Effect of preoperative dialysis on intraoperative hemodynamics during living donor kidney transplantation

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Background: End-stage renal disease patients on dialysis typically have an advanced disease status and many cardiovascular complications. We aimed to compare the intraoperative hemodynamics between non-preemptive (with preoperative dialysis) and preemptive (without preoperative dialysis) recipients of living donor kidney transplantation (LDKT).

Methods: This was a single center retrospective study. The recipients of LDKT were included and all data were collected by electronic medical record. Recipients were divided in two groups: preemptive and non-preemptive kidney transplantation. After comparing the potential risk factors between two groups, we performed a propensity score-matching analysis to reduce the differences of baseline characteristics. The primary outcome was intraoperative hemodynamic events such as the prevalence of the intraoperative hypotension; electrolyte; frequency of inotropes or vasopressors use; and acid-base status. Secondary outcome was immediate graft function by nadir creatinine (Cr), time to nadir Cr. Estimated blood loss, surgical time, postoperative bleeding and re-operation were also investigated.

Results: We analyzed data from 541 patients after propensity score matching: 388 and 153 patients in non-preemptive and preemptive groups, respectively. The multivariable analysis revealed the AUT of the preemptive group was significantly greater than those of non-preemptive group at thresholds absolute 70 and more inotropes and vasopressors were administered to the preemptive group. Furthermore, base excess in the preemptive group was lower than non-preemptive group. Postoperative nadir Cr concentration, the time to nadir Cr were not different between two groups significantly. Estimated blood loss, surgical time, postoperative bleeding, re-operation were also not different between two groups.

Conclusions: Intraoperative hypotension and acidosis occurred more frequently in recipients without preoperative dialysis during LDKT. With this finding in mind, anesthesiologists should prepare for situations where intraoperative hypotension may occur.

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