Ablation of atrial fibrillation in valvular heart surgery: are results determined by underlying valve disease?

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Background and Aim of the Study
Although, in recent years, atrial fibrillation (AF) ablation has become an effective concomitant procedure in cardiac surgery, it is unclear whether the outcome of the procedure is determined by the underlying valve disease.

Methods
Between 2003 and 2005, 191 patients (100 females, 91 males; mean age 70 +/- 8.7 years) underwent concomitant left atrial (LA) ablation. Among these patients, those with permanent AF (pAF) and mitral (MVD; n = 64), aortic (AVD; n = 37), and combined valve disease (CVD; n = 23) were prospectively studied after three, six and 12 months, and annually thereafter. The predictive values of preoperative variables for postoperative AF were examined.

Results
AVD patients were older than MVD patients (74 +/- 7.8 versus 66 +/- 8.6 years; p <0.001), and presented smaller atria (48 +/- 5.7 versus 53 +/- 8.0 mm; p <0.05), but CVD patients were similar to MVD patients in terms of these parameters (age 70 +/- 9.3 years, LA diameter 54 +/- 9.6 mm). Ablation caused no injury or death in any of the patients. Within 30 days after surgery, three (4.7%), three (8.1%) and two (8.7%) of the MVD, AVD and CVD patients, respectively, had died (6.4% overall mortality). The sinus rhythm (SR) conversion rate was 76.8, 63.3 and 58.8% (p = NS) after a mean follow up (FU) of 10 +/- 4.0, 9 +/- 4.2 and 10 +/- 3.9 months (p = NS) in the MVD, AVD and CVD groups, respectively. FU was 97% complete. During FU, four (6.6%), two (5.9%) and four (19.0%) MVD, AVD and CVD patients died, respectively. Univariate analysis demonstrated a shorter AF duration (42 +/- 49.0 versus 85 +/- 67.2 months; p <0.05) and smaller LA diameter (50 +/- 8.1 versus 55 +/- 9.2 mm; p <0.05) in patients with SR versus non-SR. Multivariate analysis revealed AF duration (Odds ratio (OR) 1.01, 95% CI 1.00-1.02, p <0.05) and LA diameter (OR 1.08, 95% CI 1.01-1.15, p <0.05) as independent predictors of SR conversion. Overall, 86% of patients with two or less years' duration of pAF were in SR at FU.

Conclusion
AF duration and LA diameter, but not the type of valve disease, predict SR conversion after concomitant ablation of pAF in valvular heart surgery.

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