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Outcome of open heart surgery in end-stage renal disease patients

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Objectives: Mortality risk for cardiovascular disease is extremely high in ESRD patients. Nevertheless, dialysis patients are often undertreated due to the higher risk of operation or intervention compared to the general population. However, there are few studies comparing postoperative mortality and morbidity between dialysis and non-dialysis patients in Korea.

Methods: A retrospective analysis of 2432 patients who underwent open heart surgery from 2002 to 2017 was performed to determine the mortality and morbidity after cardiac surgery in dialysis patients. Of total patients, we obtained comorbidities, NYHA classification, laboratory data, surgical method and postoperative outcomes from the two groups; dialysis group consisting of 38 patients with ESRD undergoing maintenance dialysis and control group consisting of 78 age-, sex-, and status of diabetes- matched control with normal kidney function.

Results: Dialysis group showed significantly higher postoperative mortality rate compared to the control group (18.4% versus 2.6%, $P = 0.005$). Dialysis group presented with more comorbidities, worse NYHA classification of heart failure than control group. Urgent operation was more frequent in dialysis group (68.4% vs. 32.1%, $P = 0.000$), but there were no differences in the type of procedure between both groups. The postoperative hospitalization and time in ventilator were significantly increased in dialysis group (OR 4.631, $P = 0.034$; OR 7.617, $P = 0.002$). However, there were no significant difference in complication rate including rate of pneumonia, sepsis, stroke, wound infection, arrhythmia, bleeding, heart failure, except pulmonary edema and postoperative CRRT.

Conclusions: Dialysis patients showed higher in-hospital mortality rate compared to the control patients. The duration of postoperative hospitalization and time in ventilator were significantly increased in dialysis group. In dialysis patients, various comorbidities as well as dialysis itself may have contributed to the increase in hospital mortality. However, postoperative complications related to surgery were not significantly different between the two groups.