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Screen-detected atrial fibrillation in a one-minute single-lead ECG predicts mortality in elderly subjects

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Topic(s):
Atrial Fibrillation - Epidemiology, Prognosis, Outcome

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Background: Atrial fibrillation (AF) is the most common arrhythmia associated with increased morbidity and mortality. Current guidelines recommend opportunistic screening for AF but the prognostic impact of screen-detected AF is unclear.

Methods: We performed a 4-week, prospective, pharmacy-based AF screening study in 7107 elderly citizens (≥65 years) using a hand-held, automated, one-minute single-lead ECG (SL-ECG) recording device. Prevalence and incidence of AF was assessed, and data on all-cause death and hospitalization for cardiovascular (CV) causes were collected over a median follow-up of 401 (372; 435) days.

Results: Automated SL-ECG analyses revealed heartbeat irregularities suspicious of AF in 432 (6.1%) participants with newly diagnosed AF in 3.6% of all subjects. During follow-up, 62 participants (0.9%) died and 390 (6.0%) were hospitalised for CV causes. Total mortality was 2.3% in participants with a SL-ECG suspicious of AF and 0.8% in subjects with a normal SL-ECG (HR 2.93; 95% CI: 1.49, 5.77; P=0.002, Figure 1A); hospitalization for CV causes occurred in 10.6% and 5.5%, respectively (HR 2.08; 95% CI: 1.52, 2.84; P<0.001, Figure 1B). Compared with subjects without a history of AF at baseline and a normal SL-ECG, participants with newly diagnosed AF or known AF had a significantly higher mortality risk with HRs of 2.63 (95% CI: 1.04, 6.63; p=0.04) and 2.68 (95% CI: 1.45, 4.98; p=0.002), respectively. After multivariable adjustment, a SL-ECG recording suspicious of AF remained a significant predictor of death or hospitalization for CV causes.

Conclusions: Pharmacy-based, automated, one-minute SL-ECG screening in elderly citizens identified subjects with unknown AF and an excess mortality risk over the next one year.
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Figure 1