

Micro-atrial fibrillation episodes (4 beats – 29s) are usually followed by clinical atrial fibrillation (≥ 30 s) within 72 hours – Data from the PocketECG database

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Background

Current guidelines define atrial fibrillation (AF) as a ≥ 30 s episode of irregular cardiac rhythm without p-waves. AF progresses from shorter to longer episodes, and it has been shown that short episodes of AF (5 beats-29s, micro-AF) on 24h monitoring predict clinical AF.

Objective

To study the association between micro-AF episodes (4 beats-29s) and clinical AF in subjects with up to 30 day PocketECG device Holter monitoring.

Methods

The study population consisted of 26,567 individuals (42% men, median age 71 years, inter-quartile range (IQR) 62-78 years) who recorded a long-term ECG (median duration 15.7 days, IQR 16 days) in the United States using the PocketECG device, between 1 Jan-31 Dec 2017. The PocketECG device records a three-lead ECG and detects AF using an algorithm based on heart rhythm and beat morphology, with manual confirmation of all events by certified technicians.

Conclusion

- Prolonged screening up to 72h after detection of an episode of micro-AF is likely to yield an episode of clinical AF. Therefore, additional monitoring for at least 72h is recommended after detection of micro-AF.
- Micro-AF is likely to constitute an early step in the pathophysiological process of AF.

Results

Clinical AF or micro-AF (Fig 1) was found in 17% of patients, and 50% (n=2,327) of them had only clinical AF. (Fig 2) The majority of micro-AF patients (82.7% of 2,283 patients) also had an episode of clinical AF. After micro-AF, the probability of an episode of clinical AF was high (82%), and events occurred within the next 72h in 90.3% of cases, resulting in a very high conditional probability for clinical AF within 72h of micro-AF (74%) (Fig 3). The relative proportion of micro-AF was larger in younger age groups (Fig 4).

