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Acute Renal Failure Following Cardiothoracic Surgery

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Acute renal failure (ARF) after cardiothoracic surgery (CTS) is associated with high morbidity and mortality, particularly when requiring hemodialysis. The objective of this study were to assess risk factors for ARF in patients who underwent CTS and did not have end stage renal failure prior to surgery. Data collected was primarily obtained from the database of the Cardiac Surgery Reporting System (CSRS).

Methods: The study of risk factors for ARF utilized a case-control design. The controls were randomly selected and matched by age, sex and date of surgery. There were 61 cases and three controls were selected for each case, leaving a final cohort of 183 patients. The study was based on the records of patients who had undergone CTS at St. Peter's Hospital between 1999 and 2002. The incidence of ARF was based on the use of hemodialysis following surgery.

Results: Among preoperative factors, congestive heart failure and impaired renal function ($\text{Ccr} < 60$) were found to be strongly associated with health risk of ARF (ORs 4.4 and 3.1 respectively). Among surgical characteristics longer bypass time > 120 minutes (OR 1.6) and shorter days (0 - 1 day) between catheterization and CTS (OR 2.5) was found to be associated with an increased risk.

Conclusion: From these data, we can conclude that impaired renal status at baseline and the presence of several other chronic conditions increases risk of ARF. The data suggest that when possible, a longer interval between catheterization and CTS may reduce risk of ARF.

