

MANAGEMENT OF ASYMPTOMATIC CAROTID ARTERY STENOSIS

Duplex findings	Description	Treatment Medical vs surgical ¹	Vascular consultation	CAD evaluation (nuclear stress test)	Treatment of CAD risk factors	Follow up duplex ultrasound
0%	Normal	none	no	No	No	No
1-15%	Insignificant amount of atherosclerotic plaque	Medical	no	No	No	No
16-49%	There is atherosclerotic plaque but the lesion is not hemodynamically significant	Medical	no	+/-	Eval for CAD risk factors	1-2 years
50-69%	There is a hemodynamically significant stenosis	Usually medical but surgery in young, good risk patients	+/-	Yes	Treat as CAD equivalent	yearly
70-99%	There is a high grade stenosis	More often surgery ¹ but observation in high risk patients	yes	Yes	Treat as CAD equivalent	Every 6-12 months
Preocclusive	There is a very tight stenosis which as at risk for spontaneous occlusion	Almost always surgical	yes	Yes	Treat as CAD equivalent	Depends—usually this is not observed

¹Surgery includes open endarterectomy or carotid stent placement as appropriate

How to interpret the chart:

Duplex Findings:

Color flow duplex imaging is currently the initial recommended diagnostic modality to evaluate and follow carotid artery stenosis. Duplex combines B mode ultrasound imaging with pulsed Doppler velocity measurement. Results are reported as a % stenosis (diameter reduction) in ranges (ie 70-99%) based on velocity criteria and these ranges correspond to the ranges needed in clinical decision making. It is highly accurate in determining the degree of stenosis in most circumstances.

Description:

Clinical decision making is determined by the degree of stenosis. Lesions under 50% are hemodynamically and clinically insignificant. Stenoses >50% are hemodynamically significant and lesions >70% are considered high grade.

Treatment:

Treatment refers to whether the stenosis should be treated medically (anti-platelet agents and risk factor management) or surgically (endarterectomy or stent placement).

Vascular Consultation:

For stenoses <50%, there is no benefit for surgery or stenting over medical management. In general, these patients do not need vascular evaluation. For stenoses >50%, however, it is harder to make broad recommendations. Randomized trials show that intervention decreases the risk of stroke approximately 1.5% per year in stenoses >60%. This suggests that intervention is best for patients who are young and who are expected to live for a number of years. We usually reserve intervention on patients who have lesions that are at a greater risk for stroke including those with high grade stenoses or stenoses which are progressing over time. In these cases decision making can be more complex and consultation may be indicated.

CAD evaluation and Treatment of CAD risk factors:

Atherosclerosis is a systemic disease and patients with peripheral arterial disease (PAD) or cerebrovascular disease (CVD) have a shortened lifespan primarily because of associated ischemic cardiac disease. The American Heart Association, American College of Cardiology and the Joint British Societies have recommended treating PAD or CVD as *Coronary Disease Equivalents*. Therefore patients with hemodynamically significant carotid stenoses should be evaluated for CAD with a nuclear stress test and have risk factors for atherosclerosis aggressively controlled (recommendations summarized below).

Follow up Duplex ultrasound:

Patients who are being treated medically for carotid stenosis should have routine surveillance. Lesions <50% do not require close follow up. Repeat examination should be dictated by their associated risk factors with high risk patients being reevaluated more frequently. Patients with stenoses 50% should be followed with yearly testing or more frequently if they have higher grade stenoses.

AHA/ACC Guidelines for Secondary Prevention

Intervention point	Guideline goal
Smoking	Complete cessation
Blood pressure control	<140/90 <130/80 in diabetics
Lipid management	LDL cholesterol <100mg/dl
Diabetes management	HbA1c <7%
Antiplatelet use	Use in all if not CI
ACE inhibitor use	Use in all post MI Consider in all others
B blocker use	Use in all post MI
Weight	BMI <25
Physical activity	30 minutes, 3x per week