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## ATRIAL FIBRILLATION

### 1146 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 pericarditis 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  $57 \pm 16$  years) than in women (mean age  $64 \pm 16$  years) [ $p < 0.001$ ]. The incidence rose with age with the highest rates of incidence among people 60–69 years (28/10,000 for men, 18/10,000 for women). In the elderly ( $\geq 70$  years) the incidence was similar for both sexes (16/10,000 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 39% of the women. Other risk factors were valve 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 and 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.

### 1147 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 66.2 years (range 21–89), with acute AF within 7 days of onset were blindly allocated to treatment with i.v digoxin or placebo. After 16 hours, a similar number of patients in each treatment group had converted to sinus rhythm (SR). We have therefore used the total patient material to describe the natural course. A Cox regression model was developed, utilizing clinical data at baseline, to define factors predictive of conversion to SR.

The duration of AF before treatment was  $21.7 \pm 30.4$  hours (range 1.5–175 h) and the heart rate at inclusion  $122.0 \pm 23.0$  bpm (range 62–180).

	2 h	6 h	12 h	16 h
Sinus rhythm, n = 239: %	18	33	44	49
Heart rate comp. to baseline (placebo only), n = 122: bpm	-4.4	-10.1	-9.6	-3.9

Cox regression model; predictors of conversion to SR

	p-value		p-value
Age:	0.14	History of heart failure	0.21
Female sex:	0.06	Heart rate > 120	0.70
Duration of AF:	0.0008	Rate at inclusion	0.17
History of AF:	0.21	Digoxin treatment	0.28

In conclusion; the spontaneous rate of conversion to sinus rhythm is nearly 50% within 12 hours, with the highest rate during the first hours. The heart rate remains high in patients still in AF during 16 hours of observation.

A short duration of AF was the most predictive factor, and female sex is associated with a positive trend, for conversion to sinus rhythm. Heart failure, high heart rate at inclusion and earlier AF were associated with lesser chance of conversion, but this effect did not reach statistical significance.

### 1148 Chronic atrial fibrillation: success rate of serial cardioversion therapy and long-term safety and efficacy of oral anticoagulation

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The purpose of this study was to determine the long-term success rate of the serial electrical cardioversion (ECV) approach in patients with chronic atrial fibrillation (AF) and to assess the efficacy and safety of oral anticoagulation in these patients.

**Methods:** Patients with chronic (>24 hours) AF received  $\geq 4$  weeks anti-coagulant therapy (OAC) prior to ECV. No prophylactic antiarrhythmic agent was given after the first ECV. Relapses were managed by repeated ECVs whereafter serially antiarrhythmic drugs were instituted. OAC was withdrawn after 4 weeks sinus rhythm.

**Results:** 236 patients were followed for  $3.7 \pm 1.6$  years. Mean age was  $63 \pm 12$  years. Underlying disease was coronary artery disease in 28%, rheumatic disease in 17%, non rheumatic valvular disease in 16%, hypertension in 17% and 22% had "lone" AF. Median duration of AF was 9 months, left atrial size was  $46 \pm 8$  mm. The actuarial cumulative percentages of patients maintaining sinus rhythm after serial ECV treatment was 42% and 27% after 1 and 4 years, respectively. Multivariate analysis showed that factors which were associated with failure of this approach included: arrhythmia duration  $\geq 36$  months (risk ratio 5.0,  $p = 0.0001$ ), poor exercise tolerance (functional class III, risk ratio 1.8,  $p = 0.001$ ), and age > 56 years (risk ratio 1.5,  $p = 0.038$ ). The anticoagulation level of INR 2.4–4.8 was associated with an incidence of thromboembolism and bleeding complications of 0.2% and 1.5%, respectively.

**In conclusion,** this study shows that many patients with AF fail to respond to the serial ECV strategy. However, this approach postpones the continuous presence of AF which decreases the exposure time to the deleterious events related to AF. In addition, thromboembolic events were infrequent in the patients who were subject to this regimen.

### 1149 Effects of intra-venously administered digoxin in acute atrial fibrillation, compared to placebo

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Acute atrial fibrillation (AF) is a common arrhythmia. Although no controlled clinical trial investigating the effects of acute intravenous (i.v) treatment with digitalis 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 66.2, 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 i.v at times 0, 2 and 6 hours after inclusion, in the dose of 0.5 mg (mean 0.46 mg, 0.31 mg and 0.32 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 difference in rate of conversion to sinus rhythm between the groups. Conversion to sinus rhythm occurred earlier in the digitalis treated group compared to placebo, but the difference was not quite statistically significant. The heart rate at 16 h was significantly lower in the digitalis treated group, in patients still remaining in AF.

	Duration of AF	HR at baseline	HR 16 h in AF	Sinus rhythm n/total	Time to SR
Digitalis	$20.7 \pm 29.9$ h	$120 \pm 23$	$91 \pm 20$	60/117	$4.7 \pm 4.2$ h
Placebo	$22.7 \pm 31.0$ h	$123 \pm 23$	$116 \pm 25$	56/120	$5.8 \pm 4.9$ h
p-value	n.s	n.s	$p < 0.0001$	n.s	$p = 0.18$

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

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.