

CLINICAL DECISIONS

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Management of Carotid Stenosis — Polling Results

Autumn Klein, M.D., Ph.D., Caren G. Solomon, M.D., M.P.H., and Mary Beth Hamel, M.D., M.P.H.

In early April, we presented the case of a 67-year-old man with asymptomatic carotid disease in Clinical Decisions,¹ an interactive feature designed to assess how readers would manage a clinical problem for which there may be more than one appropriate treatment. The patient was a nonsmoker with a history of hypertension and hyperlipidemia who was noted to have a carotid bruit on routine examination. He was also found to have a stenosis of 70 to 80% of the right internal carotid artery with an irregular plaque and an elevated peak velocity. The left internal carotid artery showed a 20% stenosis.

Of the three management options proposed, the option that received the most votes — 2265 of the 4669 votes cast (49%) — was medical management, involving the initiation of appropriate medical therapy and clinical follow-up of the patient. The second-most popular choice, with 1488 votes (32% of the votes cast), was carotid endarterectomy. The other option, carotid stenting, received 916 votes (20% of the votes cast). The 4669 participants who voted were from 116 countries and regions and indicated that they were physicians (76%), students (16%), other health care professionals (5%), or other (2%) (Fig. 1). Detailed results are displayed according to country at www.nejm.org.

In addition to the votes, we received 269 comments, 91% of which were posted at www.nejm.org (after being reviewed for appropriateness). Consistent with the voting, the majority of comments were in favor of either medical management or medical management in combination with carotid endarterectomy.

MEDICAL MANAGEMENT

Many respondents in favor of medical management emphasized the notion “first, do no harm” and thought the risks associated with surgery and stenting did not outweigh the benefits. Numerous participants argued that the patient was likely to

have atherosclerotic disease in his coronary and peripheral arteries and that a procedure on the carotid artery would not address the underlying problem. Most felt that risk factors, including hypertension, hyperlipidemia, and weight, should be more aggressively controlled and reevaluated before intervention was considered. Several emphasized that older trials favoring endarterectomy over medical therapy were performed before the widespread use of statins and before current stringent guidelines for controlling cardiovascular risk factors, including blood pressure and low-density lipoprotein levels. Some respondents noted that their decision would be influenced by the rate of surgical complications at their institution.

CAROTID ENDARTERECTOMY

Respondents who voted for carotid endarterectomy commonly noted that this approach should be offered in addition to (not in lieu of) medical management. Many commented that, before surgery, the patient should undergo evaluation to better characterize the morphologic characteristics of the plaque and to assess for other vascular disease. Some respondents noted that the current use of techniques less invasive than conventional angiography, such as magnetic resonance arteriography or computed tomographic angiography, to delineate vascular anatomical features, has lowered the complication rate of carotid endarterectomy from that reported previously and improved the risk-to-benefit ratio. Several respondents commented that the patient was relatively healthy and young, was expected to live a long time, and has a low operative risk; they anticipated a substantial long-term benefit from surgery. The institution where the operation would be performed and the experience of the surgeon were major considerations in respondents' recommendations. Many suggested that a risk of complications below 3% clearly supported a benefit of carotid endarterectomy

