New Insights Into the Mechanism and Management of Atrial Fibrillation

Monday, March 31, 2003, 9:00 a.m.-11:00 a.m. 
McCormick Place, Hall A
Presentation Hour: 10:00 a.m.-11:00 a.m.

A Randomized Double Blind Placebo Controlled Trial of the Effect of Amiodarone Compared to Placebo Before, During, and After Electrical Cardioversion for Persistent Atrial Fibrillation

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Background: Cardioversion (DCCV) of persistent atrial fibrillation (AF) to sinus rhythm (SR) improves symptoms, exercise tolerance and ventricular function. The efficacy of DCCV is limited by a high relapse rate within 3 months. Prophylactic treatment with amiodarone may increase success but previous randomised studies have lacked a placebo control. This was a randomised double blind comparison of oral amiodarone 400mg BD for 2 weeks prior to and 200mg OD for 8 weeks following DCCV with placebo.

Methods: Subjects with persistent AF aged >18 years stable on antiarrhythmic therapy for more than 2 weeks were randomised. Subjects were reviewed at 1, 4, and 8 weeks post-DCCV.

Results: 172 subjects were enrolled but 4 were withdrawn due to protocol violations and 7 withdrew consent. There were no significant differences in baseline characteristics between those on amiodarone (123) and those on placebo (59) – randomisation was disproportionate as this was a powered, intended sub-study of a larger trial. Reversion to SR occurred before elective DCCV in 26 out of 123 (21%) subjects on amiodarone but none on placebo (p=0.002). In the remaining 145 subjects, there was no difference in the success rate of DCCV (70% vs 72% amiodarone vs 53% placebo). There was no difference in the energy required to obtain SR (mean number of shocks: amiodarone 2.3 ± 1 vs 2.5 ± 1; total energy: amiodarone 296 ± 36 J vs placebo 361 ± 70 J). At 8 weeks, 33 (30%,5%) patients who were taking amiodarone had first recurrences of AF compared to 24 (80%) on placebo (p<0.001). There was an increase in the number of subjects requiring changes in warfarin dose to maintain or a-amiodarone (67%) compared with placebo (8%; p<0.001) but no difference in the number of adverse events over the 8 week follow-up period.

Conclusion: Pretreatment with amiodarone has little to offer in the management of AF. A significant number of patients without the need for subsequent DCCV under general anaesthesia. Pretreatment does not alter the efficiency of electrical DCCV or the energy required for restoration of SR. Amiodarone is more effective than placebo in the preservation of SR at 8 weeks following successful CV for AF without an increase in complications.

Recurrence Rate of Atrial Fibrillation In Patients After the First Relapse: A Comparison Between Metoprolol CR/XL, Sotalol, and Amiodarone

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Between 01/97 and 08/02, 517 patients (pts) after their first recurrence of atrial fibrillation (AF) were treated either with metoprolol CR/XL (M, 47 mg – 190 mg/die), sotalol (S, 160 mg – 320 mg/die) or amiodarone (A, maintaining dose 200 mg/die) – randomisation was disproportionate as this was a powered, intended sub-study of a larger trial. Reversion to SR occurred before elective DCCV in 26 out of 123 (21%) subjects on amiodarone but none on placebo (p=0.002). In the remaining 145 subjects, there was no difference in the success rate of DCCV (70% vs 72% amiodarone vs 53% placebo). There was no difference in the energy required to obtain SR (mean number of shocks: amiodarone 2.3 ± 1 vs 2.5 ± 1; total energy: amiodarone 296 ± 36 J vs placebo 361 ± 70 J). At 8 weeks, 33 (35%) patients who were taking amiodarone had first recurrences of AF compared to 24 (80%) on placebo (p<0.001). There was an increase in the number of subjects requiring changes in warfarin dose to maintain or a-amiodarone (67%) compared with placebo (8%); p<0.001) but no difference in the number of adverse events over the 8 week follow-up period.

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Mechanisms Responsible for the Initiation and Maintenance of Atrial Fibrillation Assessed by Noncontact Endocardial Mapping System

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Background: We undertook this study to assess whether single ventricular or atrial activity is important in the initiation and maintenance of atrial fibrillation (AF) and their relationship with underlying anatomical structures using a non-contact mapping system in patients with AF.

Method: 20 patients (18 men, mean age 52.5±8 years) with persistent AF (n=18) and persistent AF with paroxysmal AF (n=2) underwent left atrial mapping. A multielectrode array catheter (Ensite Select and a conventional ablation catheter) were advanced into the left atrium (LA) following double transseptal punctures. Activation sequences of atrial premature contractions (APC) which triggered AF or drove AF to maintain were mapped. The relation between the atrial activation pattern during spontaneous APC or induced APC after internal cardioversion using direct current and underlying anatomical structures was characterized.

Results: During AF, maximal number of wavelets were 3 in 65% (11/17) of patients, and 2 in 35% (5/17) and the mean number of wavelets was 1.4. 2 different mechanisms responsible for the initiation and maintenance of AF were observed: 1) Focally triggered