

Putting Prevention into Practice

An Evidence-Based Approach

Screening for Atrial Fibrillation with Electrocardiography

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Case Study

M.T. is a 67-year-old woman who presents to your office requesting electrocardiography (ECG). Her brother was recently diagnosed with atrial fibrillation after screening with ECG, and she is concerned that she may have the same condition. She is moderately physically active almost every day and teaches yoga four times a week for two to three hours per session. She has a body mass index of 24 kg per m². She has hypertension, which is controlled with chlorthalidone, and hypothyroidism, which is treated with levothyroxine. Her most recent thyroid levels were normal. She reports never drinking alcohol or smoking and reports no medical problems or symptoms.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF), should M.T. be screened for atrial fibrillation?

- A. No; the USPSTF recommends against screening for atrial fibrillation with ECG because it has no net benefit.
- B. Yes; the USPSTF found that the net benefit of screening for atrial fibrillation with ECG is substantial in patients 65 years or older.
- C. Yes; the USPSTF found that the net benefit of screening for atrial fibrillation with ECG is moderate, regardless of patient age.
- D. Maybe; the USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for atrial fibrillation with ECG in asymptomatic adults 65 years or older.
- E. Yes; the USPSTF found that the net benefit of screening for atrial fibrillation with ECG is moderate in adults without contraindications to anticoagulation therapy.

2. Because M.T. is older than 65 years and is asymptomatic, you discuss the benefits and harms of screening for atrial fibrillation with ECG. Which of the following are potential harms of screening?

- A. Misdiagnosis resulting from misinterpretation of ECG findings, which could lead to unnecessary treatment.
- B. Abnormal ECG results, which could cause patient anxiety.
- C. There are no potential harms of screening for atrial fibrillation with ECG.
- D. ECG may detect other abnormalities, which may lead to confirmatory tests and treatments that have the potential for harm.

See related U.S. Preventive Services Task Force Recommendation Statement at <https://www.aafp.org/afp/2019/0315/od1.html> and related editorial on page 354.

This PPIP quiz is based on the recommendations of the USPSTF. More information is available in the USPSTF Recommendation Statement and supporting documents on the USPSTF website (<https://www.uspreventiveservicestaskforce.org>). The practice recommendations in this activity are available at <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/atrial-fibrillation-screening-with-electrocardiography>.

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CME This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 359.

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3. Which one of the following of M.T.'s conditions is a risk factor for atrial fibrillation?

- A. Body mass index less than 25 kg per m².
- B. Hypothyroidism.
- C. Hypertension.
- D. Engaging in regular moderate physical activity.
- E. Abstinence from alcohol.

Answers

1. **The correct answer is D.** The USPSTF concluded that the current evidence is insufficient to assess the balance of benefits and harms of screening for atrial fibrillation with ECG in asymptomatic adults 65 years or older (I statement).¹ The USPSTF found inadequate evidence to assess whether screening with ECG identifies adults 65 years or older with previously undiagnosed atrial fibrillation more effectively than usual care. The USPSTF found inadequate evidence to directly assess the benefit of screening for atrial fibrillation with ECG on clinical outcomes. The USPSTF found adequate evidence that treatment with anticoagulant therapy reduces the incidence of stroke in patients with symptomatic atrial fibrillation. The USPSTF found adequate evidence that screening for atrial fibrillation with ECG is associated with small to moderate harms, such as misdiagnosis, additional testing and invasive procedures, and overtreatment. The USPSTF also found adequate evidence that treatment of atrial fibrillation with anticoagulant therapy is associated with a small to moderate harm of increased risk of major bleeding.

2. **The correct answers are A, B, and D.** Although the performance of ECG is not harmful, the potential harms of screening with ECG include anxiety caused by abnormal findings; misinterpretation of ECG results, which may result in a misdiagnosis and may lead to unnecessary treatment (e.g., initiation of anticoagulant therapy for stroke prevention or pharmacotherapy to control cardiac rhythm or heart rate); and detection of other abnormalities, which may lead to invasive confirmatory testing and treatments that can be potentially harmful (e.g., angiography, revascularization).

3. **The correct answer is C.** Atrial fibrillation is the most common type of cardiac arrhythmia. It is strongly associated with older age (e.g., prevalence increases from 0.2% among adults younger than 55 years to 10% among those 85 years or older²) and obesity. Risk factors include high blood pressure, diabetes mellitus, heart failure, prior cardiothoracic surgery, current smoking, prior stroke, sleep apnea, alcohol or drug use, and hyperthyroidism.

The views expressed in this work are those of the authors and do not reflect the official policy or position of the Uniformed Services University of the Health Sciences, the Department of Defense, or the U.S. government.

References

1. U.S. Preventive Services Task Force. Screening for atrial fibrillation with electrocardiography: U.S. Preventive Services Task Force recommendation statement. *JAMA*. 2018;320(5):478-484.
2. Jonas DE, Kahwati LC, Yun JD, et al. Screening for atrial fibrillation with electrocardiography: evidence report and systematic review for the U.S. Preventive Services Task Force. *JAMA*. 2018;320(5):485-498. ■