Effects of the type of intraoperative fluid in living donor kidney transplantation: a single-center retrospective cohort study

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Background: Perioperative fluid management in kidney transplant recipients is crucial for fluid, acid-base, and electrolyte balance required for graft perfusion. However, the choice of intraoperative crystalloids in kidney transplantation remains controversial. We conducted a single-center retrospective cohort study to evaluate the impact of intraoperative fluid choice on acid-base and electrolyte balance and graft outcomes.

Methods: We included 282 living donor kidney transplant recipients from January 2010 to December 2017. Patients were classified into two groups based on the type of intraoperative crystalloids (157 half saline and 125 balanced crystalloid solutions, Plasma-lyte).

Results: The Plasma-lyte group showed less metabolic acidosis and hyponatremia occurrence during the surgery. Hyperkalemia incidence was not significantly different between groups. Change in postoperative graft function assessed by blood urea nitrogen and creatinine was also significantly different. Patients in the Plasma-lyte group exhibited consistently higher glomerular filtration rates than those in the half saline group at 1 month and 1 year after transplantation after adjusting demographic differences.

Conclusions: Intraoperative Plasma-lyte can lead to more favorable results in terms of acid-base balance during kidney transplantation. Patients who received Plasma-lyte showed superior postoperative graft function at 1 month and 1 year after transplantation. Further studies are needed to evaluate the superiority of intraoperative Plasma-lyte over other types of crystalloids with regards to graft outcomes.

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