THE DIAGNOSTIC VALUE OF THE URINE TOTAL PROTEIN/ CREATININE RATIO OF CARDIOSURGICAL PATIENTS

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The aim of idea: To investigate the diagnostic value of the "total protein /creatinine ratio" in the urine of patients operated with cardiopulmonary bypass (CPB).

Methods. The study involved 150 patients who were operated on the heart and aorta. Group 1 (n=50) included patients under coronary artery bypass grafting, group 2 (n=40) – valve replacement surgery, group 3 (n=60) – patients under thoracic or abdominal aorta operating. The concentration of total protein (g/l), creatinine (g/l) were estimated before surgery in the urine. We calculated the ratio of the total protein concentration to creatinine concentration (P/C) and the change of this index (ΔP/C) at the end of operation and at 1 day after surgery as ΔP/Kpostop = (P/Cpostop – P/Cpreop) / (P/Cpreop) and ΔP/Cday1 = (P/Cday1 – P/Cpreop) / (P/Cpreop).

Results. Before the surgery, the concentration of total protein and creatinine in the urine, the ratio P/C between the groups were not significantly different. At the end of the operation ΔP/Cpostop was highest in Group 2 ($p<0.05$) and in groups 1 and 3 – did not differ among themselves. When the CPB duration to 60 and 90–120 minutes ΔP/Cpostop was 2 times less than in the CPB time 60–90 and over 120 minutes. Increasing the time of the aortic clamping followed by a linear increase ДР/Cpostop. The hypothermic CPB associated with a significantly larger values of ΔP/Cpostop. At 1 day after surgery ΔP/Cday1 changes were highest in group 2 ($p<0.05$ compared to groups 1 and 3). Effect of CPB time and temperature of perfusion ΔP/Cday1 was the same as at the end of the operation. However, significant changes were noted ΔP/Cday1 for aortic cross-clamping time over 120 minutes. The use of dopamine in doses of 2 and 4 ng/kg/min resulted in a dose-dependent protective effect: ΔP/Cpostop for a dose of 2 ng/kg/min – 2,419±0,984, 4 ng/kg/min – 0,900±0,102, without dopamine – 9,796±3,259, respectively ΔP/Cday1 – 1,239±0,652, 0,721±0,121 and 3,280±1,322. The use of tranexamic acid during the operation was associated with a significantly higher ΔP/Cpostop and ΔP/Cday1 than the use of aminocaproic acid.

Conclusion. The use of urine ΔP/C is a highly informative indicator of renal function at of stages cardiosurgical treatment capable of evaluating the effect of the conditions of operation and the use of drugs in the kidney.