

Screening for Atrial Fibrillation in Older Adults Detects More Cases than Usual Care

Fitzmaurice DA, Hobbs FD, Jowett S, et al. Screening versus routine practice in detection of atrial fibrillation in patients aged 65 or over: cluster randomised controlled trial. *BMJ* 2007;335:383.

Study Overview

Objective. To determine whether screening for atrial fibrillation (AF) detects more cases than usual care and to compare the detection rates of 2 screening strategies.

Design. Multicenter, cluster randomized controlled trial, with a subsidiary randomized trial in the intervention group.

Setting and participants. 14,802 patients aged ≥ 65 years recruited from 50 primary care practices in the United Kingdom over a 2-year period. 1068 (7%) patients had known AF at baseline.

Intervention. After stratification by size and socioeconomic status, primary care practices were assigned to either screening or usual care (25 practices in each group). From a list of all patients aged ≥ 65 years in all practices, up to 440 patients from each practice assigned to screening and up to 200 patients assigned to usual care were randomly sampled. Patients from the 25 screening practices were further randomized into systematic screening (ie, screening by electrocardiography) or opportunistic screening (ie, pulse-taking with subsequent electrocardiography if pulse was abnormal). All electrocardiograms (ECGs) were read by consultant cardiologists; patients with normal findings were informed within 2 weeks and patients with any abnormality were advised to follow-up with their primary care physicians.

Main outcome measure. New cases of AF detected over 12 months.

Main results. The 3 study groups were similar in size: 4933 patients in systematic screening, 4933 in opportunistic screening, and 4936 in usual care. The prevalence of AF at baseline was comparable across the 3 groups: 7% in systematic screening, 7% in opportunistic screening, and 8% in usual care. Of patients without known AF assigned to systematic screening, only 52% (2357/4562) underwent electrocardiography; the remaining declined screening or did not respond. Of patients without known AF assigned to opportunistic screening, 72% (3278/4575) had their pulses

checked; of these, 1% (360/3278) had irregular heart rates and 34% (122/360) of these patients declined a follow-up ECG. Overall, there were 75 (1.6%) new cases of AF diagnosed in the systematic screening group, 74 (1.6%) in the opportunistic screening group, and 47 (1.0%) in the usual care group (systematic screening vs. usual care, $P = 0.02$; opportunistic screening vs. usual care, $P = 0.01$; systematic vs. opportunistic screening, $P = 0.95$). Of the 74 new cases diagnosed in the opportunistic screening group, 24 had a regular pulse and were found to have AF outside the screening program.

Conclusion. In adults aged ≥ 65 years, more cases of AF are detected with screening as compared with usual care. Detection rates with systematic and opportunistic screening are similar. Due to the higher cost of systematic screening, opportunistic screening is preferred.

Commentary

AF and electrocardiography have the potential to be an effective disease/screening test combination. AF is common, affecting approximately 5% of adults aged 65 years and older and 10% of those older than 80 years [1]. AF increases the risk of ischemic stroke fivefold and causes 15% of strokes in the United States, leading to substantial morbidity and mortality [1]. Patients with AF can be asymptomatic, but AF can be detected with a standard ECG, a noninvasive and inexpensive test. Several interventions are available that can correct the underlying cardiac rhythm disturbance of AF, including pharmacologic cardioversion, electrical cardioversion, and catheter ablation [2]. Even if these are not successful, anticoagulants can be used to decrease the risk of subsequent ischemic stroke [2]. It has not yet been proven that screening for AF leads to better outcomes.

Using a cluster randomized design, Fitzmaurice and colleagues found that more cases of AF are detected with screening than with usual care. Only 52% of those invited for systematic screening were actually screened; thus, the results of this study may underestimate the potential detection rate of systematic screening. However, the study may also approximate a realistic estimate of what the results would

be if systematic screening was actually recommended. The fact that 32% (24/74) of cases detected in the opportunistic screening group were detected outside of the screening program creates some doubt as to whether opportunistic screening is truly comparable with systematic screening.

The U.S. Preventive Services Task Force has no current guideline on screening for AF [3]. In order to be endorsed as an effective screening test, the Task Force argues that studies must show that early detection with that test leads to reduced morbidity and mortality [4]. Before screening for AF is recommended, future studies would need to determine whether finding additional asymptomatic cases actually leads to fewer strokes. Therapies for AF carry substantial risk of harm, and this must be considered as well.

Applications for Clinical Practice

This study's finding of improved rates of AF detection with screening is not sufficient to endorse routine screening for AF.

Future studies need to build additional links between detection of AF and earlier treatment and, more importantly, between earlier treatment and reduced morbidity and mortality.

—Review by Lisa M. Kern, MD, MPH

References

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