waiting list, rather than to whoever has been waiting the longest. The result was the adoption of the model for end-stage liver disease (MELD) score, which has shown the ability to predict mortality on the waiting list in a reliable manner [2, 3]. Despite the reports confirming the efficiency of the MELD system for LT allocation in the US and several European countries, its predictive power should not be taken for granted in countries with special circumstances, such as developing countries, where there is a confounding variable of limited resources, even more so with the current global economic challenges. Romania is representative of these special circumstances given the economic situation, the existence of a single liver transplant center for a population of over 21 million people, the small number of donors per million population (2.2), and the very high number of liver-related deaths (close to 6,000) [4].

In the paper *Dynamics of the Romanian waiting list for liver transplantation after changing organ allocation policy* the authors present the results of their strategy to improve transplantation in Romania [4]. The cornerstone of that strategy has been adopting a change in the allocation system, by introducing the MELD system in the only transplantation center in Romania, and comparing the time periods before and after. This change in the allocation policy was also accompanied by a multi-pronged strategy, which included the use of a review-board for cases where MELD score might not predict the prognosis, improved and coordinated management of the non-urgent cases on the waiting list to avoid destabilization of the liver function, the use of bridging therapy in patients with hepatocellular carcinoma (HCC), an increase in the number of adult living-related liver transplantation procedures, an increase in the use of extended-criteria or marginal grafts, with the overall goal being the better matching of donors and recipients, so as to expedite the allocation system [4].

With this aggressive approach, the authors and their team were able to decrease the time on the waiting list by 75%, while, at the same time, transplanting an increased number of patients with more advanced liver disease, given the higher MELD scores and Child-Pugh class [4]. Another way of increasing the number of LTs, especially for patients with HCC, was the use of extended criteria donors for patients with HCC and moderate disease severity, defined by the authors as MELD <14. The most striking fact and impressive result is the decrease in the waiting list mortality after 2008 and the new allocation policy, despite the increased severity of the liver disease of the patients listed and transplanted. The authors attribute this to the increased number of donors (deceased and living), which was the result of an aggressive campaign on education regarding liver donation, as well as to the use of extended criteria donors, especially for patients with HCC.

As impressive as these results are, there are still issues that need to be addressed. The first one is the understanding that the MELD score is a useful predictor of death on the waiting list, but not necessarily of survival after the LT [5, 6]. This is a finding corroborated by the authors, where they reported in the discussion that they had not seen a worsening survival, despite transplanting patients with more advanced liver disease

given the higher MELD score in the second time period. The reason for this is that the MELD score has to be factored in an equation together with the quality of donors and other comorbidities, when it comes to assessing survival. Another point is the question of allocation of extended criteria grafts. Conventional wisdom would argue that marginal grafts may be best used in patients with a lower MELD score, that would be in a better position to handle the challenge of a higher-risk organ. This is a practice followed by the authors in their increased use of marginal grafts. However, the available literature may not always support this, given the fact that the actual comparison should be between survival after receiving such a graft, versus not receiving a transplant at all. There have been analyses showing that higher-MELD patients may experience improved survival even after receiving a higher-risk liver graft, whereas patients with a lower MELD score may have poorer outcomes when receiving an extended criteria organ [7, 8]. The key to identifying the best strategy for allocation may lie in the definition of what constitutes an extended criteria organ, and unfortunately there is no consensus available at this point on this very important issue [9-11]. Given this, the existence of a donor information database becomes critical, so that data can be collected prospectively to identify and quantify the risk associated with these extended criteria donors.

Overall, the paper by the group at the Digestive Disease and Liver Transplantation Center at the University of Medicine and Pharmacy in Bucharest, Romania, represents a well-coordinated effort on multiple fronts, with the goal of improving liver allocation and liver transplantation in Romania in the very challenging times that we leave in, and for that reason it deserves high praise.

Conflicts of interest: None to declare

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