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IS THE KIDNEY DONOR PROFILE INDEX (KDPI) UNIVERSAL OR UNOS-SPECIFIC?

Burcin Ekser, MD, PhD¹, John A. Powelson, MD¹, Jonathan A. Fridell, MD¹,
William C. Goggins, MD¹, Tim E. Taber, MD²

(1) Transplant Division, Department of Surgery, Indiana University School of Medicine, Indianapolis, IN, USA; (2) Division of Nephrology, Department of Medicine, Indiana University School of Medicine, Indianapolis, IN, USA

Address correspondence to:

Burcin Ekser, MD, PhD

Transplant Division, Department of Surgery

Indiana University School of Medicine

550 University Blvd, Room 4601

Indianapolis, IN, 46202

Telephone: 317-948-3835; Fax 317-968-1254

Email: bekser@iupui.edu

With the introduction of the KDPI scoring system on June 2013, allocation of kidney allografts and predicted outcomes in the United Network for Organ Sharing (UNOS) have changed. Although the hope was to reduce the discard rate of ‘marginal’ or ‘extended criteria donor (ECD)’ kidneys allocating them in a better way, the discard rate did not differ compared to the ECD era [1]. The transplantation community continues to seek ways to improve kidney allocation in order to provide acceptable (or even better) outcomes using the most possible deceased donor kidneys reducing the discard rate. One way to boost the use of higher risk kidneys is allocating them as dual kidney transplantation (DKT) [2]. DKT could

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provide increased nephron mass and therefore better expected outcomes compared to single use of ECD kidneys. However, transplant physicians seek to improve allocation of ECD kidneys as two single kidneys instead of DKT in order to expand the donor pool [3].

Most recently, a multicenter controlled study showed that kidneys procured from donors >80 years old could be allocated as single or DKT after a pre-transplant biopsy assessment despite their calculated KDPI scores (96-100%). The study provided comparable outcomes as single standard criteria kidney transplantation up to 7 years with the use of kidneys which had KDPI >96% [4]. Those kidneys may have been discarded by a UNOS center based on their KDPI scores [1]. The recent publication by Ruggenenti et al. [4] prompted us to look back at a publication by Ekser et al. [5] in 2010 and calculate the KDPI of 100 ECD donors with a mean age of 72, transplanted as DKT. The calculated KDPI scores using the online calculator (Fig.1) was $96.9 \pm 3.4\%$ [5]. 56% of donors had a KDPI of $\geq 98\%$. Only 4 (4%) patients had a KDPI of 90% or less (Fig.1). Based on the KDPI calculation from Ekser et al's publication [5], >80% of those kidneys may have been discarded by a UNOS center. However, 5-year graft survival was recorded 91% using 100 ECD kidneys with a mean KDPI score of 97% (Fig.1) [5].

With more data becoming available on the use of ECD kidneys with KDPI scores >90% with comparable outcomes to single standard kidney transplantation, we wonder whether the kidney allocation based on the KDPI score and predicted outcomes is optimal for both organ utilization and recipient outcomes. Another approach could be performing pre-transplant kidney biopsies on higher KDPI kidneys (>90%) and allocate them based on the biopsy score (which should be read by a renal expert pathologist, though this could be challenging in many areas) rather than the KDPI score. Randomized studies using both criteria will be helpful to understand the real value of the KDPI score in higher risk kidneys (i.e. KDPI of >90%) and would answer the question whether the KDPI is universal or UNOS-specific, keeping in mind that recipient factors may be as important as donor factors. We believe that

the impact of pre-transplant kidney biopsies on higher KDPI scores would only be positive expanding the donor pool and providing better outcomes.

Disclosure

The authors of this manuscript have no conflicts of interest to disclose as described by the American Journal of Transplantation.

