**ATRIAL FIBRILLATION**

### Epidemiology of paroxysmal atrial fibrillation

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**Background.** Despite its high prevalence little is known regarding the epidemiology of paroxysmal atrial fibrillation (PAF). The aim of the study was to determine the incidence and other epidemiological features of PAF.

**Methods.** Over a 4-year period we conducted a prospective, population-based survey of cases of PAF in a closed population (160,000 inhabitants). Sources for identification of potential cases were the two general district hospitals which serve the studied population. Only patients who suffered at least one episode of PAF (>7 days duration, with abrupt well-defined onset of symptoms) out of hospital were included. Patients with PAF complicating acute myocardial infarction, acute pancreatitis or acute infection were excluded.

**Results.** We identified 391 patients (236 men-155 women) with PAF. The overall annual incidence was 9 cases per 10,000 inhabitants (male: 12/10,000/year vs female: 6/10,000/year). PAF occurred in lower age in men (mean age 57 ± 16 years) than in women (mean age 64 ± 16 years) [p < 0.001]. The incidence rose with the highest rates of incidence among people 60-69 years (28/10,000 for men, 18/10,000 for women). In the elderly (≥70 years) the incidence was the highest for both sexes (19/10,000 for men, 15/10,000 for women). 122 (31%) patients had more than one episode (23% before and 8% after enrollment). In 37% of cases no cardiovascular risk factor was identified. This was more common for the population <70 years (45%) compared with the elderly (12%) [p < 0.0005]. Hypertension was the most common risk factor occurring in 21% of the men and in 36% of the women. Other risk factors were venous disease (14%), coronary artery disease (12%), diabetes (10%), hyperthyroidism (5%), lung disease (3%), sick sinus and pre-excitation syndrome (2%). 23% reported 2 or more risk factors. Heavy alcohol consumption, insomnia and heavy exertion were preceded in 17% of the cases. In 8% of patients the arrhythmia was self-terminated and in 12% DC shock was required because of drug therapy failure.

**Conclusions:** PAF is a common arrhythmia that rises with age. Occurs more frequently in lower age in men than in women. Hypertension is the most common among the risk factors. Absence of cardiovascular risk factor is more usual in the population <70 years than the elderly.

### Natural history of acute atrial fibrillation

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Acute atrial fibrillation (AF) is a common arrhythmia with a considerable rate of complications. The natural course during the acute phase is not well described.

In the recent DAAF trial 110 female and 129 male patients, with a mean age of 62.5 years (range 21-89 years) were blindly assigned for both sexes (18/10,000 for men, 15/10,000 for women). 122 (31%) patients had more than one episode (23% before and 8% after enrollment). In 37% of cases no cardiovascular risk factor was identified. This was more common for the population <70 years (45%) compared with the elderly (12%) [p < 0.0005]. Hypertension was the most common risk factor occurring in 21% of the men and in 36% of the women. Other risk factors were venous disease (14%), coronary artery disease (12%), diabetes (10%), hyperthyroidism (5%), lung disease (3%), sick sinus and pre-excitation syndrome (2%). 23% reported 2 or more risk factors. Heavy alcohol consumption, insomnia and heavy exertion were preceded in 17% of the cases. In 8% of patients the arrhythmia was self-terminated and in 12% DC shock was required because of drug therapy failure.

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### Effects of intra-venously administered digoxin in acute atrial fibrillation, compared to placebo

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**Background.** Acute atrial fibrillation (AF) is a common arrhythmia. Although no controlled clinical trial investigating the effects of acute intravenous (i.v) treatment with digoxin has been reported, this treatment is widely used to control heart rate and to regain sinus rhythm. In a randomized, doubleblind, multicenter trial we compared the effects of i.v administered digoxin with placebo in 239 patients (110 female/129 male, mean age 62.5, range 21-89 years) with atrial fibrillation of maximally 7 days duration (mean duration 22.0 h, range 1.5-174.5 h). 129 patients had their first episode of AF, 110 had recurrent AF. Digoxin was given iv at times 0, 2 and 6 hours after inclusion, in the dose of 0.5 mg (mean 0.46 mg, 0.31 mg and 0.52 mg). The primary end-point was conversion to sinus rhythm. Effects on heart rate were one secondary end-point. The duration of the study was 16 h, from inclusion. The groups were demographically well matched. 117 patients were randomized to digoxin, and 122 to placebo.

There were no significant differences in rate of conversion to sinus rhythm between the groups. Conversion to sinus rhythm occurred earlier in the digitals treated group compared to placebo, but the difference was not quite statistically significant. The heart rate at 16 h was significantly lower in the digitals treated group, in patients still remaining in AF.

**Effects of digoxin in acute AF**

<table>
<thead>
<tr>
<th>Duration of AF</th>
<th>HR at baseline</th>
<th>HR 16 h in AF</th>
<th>Sinus rhythm</th>
<th>Time to SR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digitalis</td>
<td>20.2 ± 23.8h</td>
<td>120 ± 23</td>
<td>91 ± 20</td>
<td>60/117</td>
</tr>
<tr>
<td>Placebo</td>
<td>22.7 ± 31.0h</td>
<td>123 ± 25</td>
<td>116 ± 25</td>
<td>56/120</td>
</tr>
</tbody>
</table>

5 digitalis treated patients experienced significant bradycardia, but none needed treatment other than observation.

### Intra-venously administered digoxin results in a statistically non-significant earlier conversion to sinus rhythm

In conclusion intravenously administered digoxin results in a statistically non-significantly earlier conversion to sinus rhythm and a significant decrease in heart rate in patients still in atrial fibrillation, compared to placebo. Digitalis does not differ from placebo in the total conversion to sinus rhythm during 16 hours of treatment and observation.