Intraoperative Pleth Variability Index Is Linked to Delayed Graft Function After Kidney Transplantation.

Collange O(1), Jazaerli L(2), Lejay A(3), Biermann C(2), Caillard S(4), Moulin B(4), Chakfe N(5), Severac F(6), Schaeffer M(6), Mertes PM(7), Steib A(7).

Transplant Proc. 2016 Oct;48(8):2615-2621. doi: 10.1016/j.transproceed.2016.06.046.

BACKGROUND: Delayed graft function (DGF) is an early postoperative complication of kidney transplantation (KT) predisposing to acute rejection and lower graft survival. Intraoperative arterial hypotension and hypovolemia are associated with DGF. Central venous pressure (CVP) is used to estimate volemia but its reliability has been criticized. Pleth variability index (PVI) is a hemodynamic parameter predicting fluid responsiveness. The aim of this study was to examine the relationship between intraoperative PVI and CVP values and the occurrence of DGF.

METHODS: This was a prospective, noninterventional, observational, single-center study. All consecutive patients with KT from deceased donors were included. Recipients received standard, CVP, and PVI monitoring. Intraoperative hemodynamic parameters were recorded from recipients at 5 time points during KT.

RESULTS: Forty patients were enrolled. There was a poor correlation between PVI and CVP values ($r^2 = 0.003$; $P = .44$). Immediate graft function and DGF patients had similar hemodynamic values during KT, with the exception of PVI values, which were significantly higher in the DGF group. In particular, a PVI >9% before unclamping of the renal artery was the only predictive parameter of DGF in our multivariate analysis ($P = .02$).

CONCLUSIONS: This study suggests that PVI values >9% during KT are associated with the occurrence of DGF.