26209 - THE MAZE PROCEDURE AND OUTCOMES IN CARDIAC SURGERY PATIENTS, A META-ANALYSIS

**Janet Martin PharmD, Daniel Bainbridge, MD; Davy Cheng, MD;
London Health Sciences Centre, London, ON, Canada**

INTRODUCTION: Patients with chronic atrial fibrillation (AF) are resistant to pharmacologic and direct current cardioversion. Surgical methods may be particularly suitable for patients with permanent AF who are undergoing cardiac surgery. We sought to determine whether the MAZE procedure ("cut and sew" technique or ablative technique with radiofrequency, microwave, laser, or cryoablation) reduces morbidity, mortality, and resource utilization in patients with chronic AF undergoing cardiac surgery compared with those who undergo cardiac surgery without MAZE.

METHODS: A comprehensive search was undertaken to identify all trials of adults with chronic AF scheduled to undergo cardiac surgery (valvular and/or CABG) who were randomized to receive surgical ablation of AF using surgical MAZE technique (using atrial incisions, or using energy sources such as radiofrequency, laser, or cryoablation) versus control. MEDLINE, Cochrane Library, EMBASE, were searched up to October 2005. The primary outcome was survival free from AF at 12 months. Secondary outcomes included all other major clinical morbidities and resource utilization. Odds ratios [OR, 95% CI] and weighted mean differences [WMD, 95% CI] were analysed. The fixed effect model was used when no significant heterogeneity between studies was found, and the random effects model was used when significant heterogeneity between studies was found.

RESULTS: Six randomized trials involving 291 patients met the inclusion criteria. Ninety-seven percent of patients underwent valvular surgery with or without coronary artery bypass grafting (CABG), while 3% of patients underwent CABG alone. Two studies employed the "cut and sew" MAZE procedure, while four studies used ablative procedures (3 radiofrequency ablation, 1 microwave ablation). Baseline characteristics were similar between MAZE and control groups. Mean age at baseline was 60.3 (10.2) years, and 54% of patients were female. The MAZE procedure significantly increased the odds of survival free of atrial fibrillation post-operatively [OR 7.07, 95%CI 3.34-14.98; $p<0.0001$], at discharge [OR 6.97, 95%CI 3.62-13.41; $p<0.0001$], at 6 months [OR 9.19, 95%CI 4.67-18.09; $p<0.0001$], and at 12 months [OR 13.82, 95%CI 7.01-27.24; $p<0.0001$]. The difference between groups for stroke [0.27, 95%CI 0.06-1.21; $p=0.09$] and thromboembolic events [OR 0.24, 95%CI 0.06-1.06; $p=0.06$] did not reach statistical significance. All-cause mortality at 30 days and up to 12 months was not significantly different between groups. The need for direct current cardioversion, pacemaker insertion, and reoperation was not significantly different at any time point.

DISCUSSION: In patients with permanent AF undergoing cardiac surgery, the MAZE procedure improves survival free of atrial fibrillation at discharge, and up to 12 months. Whether significant reduction in thromboembolic events, and resource utilization will be found remains to be determined in further randomized trials.