The Southwest Cardiothoracic Centre, Plymouth Hospitals NHS Trust, Plymouth, United Kingdom

We report follow-up data on 11 patients with bradycardia and paroxysmal atrial fibrillation (PAF), who received dual chamber pacemakers during an episode of PAF. Implants were carried out between February 1999 and May 2000. All patients had a conventional indication for pacing. Ten patients had previously documented episodes of PAF. Six patients were in AF and in atrial flutter prior to implant. One patient developed AF during the procedure. Following pacing, spontaneous cardioversion to sinus rhythm occurred in 4 patients within 24 hours and in 1 patient within 7 days. Patients underwent successful DC cardioversion after stabilisation on anticoagulant treatment. One patient has remained in flutter/fibrillation since implantation. In 10 patients, satisfactory atrial pacing and sensing parameters have been measured in the pacemaker clinic on at least one occasion. To date, follow-up data are available on all 11 patients for 0-4 months after successful cardioversion to sinus or atrial paced rhythm (average 2 months). At the most recent review, 9 patients were in sinus or atrial paced rhythm, 2 apparently in permanent AF.

Conclusions:
1. Satisfactory atrial pacing can be achieved even if the patient is in AF or flutter at the time of implant.
2. Medium term follow-up data indicate that dual chamber pacing is worthwhile in these circumstances.
3. Innovative pacing algorithms for the prevention of AF may further enhance the treatment of these patients.

The aim of this study was to evaluate a new arrhythmia suppression method using Circadian Overdrive Pacing (COP). COP provides an elevated daytime Base Rate and an automatic reduction to Rest Rate – primarily during the night. All patients were implanted with Pacesetter Trilogy DR® Pacemakers. These standard devices use an activity sensor to automatically adjust base rate and achieve COP. Fixed base rate pacing at 70 ppm and 50 ppm was compared to COP using a daytime Base Rate of 95 ppm and 60 ppm with a Rest Rate of 85 ppm. Rate response features were evaluated with the number of Automatic mode switches triggered over five 3 month follow-up intervals.

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The reduction in atrial fibrillation using Circadian Overdrive Pacing at 60-85 ppm, Ph De Vusse, W Van Meighem, M Berndt*, G Bourne**, St Jan Gist, Belgium, St Jude Medical, Benicia* & USA**

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** Base rate in ppm Mode switch Occurrences
<table>
<thead>
<tr>
<th>Base rate in ppm</th>
<th>Fixed Overdrive Base Rate</th>
<th>Fixed Overdrive Base Rate</th>
<th>COP Fixed Base Rate 95 ppm Rest Rate 85 ppm COP Fixed Base Rate 80 ppm Rest Rate 95 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 ppm</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>50 ppm</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Fixed Overdrive Base Rate 70 ppm</td>
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</tr>
</tbody>
</table>

All patients

<table>
<thead>
<tr>
<th>Base rate in ppm</th>
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<tbody>
<tr>
<td>70 ppm</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>50 ppm</td>
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</table>

Conclusion:
Patients with atrial fibrillation and sinus node disease had no change in AF with base rate. Patients with sinus node disease and paroxysmal AF had a statistically significant reduction of AF episodes by using Circadian Overdrive Pacing (P<0.01).

MULTISITE STIMULATION FOR PREVENTION OF ATRIAL ARRHYTHMIAS: THE MISSION STUDY
D. Ledebastian on behalf of the MISSION Steering Committee - Cardiology Dept., Electrophysiology Section, Legnano Hospital, Italy.

Atrial resynchronization is under discussion since a few years as a possible preventive method for patients suffering from paroxysmal atrial fibrillation (AF) with underlying interatrial conduction disorders. Different approaches like biatrial (Daubert et al.) or dual-site right-atrial pacing (Salekova et al.) were applied to patients with drug-refractory AF or other forms of atrial lachycardias in order to reduce the recurrences and the burden of these events. However, in general the fundamental mechanisms and indications are not adequately explained. Data from studies on multisite atrial stimulation show inconsistent results as far as clinically relevant outcomes (e.g. duration and incidence) are concerned. In order to standardize the impact of atrial resynchronization on the heart, a multicentre study on biatrial pacing (Multisite Stimulation for the prevention of atrial arrhythmias: MISSION) will be set up. The aim of the study is to determine the efficacy of biatrial pacing compared to the intraindividual control group (appropriate AV-synchronous pacing) with regard to the preventive effect on AF. The main inclusion criteria shall be recurrent, drug refractory AF, a broad P wave (>120 ms) and a pacemaker indication. Patients with diverse AF triggers, among which, holiday heart syndrome, hyperthyrosis, etc., shall be excluded. Therefore a newly developed three-chamber pacemaker with adequate statistical storing capabilities shall be implanted. This will be connected to a standard right atrial lead in combination with a specially designed coronary sinus lead for pacing the left atrium, which should maintain resynchronization of both atria. During the following two months investigation intervals, the endpoints, cumulative duration of AF and the number of AF episodes (both on the basis of the Mode Switch function), besides the NYHA functional class and the quality of life shall be evaluated. The expectation is to be able to specify more clearly the potential benefits of biatrial pacing in a well-defined and observed patient cohort in different centers within one year.

First experience with transvenous permanent biatrial pacing in patients with atrial fibrillation after cardiosurgery
Institute of Cardiology, Warsaw, Poland

Biatrial pacing (BIA) is one of the new methods of therapy in patients with paroxysmal atrial fibrillation (AF) and interatrial conduction disturbances (IAD). Data about BIA in patients after cardiosurgery, especially after valve replacement are limited. Our aim was to present early results of BIA implantation in patients with AF after cardiosurgery.

Material and methods: In 5 patients (2F, 3M, age 50±12 yrs) with AF and IAD (PA interval from transoesophageal electrode >100 ms) observed in long term follow-up after cardiosurgery (atrial valve replacement - 3, atrial septal defect closure - 1, coronary by-pass graft - 1) biatrial (1) or trivacual (4) pacing systems (Biotronik) were implanted. Pacemakers: Acteon D, Acteon DR (2), Logon (1). Baseline data were collected. 1 patient developed AF during the procedure. Following pacing, spontaneous cardioversion to sinus rhythm occurred in 4 patients within 24 hours and in 1 patient within 7 days. 5 patients underwent successful DC cardioversion after stabilisation on anticoagulant treatment. 1 patient has remained in flutter/fibrillation since implantation. In 10 patients, satisfactory atrial pacing and sensing parameters have been measured in the pacemaker clinic on at least one occasion. To date, follow-up data are available on all 11 patients for 0-4 months after successful cardioversion to sinus or atrial paced rhythm (average 2 months). At the most recent review, 9 patients were in sinus or atrial paced rhythm, 2 apparently in permanent AF.

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