Figure 2

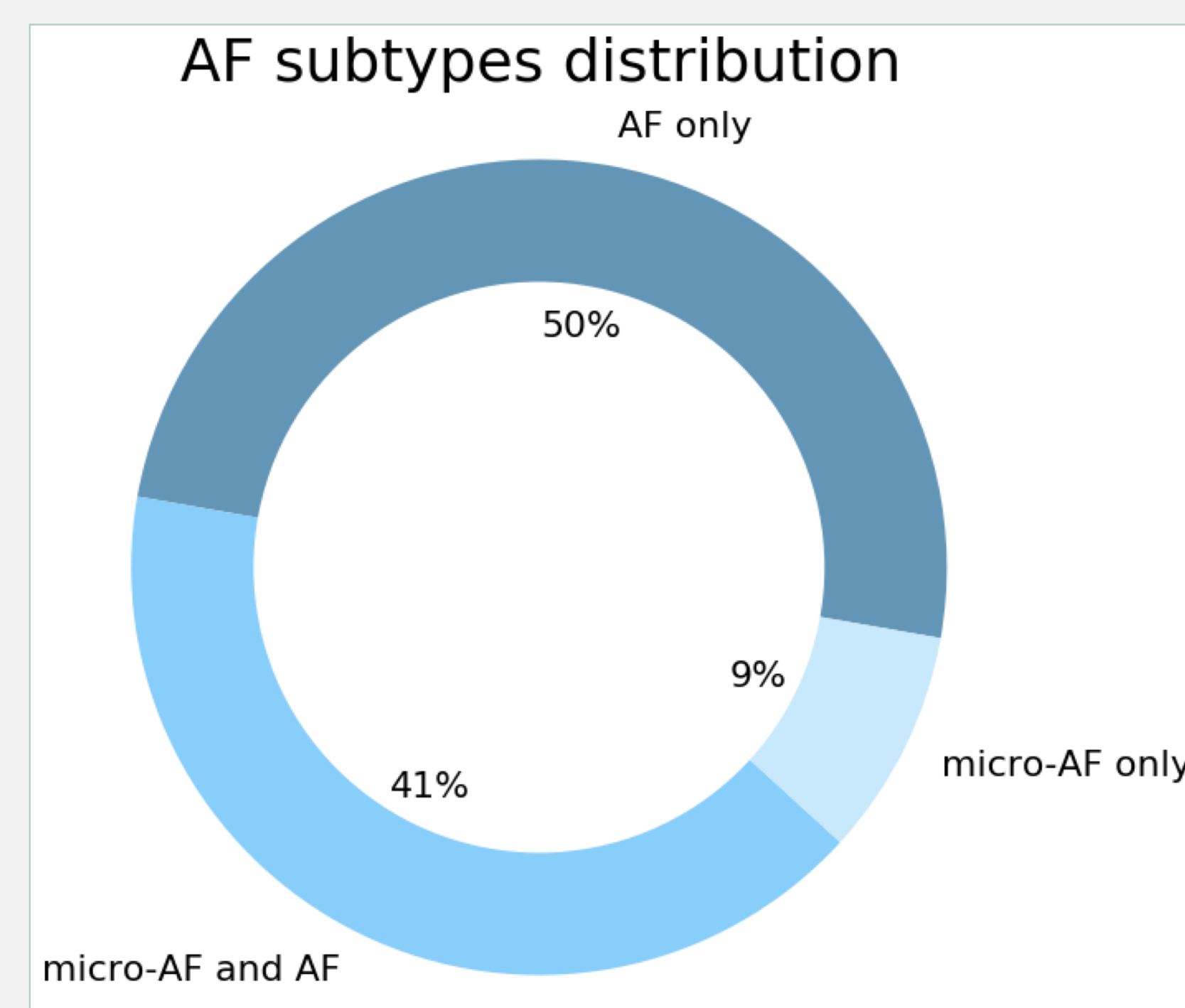


Figure 3

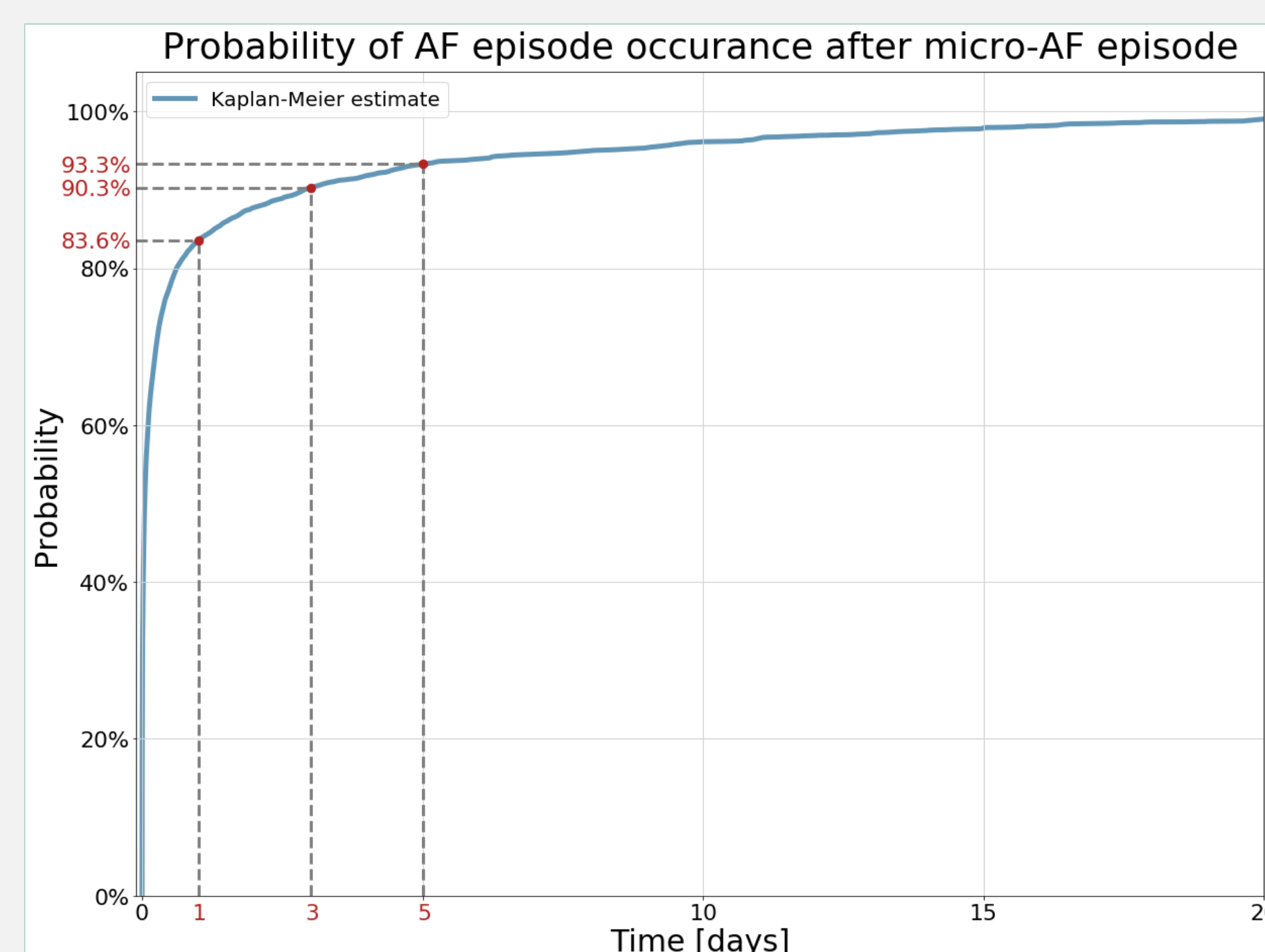


