Low-dose prostacyclin preserves renal function in high-risk patients after coronary bypass surgery


Objective
Postbypass renal failure is still a threatening problem prolonging hospital care and reducing overall survival. The following study was aimed to analyze whether perioperative low dose prostacyclin infusion is able to preserve renal function in a selected group of patients who according to a poor cardiac function were stratified as high risk for the development of a postbypass renal failure.

Design
Prospective randomized study.

Setting
Tertiary care university medical center.

Patients
Thirtyfour patients scheduled for primary cardiac bypass surgery were included in the study (prostacyclin n=17, control n=17). Inclusion criteria were normal renal function prior to surgery and a cardiac ejection fraction below 40%.

Intervention and main results
Low dose prostacyclin (2 ng/kg/min) was added to the standard anesthetic protocol. Infusion was started immediately prior to surgery and was continued for a maximum of 48 hours. Significant differences in the endogenous creatinine clearance (CCr) between the prostacyclin and the control group were found. While there was a significant drop in the CCr at 6 hours after surgery in the control group with a prolonged recovery period, values in the prostacyclin group remained stable. CCr prior to intervention was 100 ± 22 ml/min in the control and 91 ± 22 ml/min in the prostacyclin group, values at 24 hour were 68 ± 34 ml/min versus 103 ± 37 ml/min, respectively (p< 0.01). Significant findings in favor for the prostacyclin group were also found for urine output and the fractional excretion rate of sodium.

Conclusion
Low dose prostacyclin may be of substantial value for preserving renal function in high risk patients following coronary bypass surgery.

Crit Care Med 2002; 30:107