

Screening for Blockages in the Blood Vessels to the Brain: Recommendations from the U.S. Preventive Services Task Force

Summaries for Patients are a service provided by *Annals* to help patients better understand the complicated and often mystifying language of modern medicine.

The full reports are titled “Screening for Carotid Artery Stenosis: U.S. Preventive Services Task Force Recommendation Statement” and “Screening for Carotid Artery Stenosis: An Update of the Evidence for the U.S. Preventive Services Task Force.” They are in the 18 December 2007 issue of *Annals of Internal Medicine* (volume 147, pages 854-859 and 860-870). The first report was written by the U.S. Preventive Services Task Force; the second report was written by T. Wolff, J. Guirguis-Blake, T. Miller, M. Gillespie, and R. Harris.

Who developed these guidelines?

The U.S. Preventive Services Task Force (USPSTF) is a group of health experts that makes recommendations about preventive health care.

What is the problem and what is known about it so far?

In atherosclerosis, cholesterol and other fatty substances collect in arteries, causing narrowing or blockages. The carotid arteries are blood vessels in the neck that bring blood to the brain. Carotid artery stenosis (CAS) is a condition in which atherosclerosis-related blockages in the carotid arteries may not allow ample blood flow to the brain. Low blood flow to the brain can cause transient ischemic attacks or stroke. When a transient ischemic attack occurs, blockage of blood flow to the brain is temporary and the brain suffers no permanent damage; however, when a stroke occurs, blockage of the blood flow lasts long enough that a section of brain tissue dies.

Medical treatments for CAS include careful management of blood pressure, cholesterol, and diabetes (among other things) to prevent worsening of atherosclerosis. Surgical treatment involves an operation to remove the blockages. Surgery can lower the chances of future transient ischemic attacks and strokes in people with CAS who have already had 1 of these events. It is less clear whether the operation also prevents these events in people with CAS who have not yet had symptoms.

The usual screening test for CAS is ultrasonography. Ultrasonography uses sound waves to take pictures of the arteries; this is similar to the test that women get during pregnancy to look at their babies. Some doctors may do an angiography or other tests to confirm the results of the ultrasonography. Angiography uses dye injected into the bloodstream so that good x-ray pictures of the arteries can be taken. Angiography itself can cause stroke.

Some experts think that people at high risk but without symptoms of CAS should routinely get screening tests to look for CAS so that those who have it can get surgery or other treatments to lower their chances of future stroke. However, screening also leads to some people who would never develop transient ischemic attack or stroke to get unnecessary angiography and surgery and possibly experience the complications of these procedures. The USPSTF weighed the benefits and risks of screening for CAS.

How did the USPSTF develop these recommendations?

The USPSTF reviewed published research to evaluate the benefits and harms of doing routine carotid ultrasonography in healthy adults to identify those who have CAS but without symptoms. The potential benefits included lowering future chances of having a transient ischemic attack and stroke. The harms included exposing people with positive tests for CAS who would never develop symptoms to further testing and surgery and their side effects.

What did the authors find?

The authors found good evidence that the benefits of surgery for people with CAS but no symptoms are minimal. Yet, harms result from both testing and treatment with surgery. Strokes or death happen in about 3 of every 100 people who have carotid artery surgery. The USPSTF was moderately certain that the potential harms of screening for CAS outweigh the potential benefits.

What does the USPSTF suggest that patients and doctors do?

Healthy patients should not get routine screening for CAS with ultrasonography.

What are the cautions related to these recommendations?

The recommendations apply only to patients without symptoms. The recommendations may change as new studies become available.

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