Figure 4

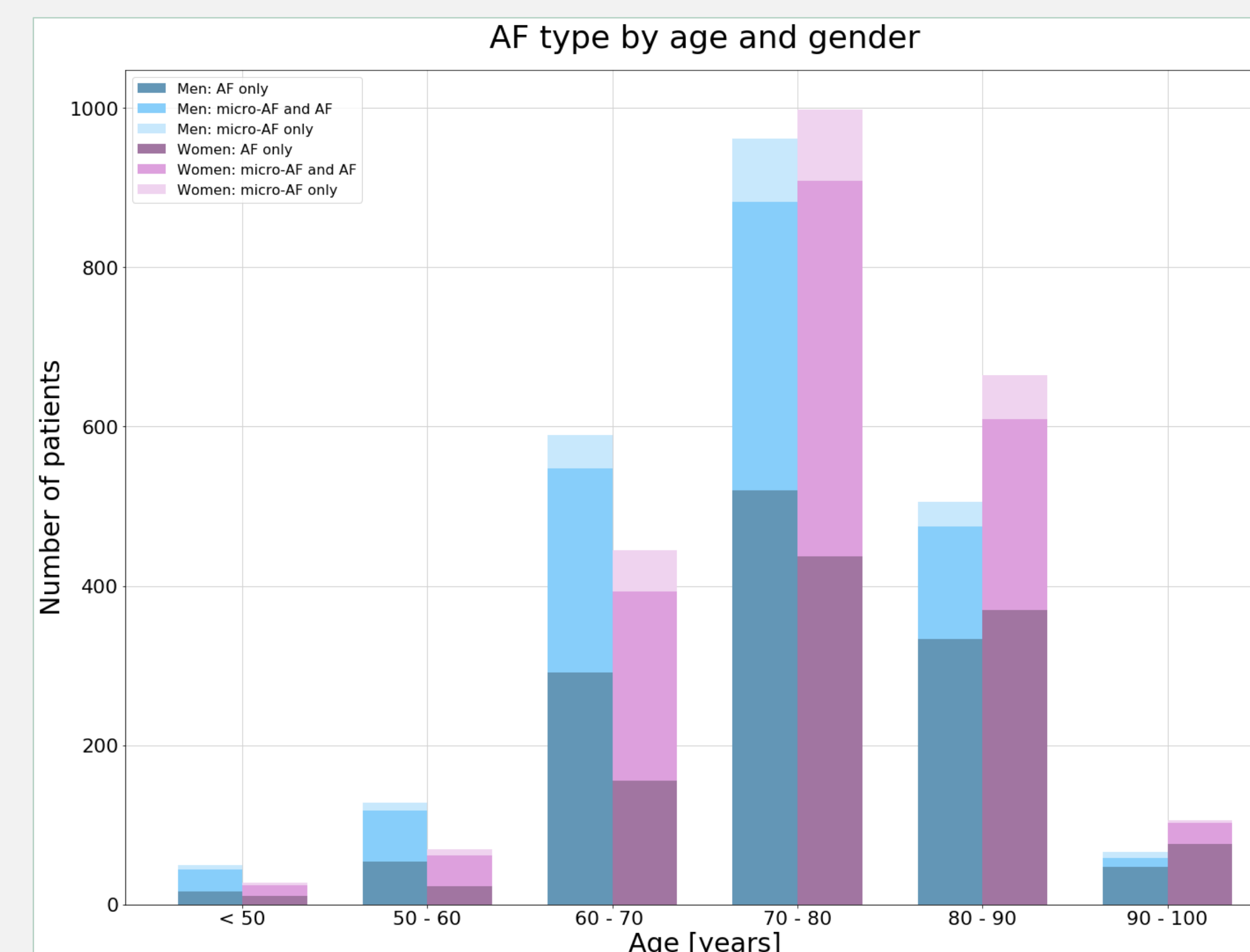
