Immediate postoperative diastolic blood pressure as a prognostic factor in living donor kidney transplantation

Young Jun Park, Sang Kyun Mok, Jang Yong Kim, Sun Cheol Park, Sang Seob Yun

Department of Surgery, The Catholic University of Korea, Seoul St. Mary's Hospital, Seoul, Korea

Background: Avoiding intraoperative hypotension during kidney transplantation (KT) is known to be important for maintaining adequate graft perfusion. On the other hand, poorly controlled chronic hypertension after KT is associated with worse long-term graft outcome. But the effect of blood pressure (BP) immediately after KT is not well established. We investigated the effect of immediate postoperative BP on patient outcome in living donor kidney transplantation (LDKT).

Methods: A retrospective analysis was performed for patients who underwent LDKT between January 2020 and December 2020. Variables included patients' demographics, average systolic blood pressure and average diastolic blood pressure (DBP) at postoperative day (POD) 1. Outcomes were graft functions at 1 and 12 weeks after transplantation and postoperative complication rate.

Results: There were 145 patients included. Multivariate logistic analysis showed that average DBP at POD 1 was an only significant factor associated with graft function at 1 week after transplantation (odds ratio [OR], 0.94; $P=0.02$) and at 12 weeks after transplantation (OR, 0.95; $P=0.04$), with the lower DBP the more likely to have poor graft function. An optimized cutoff of average DBP at POD 1 from receiver operating characteristic curve analysis for the favorable graft function (glomerular filtration rate over 60 mL/min/1.73 m²) at 1 week after transplantation was 79 mmHg (AUC, 0.64; $P=0.01$; Youden index, 0.25), and an optimized cutoff for the favorable graft function at 12 weeks after transplantation was 87 mmHg (AUC, 0.62; $P=0.02$; Youden index, 0.20). Postoperative cardiac and pulmonary complication rates were significantly lower in the high DBP group (DBP over 79 mmHg) than in the low DBP group (DBP under 79 mmHg).

Conclusions: In this study, immediate postoperative DBP was found to be an important prognostic factor in LDKT. And our data suggest that achieving DBP over 79–87 mmHg immediately after KT could be beneficial in terms of graft function and postoperative morbidity.

Corresponding author: Sang Seob Yun

E-mail: ssyun@catholic.ac.kr

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