**1174 Atrial Fibrillation; Flutter**

**Wednesday, April 1, 1998, 9:00 a.m.—11:00 a.m.**

**Georgia World Congress Center, West Exhibit Hall Level**

**Presentation Hour: 10:00 a.m.—11:00 a.m.**

**1174-161 Atrial Action Potential Variability Is an Imminent Precursor of Atrial Fibrillation**

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**Background:** T wave alternans is known to be a precursor of fibrillation in the ventricle but alternans of atrial repolarization preceding atrial fibrillation (Afib) has not yet been described.

**Methods:** Twenty-six patients with type I atrial flutter (Aflut) underwent deceleration overdrive pacing until Aflut was terminated or Afib ensued. Monophasic action potentials were recorded simultaneously from the high (HRA) and low (LRA) right atrium.

**Results:** Seven patients were cardioverted to sinus rhythm while 15 had Aflut converted to Afib. In 7 of these patients, initiation of Afib was preceded by a rate-dependent alternans of MAP duration and amplitude. Alternans occurred at both HRA and LRA (4 patients) or only one site (3 patients) (see Fig.).

**Conclusion:** Atrial action potential variability is an imminent precursor of atrial fibrillation.

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**1174-163 Rate Dependent Conduction Block of the Crista Terminalis in Patients With Typical Atrial Flutter**


**Background:** Type I atrial flutter (AF) is a macroreentrant circuit in which the Crista Terminalis (CT) is the posterior boundary in the right atrium lateral wall (LW). To determine the conduction properties of the CT, rapid pacing was performed at both sides of the CT during sinus rhythm after bidirectional conduction block was achieved in the cavotricuspid isthmus with radiofrequency catheter ablation.

**Methods:** In 12 patients (54 ± 16 years) with AF (cycle length 232 ± 36 ms) CT location was identified by the recording of double electrograms during AF, between the lateral and posterior wall (PW). At least 5 bipolar electrograms were recorded from the high to the low right atrium. After sinus rhythm was restored pacing was performed at multiple cycle lengths from 600 ms to 2 to 1 local capture. A pacing site was selected at each side of the CT in the LW and PW, from which all recording sides along the CT were activated simultaneously at the longest pacing cycle length.

**Results:** Complete transversal conduction block in the CT, recognized by the recording of double electrograms at least one site was observed during pacing at 245 ± 42 and 261 ± 58 ms at the LW and PW respectively. Complete transversal conduction block at the CT was observed at 245 ± 3 and 261 ± 32 ms at the LW and PW respectively. In 3 cases complete block was only achieved during pacing from one side, 1 from the LW and 2 from the PW. In the two patients with spontaneous episodes of atrial fibrillation, we observed fragmented electrograms (FE) circumscribed to the CT area during rapid pacing. FE were absent in the remaining patients.

**Conclusion:** These data suggest the presence of rate dependent block of the transversal conduction in the Crista Terminalis in patients with typical AF. This block is usually observed at a pacing cycle length similar to the AF cycle length, suggesting that it may be a critical component of the macroreentry substrate of AF.

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**1174-164 Positive Atrial Inotropic Effects of Dofetilide Following Cardioversion of Atrial Fibrillation**

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**Background:** Dofetilide is a class III antiarrhythmic agent which is effective in the treatment of atrial fibrillation (AF). In vitro studies have shown a mild positive inotropic effect of dofetilide in isolated heart muscle.

**Methods and Results:** In order to assess the effect of dofetilide on the human atrium we compared the Doppler echocardiographic features of 51 patients receiving dofetilide 500 mg twice daily (D500) to 54 patients receiving placebo, all enrolled in a double-blind, randomized controlled trial of dofetilide for treatment of AF. Baseline characteristics were the same in both groups and echo was performed within 24 hours of cardioversion. Following cardioversion the height (cm/sec) and velocity time integral (VTI) of the A wave were significantly higher in the D500 group than in the placebo.