관상동맥우회수술 환자에서 에리쓰로포이에틴의 급성신손상 예방효과

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Prevention of Acute Kidney Injury by Erythropoietin in Patients Undergoing Coronary Artery Bypass Grafting

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Introduction : Acute kidney injury (AKI) occurs in 7% to 40% of patients undergoing cardiac surgery, depending on the definition of AKI used. Even small increments in serum creatinine have been shown to be associated with increased mortality after cardiac surgery. However, there are no proven interventions to prevent AKI after cardiac surgery. Erythropoietin (EPO) has been shown to have tissue- protective effects in various experimental models. In this prospective placebo- controlled randomized trial, we evaluated the effectiveness of EPO in the prevention of AKI after coronary artery bypass grafting (CABG).

Methods : 71 patients scheduled with elective CABG were prospectively randomized to receive either 300 IU/kg of EPO or saline intravenously before surgery. AKI was defined as a 50% or greater increase in serum creatinine from baseline within the first five postoperative days. Estimated glomerular filtration rate (eGFR) was calculated by the abbreviated Modification of Diet in Renal Disease (MDRD) equation.

Results : Thirteen of 71 patients developed postoperative AKI: 3 of the 36 patients in the EPO group (8.3%) and 10 of the 35 patients in the placebo group (28.6%; p=0.035). In the placebo group, the mean eGFR decreased significantly (p=0.002), from 72.9±26.3 to 60.1±21.9 ml/min/1.73m2 after CABG, whereas in the EPO group, the mean eGFR was not changed (p=0.057), from 66.5±17.5 to 61.0±20.3 mL/min/1.73m^2.

Conclusion : Prophylactic administration of EPO prevents AKI in patients undergoing CABG.

Key Words : 급성신손상, 에리쓰로포이에틴, 관상동맥우회수술
Acute kidney injury, Erythropoietin, CABG