

## Expanded donor criteria in kidney transplantation: a suitable option to increase the donor pool in Brazil?

Transplante renal com doador de critério expandido: uma alternativa adequada para aumentar o *pool* de doadores no Brasil?

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Because of the disproportion between supply and demand for kidneys for transplantation, the use of expanded criteria donors (ECD) significantly increased over the past years<sup>1</sup>. Recently, a Brazilian center reported that 35% of deceased donors transplants are performed with ECD<sup>2</sup>, similar to European countries and significantly higher than US reports (17%)<sup>1</sup>. Evidences show that ECD transplantation provides better patient survival when compared to remaining on dialysis<sup>1</sup>. However, discard rates of these organs are still substantial<sup>1</sup>. To improve the binary classification on ECD or standard criteria donor (SCD), Kidney Donor Risk Index (KDRI) and Profile Index (KDPI) was proposed. This scoring system is based on multiple donor and transplant characteristics in a graduated evaluation of donor quality<sup>3</sup>.

In this issue of BJN, Mota and colleagues<sup>4</sup> present results from a retrospective comparison of 24 renal allograft recipients who received ECD kidneys and 231 who received SCD. As a result, patients in ECD group presented inferior renal function (glomerular filtration rate at 12 months: 56.8 *vs.* 76.9 mL/min,  $p = 0.001$ ). There was no difference in 1-year death censored graft survival (90.5 *vs.* 94.6%,  $p = 0.452$ ). Graft survival was also similar when authors compared kidneys with KDPI above 85% to those below 85% (88.2 *vs.* 90.8%,  $p = 0.769$ ).

Of note, only 37.5% of ECD kidneys were submitted to preimplantation biopsies and this did not affect the good results in a short term. In fact, the role

of preimplantation biopsy has been discussed. There is no clear association between chronic biopsy findings and outcomes<sup>1</sup>. However, since deceased donors are often kept in inadequate hemodynamic conditions in Brazil, preimplantation biopsies can provide important information on acute lesions associated with poor maintenance. Therefore, the decision on the routine preimplantation biopsy performance should be cautious, since it can delay the process, increasing cold ischemia time.

Authors also showed that patients who received ECD presented higher early mortality (12.5 *vs.* 3%,  $p = 0.023$ ). It is probably that this is, at least partially, a result of recipient profile: older (53 years in ECD *vs.* 43 years in SCD group) and with more comorbidities (hypertension and diabetes as chronic kidney disease etiology: 25% and 8.3%, respectively, in ECD *vs.* 16.5% and 5.6%, respectively, in SCD group). An analysis of the risk factors associated with mortality should be useful. The higher incidence of early mortality after ECD transplant has been previously reported. The relative risk of death in the first days after kidney transplant is greater than remain on dialysis and progressively decreases, becoming similar about 100 days after SCD and 200 days after ECD transplantation<sup>5</sup>.

In fact, ECD transplantation emerged with the purpose of increasing donor pool and benefit patients with high mortality on waiting list, that is, long time on dialysis, diabetics, and elderly. However, this is not a consensus, and these patients are certainly more vulnerable to insults

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inherent to this transplant (higher incidence of delayed graft function and acute rejection, and longer hospital stay)<sup>1</sup>.

To understand the demographics of the study population, it is necessary to know some peculiarities of the region where the study was conducted: Ceará, located in the Northeastern of Brazil, ranks among the Brazilian states with the highest rates of effective donors (23.5 pmp *versus* 14.1 pmp in Brazil) and kidney transplants (29.9 pmp *versus* 27.4 pmp in Brazil). This results in the preference of transplant centers staff and patients to perform transplants with deceased (90.6% *vs.* 79% in Brazil) and SCD donors (90.6% *vs.* 65% in Brazil), exporting a significant percentage of ECD kidneys to other states<sup>6</sup>.

Mota and colleagues results show that ECD donors appear to be a suitable option to increase donor pool. Of note, despite the high number of annual transplants performed by the State, it meets only 49% of demand, and it is possible that the real demand be higher, since only 11% of patients on dialysis in Ceará are active on waiting list (*vs.* 18% in Brazil) and we expect at least 30% of patients on dialysis should be listed for transplantation<sup>6</sup>.

The methodological limitations of the study do not allow a definitive answer on the use of ECD for Brazilian patients, who has peculiarities. To definitively address this issue, it is necessary long-term studies comparing a significant sample size of Brazilian patients receiving ECD with those who remain on dialysis. Besides, it is worth mentioning that the classification on ECD or SCD and KDPI score were not validated in our population.

While we have not a definitive answer, the available data leads us to believe that ECD transplants should be considered, even in regions with high performance in organ donation, such as Ceará. It remains unclear which patients should receive these organs. Specific allocation models have been proposed, with good results and reduction in discard rates. The most traditional model is the European Eurotransplant Senior Program, where donors of 65 years and older are allocated to recipients of 65 years and older, without considering HLA typing<sup>1</sup>. Since a short cold ischemia time is crucial to ECD transplants success, it is possible that Brazilian allocation model based on HLA compatibility are not ideal for these transplants.

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