Putting Prevention into Practice

An Evidence-Based Approach

Screening for Asymptomatic Carotid Artery Stenosis

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Case Study

A 67-year-old man comes to your office for a regularly scheduled visit. He has type 2 diabetes mellitus and a 40-pack-year smoking history, but he quit smoking two years ago. He takes lisinopril and atorvastatin (Lipitor); his blood pressure today is normal. His A1C and lipid panel at his last visit were within normal limits. He says that he feels well and has no neurologic complaints or any other symptoms. His father had a stroke at 68 years of age and was told it was caused by a blocked artery in his neck. The patient asks whether he should be screened for the same kind of blockage.

Case Study Questions

1. Based on the U.S. Preventive Services Task Force (USPSTF) recommendation statement, how should this patient be counseled?

- ☐ A. He should not be screened for carotid artery stenosis; his hypertension and hypercholesterolemia are well controlled with medication, so he is not at high risk of carotid artery stenosis.
- ☐ B. He should be screened for carotid artery stenosis because he has more than two risk factors for a stroke.
- ☐ C. He should be screened for carotid artery stenosis because he is older than 65 years and has a history of cigarette smoking.
- ☐ D. He should not be screened for carotid artery stenosis because he has no personal history of transient ischemic attack, stroke, or neurologic symptoms.
- ☐ E. He should be screened for carotid artery stenosis with carotid duplex ultrasonography, magnetic resonance angiography, or computed tomography angiography.

2. Which of the following factors increase this patient's risk of carotid artery stenosis?

- ☐ A. Male sex.
- ☐ B. History of cigarette smoking.
- ☐ C. First-degree relative with carotid artery stenosis.
- ☐ D. Hypercholesterolemia.

3. Which one of the following statements represents the USPSTF's findings on the potential benefits and harms of screening for carotid artery stenosis?

- ☐ A. The USPSTF found adequate evidence that screening for carotid artery stenosis reduces adverse health outcomes such as stroke, myocardial infarction, and death.
- ☐ B. The USPSTF found that screening for asymptomatic carotid artery stenosis in the general population has no benefit and may be harmful.
- ☐ C. The USPSTF found the overall magnitude of harms of screening for and treatment of asymptomatic carotid artery stenosis to be substantial.
- ☐ D. The USPSTF found convincing evidence that the potential benefits of screening outweigh the harms.

Answers appear on the following page.

See related U.S. Preventive Services Task Force Recommendation Statement on page 614.

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/uspstf/recommendation/carotid-artery-stenosis-screening.

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CME **This clinical content** conforms to AAFP criteria for CME. See CME Quiz on page 587.

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Answers

1. The correct answer is D. The USPSTF recommends against screening for asymptomatic carotid artery stenosis in the general population. This recommendation applies to adults without a history of transient ischemic attack, stroke, or other neurologic signs or symptoms referable to the carotid arteries. Although there are several risk factors for carotid artery stenosis, there are no externally validated, reliable methods to determine who is at increased risk of carotid artery stenosis or who is at increased risk of stroke when carotid artery stenosis is present. The USPSTF does not recommend screening for asymptomatic carotid artery stenosis in the general population using any method (carotid duplex ultrasonography, magnetic resonance angiography, or computed tomography angiography).[1]

2. The correct answers are A, B, and D. Although screening for asymptomatic carotid artery stenosis is not recommended for the general adult population, there are several risk factors for carotid artery stenosis, including older age, male sex, hypertension, smoking, hypercholesterolemia, diabetes, and heart disease. However, there are no externally validated, reliable tools or methods to determine who is at increased risk of carotid artery stenosis or who is at increased risk of stroke when carotid artery stenosis is present.[1]

3. The correct answer is B. The USPSTF concludes with moderate certainty that screening for asymptomatic carotid artery stenosis in the general population has no benefit and may be harmful. The USPSTF found inadequate evidence that screening for asymptomatic carotid artery stenosis in the general population reduces adverse outcomes or causes harms. However, they found adequate evidence that treating patients with asymptomatic carotid artery stenosis provides no to small benefit in reducing adverse health outcomes, whereas there are known harms associated with confirmatory testing and intervention. The USPSTF found the overall magnitude of harms of screening for and treatment of asymptomatic carotid artery stenosis to be small to moderate. The prevalence of asymptomatic carotid artery stenosis is low in the general population, and it causes a relatively small proportion of strokes.[2]

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. Krist AH, Davidson KW, Mangione CM, et al. Screening for asymptomatic carotid artery stenosis: US Preventive Services Task Force recommendation statement. *JAMA*. 2021; 325(5):476-481.
2. Guirguis-Blake JM, Webber EM, Coppola EL. Screening for asymptomatic carotid artery stenosis in the general population: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2021;325(5): 487-489. ■