



# HEARTBEAT

*A Publication of South Jersey Heart Group*

## Enough is Enough – Asymptomatic Carotid Artery Disease



National guidelines do not agree on the role of carotid artery screening and treatment of carotid artery stenosis in asymptomatic patients (i.e., patients who have not had a stroke or transient ischemic attack).

In this *Heartbeat*, we will

outline a plan for use of carotid artery screening and management of asymptomatic carotid artery stenosis (ACAS) based on current information.

### **Inappropriate Carotid Imaging Common in Asymptomatic Patients**

The main message of a recent Veterans Administration (VA) study is that physicians are ordering carotid imaging for indications not supported by the guidelines.<sup>1</sup> *Physicians are clearly ordering too many studies.*

*The question is why.* As seen in Table 1, the main problem is that guidelines on carotid screening do not agree with each other. Clinicians are getting mixed messages. The US Preventative Services Task Force says don't do it period, even in the presence of a carotid bruit.<sup>2</sup> Others, such as the American College of Cardiology (ACC) and the Expert Consensus Panel, suggest it may be appropriate in higher risk patients. *There is no consensus.*

**TABLE 1.**

### **Recommendations for Screening for Asymptomatic Carotid Artery Stenosis**

#### **US Preventative Services Task Force**

No screening for asymptomatic carotid stenosis in the general population.

There is no evidence that screening by auscultation of the neck to detect carotid bruits is accurate or provides benefit.

Auscultation of cervical bruit correlates more closely with systemic atherosclerosis than with hemodynamically significant carotid stenosis.

#### **American College of Cardiology**

Carotid duplex ultrasonography (CDU) is not recommended for routine screening of asymptomatic patients who have no clinical manifestations of or risk factors for atherosclerosis; May be considered with symptoms or high-risk pts (> 3 risk factors).

CDU is not recommended for routine evaluation of patients with neurologic or psychiatric disorders unrelated to focal cerebral ischemia.

#### **American Society of Neuroimaging**

No screening of unselected population.

Screen adults over 65 who have three or more cardiovascular risk factors.

#### **American Heart Association/American Stroke Association:**

No screening in the general asymptomatic population.

#### **Clinical Expert Consensus Panel of Carotid Stenting**

Screen asymptomatic patients with carotid bruits who are potential candidates for carotid revascularization.

Screen patients in whom coronary artery bypass surgery is planned.

There was no financial incentive for the physicians carrying out the procedures (VA study), so the reason doesn't appear to be financially driven.

Physicians overall order too many tests secondary to a "culture" of not leaving any stone unturned so nothing is missed.

To clarify this issue further, the VA study performed expert reviews of potential indications for carotid artery screening, classifying them as appropriate, inappropriate, or uncertain. *The uncertain categorization was used if all raters deemed the indication uncertain or if consensus on appropriateness was not reached.* They found that only 5.4% of carotid imaging studies were performed for indications that all raters agreed were appropriate, with 11.3% completed for inappropriate reasons and 83.4% done for uncertain purposes. The high proportion of carotid imaging studies performed for uncertain indications is not entirely surprising. The most common inappropriate indications were dizziness (vertigo) and syncope.

Among the 4,063 patients, 3,373 (83.0%) received a carotid endarterectomy (CEA). Overall, 663 procedures were performed in patients 80 years and older. Their analysis does not address the use of the screening procedure in the larger group of asymptomatic patients who did not undergo a revascularization intervention. The proportions of patients in this population who have the test performed for inappropriate or uncertain reasons might be higher than in those who underwent CEA.

The most common indications listed were carotid bruit (1,578 [30.2% of indications]) and follow-up for carotid disease (stenosis/history of carotid disease) in patients who had previously documented carotid stenosis (1,087 [20.8% of indications]). Multiple risk factors were the next most common indication listed.

The overall conclusion of Keyhan's group was "the majority of patients who undergo carotid revascularization for ACAS received a diagnosis on the basis of results of tests ordered for uncertain or inappropriate reasons."

### **Sometimes Less is More**

The presumed purpose of carotid artery imaging is to screen for significant stenosis (> 70 %) and then proceed to intervention (CEA or carotid artery stenting) to prevent a stroke. These patients end up with a procedure that carries immediate risk. But what if optimal medical treatment (OMT) is just as good as surgical intervention? Would this alter management and/or studies ordered? Screening for a condition is only rational if its detection has a meaningful effect on patient management.

The current guidelines are based on two large, older multicenter trials that demonstrated the efficacy of CEA compared to medical therapy for patients with ACAS: the Asymptomatic Carotid Atherosclerosis Study<sup>3</sup> and the Asymptomatic Carotid Surgery Trial.<sup>4</sup> The five-year risk for stroke (including perioperative stroke or death) was 50% lower with CEA than with medical therapy, but the difference was only 5 percentage points (5-6% vs. 11-12%)—only an absolute reduction in ipsilateral stroke of 0.5% to 1% per year. Given the 2-3% rate of perioperative stroke or death, it took several years for the benefit of CEA to surpass medical therapy. A combined analysis of these two trials found no benefit of CEA in women with ACAS.<sup>5</sup>

These trials and subsequent guidelines have led to a surge of carotid imaging studies and carotid revascularization procedures in recent years.

Now, the primary issue of contention is that medical therapy has advanced since the time that these trials were conducted. These advances include the more widespread use of high-dose statins—most likely producing most of the benefit—newer antiplatelet agents,

and expanded options for blood pressure control.<sup>6</sup> In addition, there has been increased recognition of the value of lifestyle interventions, including exercise and Mediterranean diet.<sup>7</sup> Several small studies<sup>8,9</sup> have documented that OMT for ACAS has decreased the annual risk of ipsilateral stroke to less than 1% per year.

### **Not a Ticking Time Bomb**

Adding more “fuel to the fire,” regarding the debate concerning the best treatment for ACAS, the authors of a much more recent study conclude: *The risk of progression to carotid occlusion is well below the risk of intervention and has decreased markedly with OMT. Preventing carotid occlusion may not be a valid indication for imaging and intervention.*<sup>10</sup>



They analyzed 3,681 patients seen in an atherosclerosis clinic during a 20-year period. The patients were followed up with regular carotid imaging. The study found that the risk of progression to internal carotid artery (ICA) occlusion decreased over time, corresponding to more intensive medical therapy. Of the 316 patients with documented progression to ICA occlusion, 80.4% of these cases occurred before 2002. Remarkably, only one patient had a stroke at the time of ICA occlusion—adding to the increasing evidence of the value of OMT.

### **Conclusion**

Presently, there is uncertainty about whether patients with ACAS should receive revascularization or OMT. In this situation, physicians face a dilemma when caring for individual patients. Should a screening test be performed in the face of limited and conflicting data regarding the intervention that would be considered if the condition was detected? How are these complicated issues best presented and discussed with patients who look to their clinician for guidance?

Because presently no clear plan exists, the Carotid Revascularization Endarterectomy vs. Stent Trial 2 (CREST-2) is reevaluating the benefit of both CEA and carotid artery stenting in addition to contemporary OMT compared with OMT alone.<sup>11</sup>

Until there is more conclusive data available, I personally would recommend a conservative approach or referring your patient to a study center. I can't justify the upfront risk of intervention without a proven benefit. I will aggressively treat all risk factors. With this plan, there isn't an indication for carotid imaging.

In contrast, Dr. Weinberg favors, along with OMT in all, screening in those with three or more risk factors and intervention in those with > 80 % stenosis and life expectancy > 5 years. There may be a role for plaque morphology analysis to help determine direction in the future.



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