

Post Cardioversion Renal Failure: An Under-recognized Complication of Atrial Fibrillation Cardioversion.

Hellman, Y; Gozal, D; Haviv, Y; Loncar, S; Haber, G; Afifi, M; Rozenhak, S; Lotan, C; Gilon, D Hadassah Ein-Karem, Jerusalem, Israel

Introduction – Electrical cardioversion of atrial fibrillation may be associated with various risks – thromboembolism, complications associated with sedation such as aspiration or respiratory arrest, sinus bradycardia, and rarely pulmonary edema. Renal failure may also follow cardioversion due to a variety of pre-renal and renal etiologies.

Methods - We conducted a retrospective case control study to determine the incidence, timing, risk factors and outcome of post cardioversion renal failure (PCRf). All consecutive patients undergoing cardioversion for atrial fibrillation or flutter in our institution during 2008 were considered. Patients with end stage renal disease requiring hemodialysis were excluded. A measurement of serum creatinine before and after the cardioversion was also required. Renal failure was defined as a rise in serum creatinine greater than 25% or greater than 0.5 mg/dl from baseline.

Results- In 2008, 116 patients underwent cardioversion in our institution. 57 patients were excluded – 10 were patients with chronic dialysis and 47 did not have an available creatinine measurement following the cardioversion. In the remaining 61 patients, one patient underwent cardioversion on two separate occasions – both were included in the statistical analysis. Atrial flutter was present in 13.1% of the patients. PCRf had an incidence rate of 9.7%. Two predictors were noted – chronic renal failure (OR = 6, $p = 0.047$) and a history of congestive heart failure (OR = 2.8, $p=0.07$). In the PCRf subgroup, 2 patients died within 45 days since the cardioversion. Survival in the two groups is demonstrated in figure 1. One patient with PCRf required a prolonged hospitalization, including temporary pacing and dialysis.

Conclusion- Post cardioversion renal failure is a true entity which is under-recognized, and is associated with an adverse outcome. The etiology of this phenomenon is multifactorial- risk factors include chronic renal failure and congestive heart failure.

