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Timing of cardiac catheterization and acute renal failure after cardiac surgery

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Background & Aim: The incidence of acute renal failure (ARF) after cardiac surgery and the risk of mortality associated with it continues to be high. The aim of this study was to evaluate if timing of cardiac catheterization influences the incidence of postoperative ARF.

Patients & Methods: 408 patients undergoing cardiac surgery were prospectively evaluated. Mean age was 66±10 years, 22% were female, 38% diabetic, 69% had hypertension and 15% had peripheral vascular disease. Preoperative creatinine level and calculated creatinine clearance (Cr-Cl) were 1.05±0.6 and 82±27 respectively. Of the study population 39% underwent surgery within 24h of cardiac catheterization, 30% underwent surgery between the first and fifth day of catheterization, and 31% underwent surgery more than 5 days after cardiac catheterization. Endpoints were ARF, defined as a decrease in the calculated Cr-Cl of 25% or more by the third postoperative day and hospital mortality.

Results: 47% of patients who underwent surgery within 24h from cardiac catheterization have shown a decrease in calculated Cr-Cl of 25% or more, as opposed to 29% in patients who underwent surgery between the 1st and 5th day after catheterization, and 23% in those who underwent surgery more than 5 days after catheterization (p=0.05). Mortality rate among patients who underwent surgery within 24h from catheterization was independently associated with acute renal failure ([OR] 1.9, p=0.02). Preoperative calculated Cr-Cl of less than 60 ml/min and cardiac surgery within 24 hours from catheterization was independently related to hospital mortality ([OR]8, p=0.005).

Conclusion: Cardiac surgery performed within 24 hours from cardiac catheterization is a significant risk factor for acute renal failure, especially among patients with preoperative reduced renal function. Proper timing and patient selection is highly recommended.

Biography

Eyal E Porat is a Professor within the Department of Cardiothoracic and Vascular Surgery of the University of Texas Health Science Center at Houston. He serves as the department's Division Director at St. Joseph Medical Center, Houston, Texas. He has served for 6 years as the Chairman of the Department of Cardiothoracic Surgery at Rabin Medical Center, Petah Tikva, Israel and as the Director of Minimally Invasive Surgery and Director of the Robotics Program, which he established at the Department of Cardiothoracic and Vascular Surgery of the University of Texas at Houston. He also founded The Memorial Hermann Institute for Cardiovascular Research and Robotics Technology where he served as Medical Director. He attended Medical school at Ben Gurion University in Be'er Sheva, Israel and completed his Residency in Cardiothoracic Surgery at Carmel Medical Center, Haifa, Israel. During his residency, he was involved in clinical research at University Hospital "Vrije Universiteit" in Amsterdam, Netherlands. He has conducted academic teaching and research within the Tel Aviv University, Sackler School of Medicine and continues this activity at the University of Texas. His research and clinical interests include aortic surgery, robotic surgery as well as minimally invasive and beating heart coronary artery surgery.

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