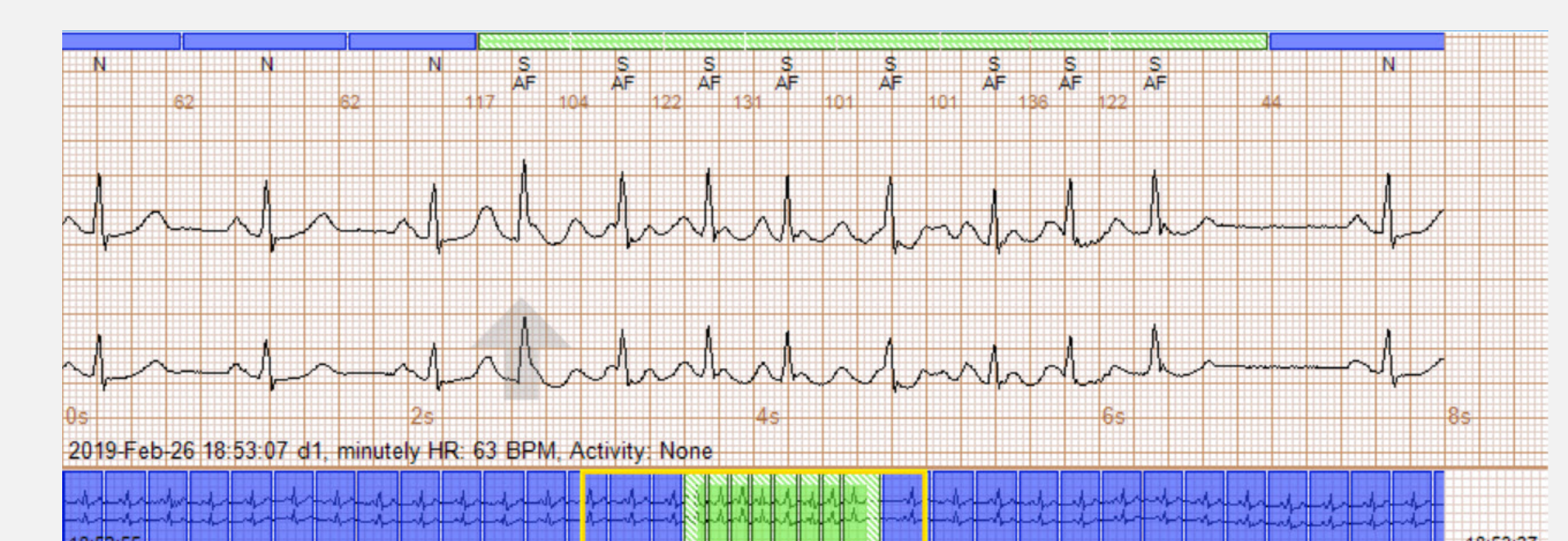


Figure 1



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