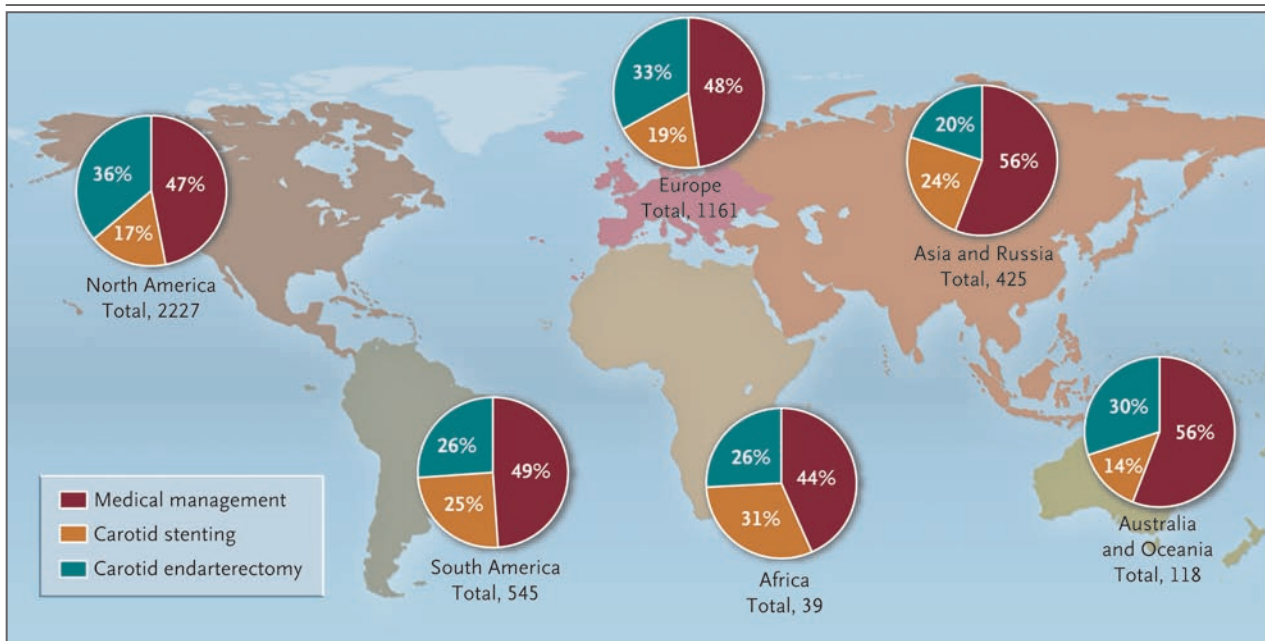


Figure 1. Percentage of Participants Choosing Each Treatment Option for the Management of Carotid Stenosis.

The total number of participants who voted and the percentage who selected each option are shown for each continent or region. The percentages did not vary substantially according to continent or region. An interactive graphic that includes the total numbers of votes and percentages according to country is available at www.nejm.org.

over medical management. In addition, many respondents voting for carotid endarterectomy felt that there was not sufficient experience with carotid stenting to support this option in the patient described.

CAROTID STENTING

As was the case for carotid endarterectomy, respondents favoring carotid stenting emphasized that medical management was also warranted to maximize success and that an experienced interventionalist was critical to the outcome of the procedure. Several respondents commenting on the option of carotid stenting noted its reported efficacy in high-risk patients but were concerned that the complication rate was not yet clear enough to justify the use of carotid stenting in low-risk patients. It was also noted that the largest clinical trial comparing carotid stenting and carotid endarterectomy for symptomatic and asymptomatic patients, the Carotid Revascularization Endarterectomy versus Stenting Trial (CREST; ClinicalTrials.gov number, NCT00004732), is still enrolling patients and will provide more data to inform this question.

SUMMARY

Although respondents had different views about the best strategy to manage an asymptomatic carotid stenosis, most respondents agreed that aggressive medical management and the adoption of a healthy lifestyle are important in preventing progression of cerebral and systemic vascular disease, regardless of whether a surgical or catheter-based intervention is also performed. In cases in which surgery or stenting is pursued, selection of an experienced surgeon or interventionalist with a history of low complication rates is critical to the ensuring the best possible outcome.

Comments from this interactive feature will remain available at www.nejm.org, along with data on the voting results.

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Dr. Klein is from the Program in Women's Neurology, Department of Neurology, Brigham and Women's Hospital, Boston.

1. Sila CA, Higashida RT, Clagett GP. Management of carotid stenosis. *N Engl J Med* 2008;358:1617-21.

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