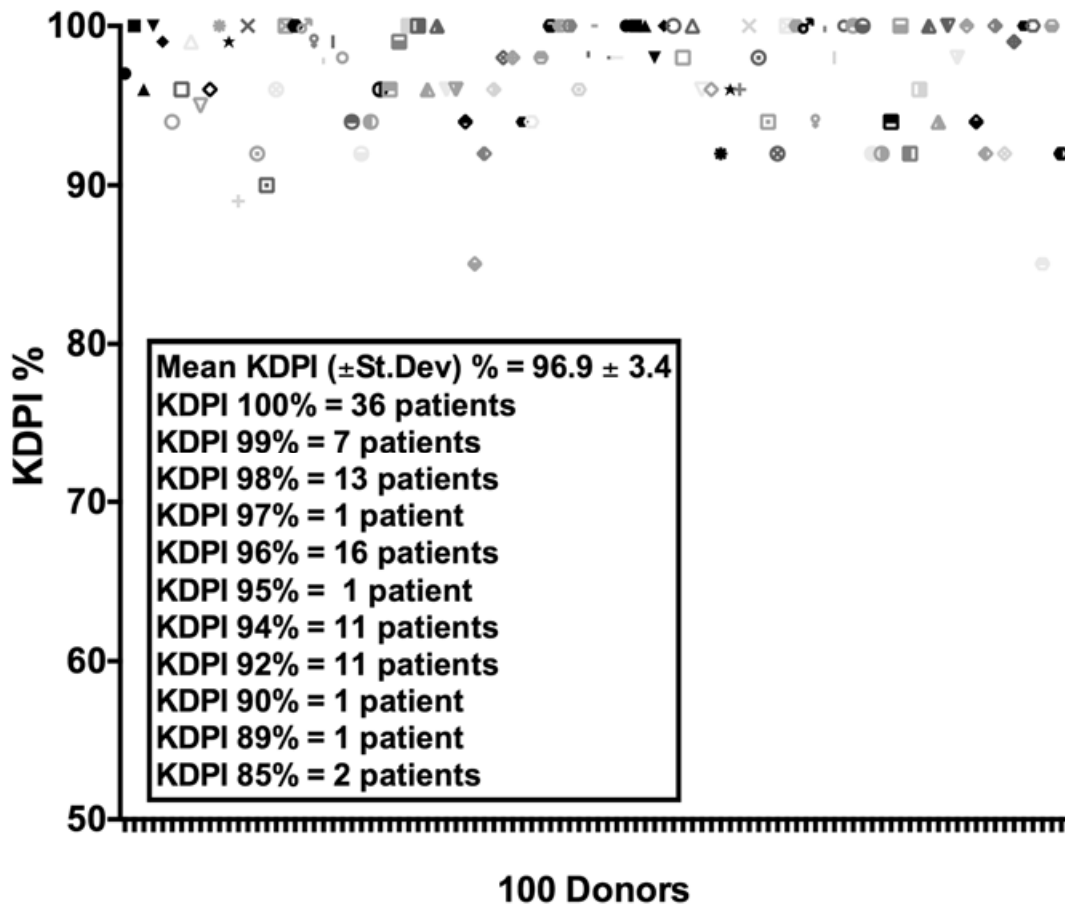
Figure Legend

Figure 1: Distribution of the kidney donor profile index (KDPI) of 100 extended criteria donors used for renal transplantation. The data were extracted from previously published article by Ekser et al [5]. The KDPI was calculated using the Organ Procurement and Transplantation Network's KDPI Calculator (<https://optn.transplant.hrsa.gov/resources/allocation-calculators/kdpi-calculator/>). All kidneys were transplanted and 5-year graft survival was 91% [5].

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Legend: The data were extracted from previously published article by Ekser et al [5]. The KDPI was calculated using the Organ Procurement and Transplantation Network’s KDPI Calculator (<https://optn.transplant.hrsa.gov/resources/allocation-calculators/kdpi-calculator/>). All kidneys were transplanted and 5-year graft survival was 91% [5].