Analysis of the donor's serum creatinine timing appropriate for Kidney Donor Profile Index scoring to predict postoperative renal function in deceased donor renal transplant

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Background: The Kidney Donor Profile Index (KDPI) scoring system for deceased donors (DD) is widely used in the assessment of postoperative evaluation of graft function. In managing DDs, the renal function including serum creatinine (sCr) is constantly changing. There are no comments on when KDPI using sCr reflects postoperative graft function well.

Methods: Eighty-five DDs managed by donor management program between March 2012 and February 2019 were reviewed retrospectively. sCr of DDs for KDPI score were selected at admission, peak and last (just before surgery). Recipient's data included slow graft function (SGF), delayed graft function (DGF) episodes, and sCr after postoperative 1 year (1Y). Correlations between KDPI score (admission, peak, last) and graft function (SGF, DGF, sCr 1Y) were analyzed with receiver operating characteristic (ROC) and Pearson correlation.

Results: The mean ages of DDs and recipients were 49.22 ± 13.23 and 51.89 ± 10.03 years and mean KDPI in admission, peak and last were 62.41 ± 26.76 , 67.24 ± 25.77 , and 63.95 ± 27.40 . After transplant, SGF in 26 recipients (18.9%) and DGF in 13 (14.4%) were noted. For SGF, the area under the ROC (AUROC) curves of KDPI admission, peak, last were 0.631 (95% confidence interval [CI], 0.503–0.758; $P=0.056$), 0.617 (95% CI, 0.491–0.743; $P=0.087$), and 0.641 (95% CI, 0.519–0.763; $P=0.039$). For DGF, the AUROC curves of KDPI admission, peak, last were 0.691 (95% CI, 0.526–0.856; $P=0.029$), 0.665 (95% CI, 0.498–0.831; $P=0.060$), and 0.686 (95% CI, 0.527–0.845; $P=0.033$). KDPI admission, peak and last correlated well with sCr 1Y ($R=0.511, 0.489, 0.488$).

Conclusions: KDPI last for predicting SGF and KDPI admission for DGF and sCr 1Y were more effective in DDs renal transplantation.

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