



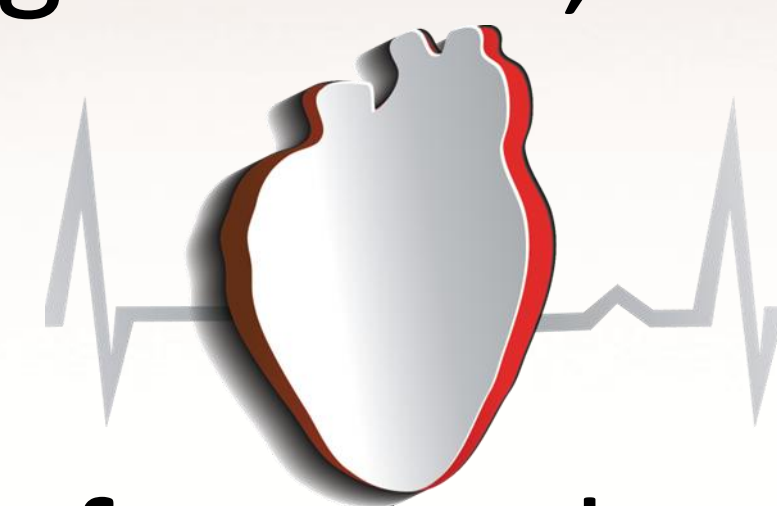
Community-Based Screening for Atrial Fibrillation in Northern Taiwan: A Cross-Sectional Study

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Background

Atrial fibrillation (AF) is one of the most common arrhythmias and a leading cause of stroke, heart failure, and mortality. Because many patients remain asymptomatic, community-based screening plays a crucial role in early detection and intervention. This study aimed to determine the prevalence of AF and identify its associated risk factors among adults in Northern Taiwan.



Methods

We conducted a cross-sectional community screening program between July 2023 and June 2025, enrolling 10,036 adults aged ≥ 20 years. Participants underwent a 60-second single-lead electrocardiogram (ECG) screening (Q21, Medical Inteda Co.) and completed a standardized questionnaire, along with physiological measurements. Statistical analyses included chi-square tests, t-tests, and multivariate logistic regression to identify independent predictors of AF.



Community Health Service Station



Hospital Vaccination Center



Elderly Care Institution



Results

The mean age of participants was 72.4 ± 10.0 years, and 62.8% were women. The most common comorbidities were cardiovascular disease (49.7%), diabetes (24.7%), and hyperlipidemia (21.7%). The overall prevalence of AF was 2.8%(Figure 1), with a significantly higher rate in men (4.0%) than in women (2.2%; $p < 0.001$). Independent predictors of AF included age (per 10 years: OR = 1.45, 95% CI [1.02–2.08]), heart rate > 100 bpm (OR = 9.07, $p < 0.001$), heart failure (OR = 3.48, $p < 0.001$), and cardiovascular disease (OR = 1.94, $p = 0.006$) (Table1) .

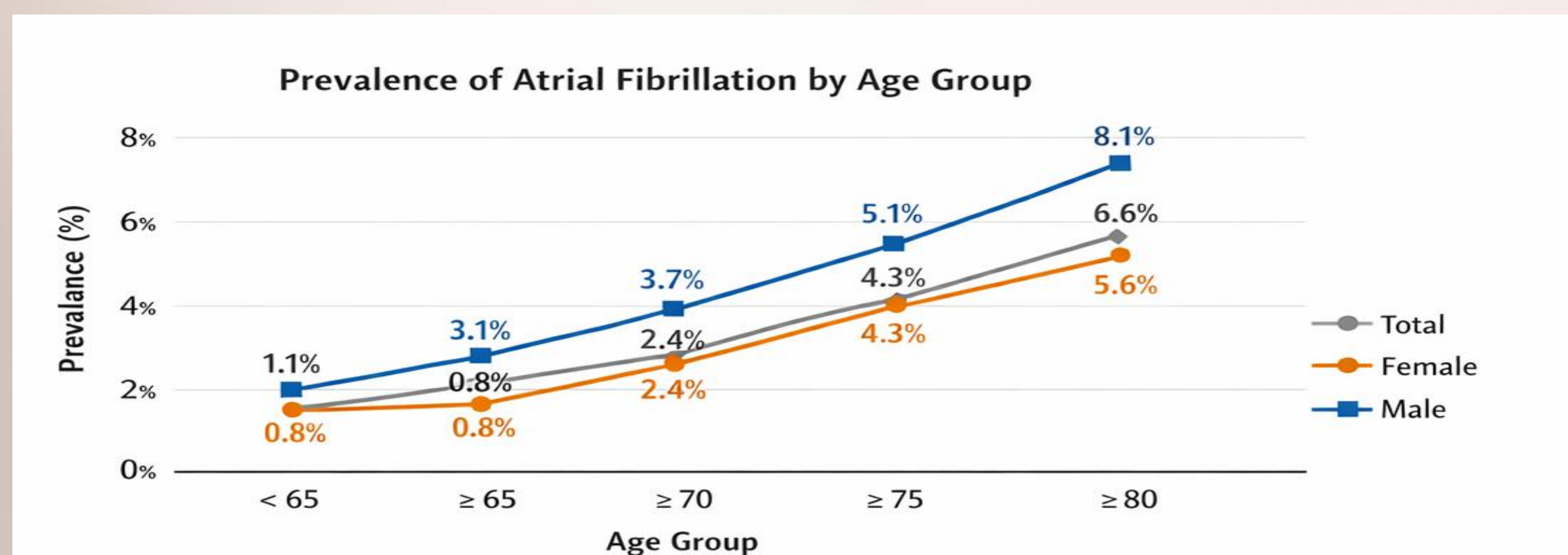


Figure 1. Prevalence of Atrial Fibrillation by Age Group

Table1. Logistic Regression Analysis

Variable	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Per 10-year increase in age	1.45	[1.02, 2.08]	0.041
Heart rate > 100 bpm on ECG	9.07	[5.07, 16.23]	< 0.001
History of heart failure	3.48	[1.88, 6.43]	< 0.001
History of cardiovascular disease	1.94	[1.21, 3.09]	0.006



Conclusions

Community-based AF screening using single-lead ECG devices is a feasible, safe, and cost-effective strategy for early detection and timely referral. Integrating such screening into primary care and public health initiatives may enhance cardiovascular prevention efforts in aging populations.

