



Carotid Artery Disease Ultrasound

The carotid arteries are the major blood supply to the brain. They are branches of the aorta (the major artery from the heart) and can be easily felt with the fingertips along the right and left sides of the front of the neck. The common carotid artery divides into internal and external carotid arteries with the internal branch going to the brain. They can become narrowed by atherosclerosis, a build up of fats such as cholesterol in the inner lining of the artery. Atherosclerosis can cause strokes or transient ischemic attacks.

Ultrasound evaluation uses sound waves to evaluate the carotid arteries. In the past, ultrasonographers characterized the degree of carotid stenosis based on visual characteristics. A consensus conference in 2003 of the Society of Radiologists in Ultrasound recommended that the diagnosis and grading of internal carotid artery (ICA) stenosis be based on 1) internal carotid artery (ICA) peak systolic velocity (flow rate) and 2) the presence of plaque. As the inside (lumen) of the artery becomes progressively narrower, blood velocity increases to maintain a constant flow through the vessel. This velocity begins to increase when the narrowing exceeds 50% diameter reduction (reduction of 70% cross sectional area). Maximum velocities in the carotid system occur with a lumen diameter of 1 to 1.5 mm. As the lumen diameter narrows beyond that point (>90% stenosis), the velocity begins to decrease.

Velocities <125 cm/s indicate <50% stenosis. Velocities >230 cm/s indicate >70% stenosis. Inconsistencies in interpretations continue, however, because the literature is not standardized regarding flow velocity, ranges and degree of stenosis.

Clients are rated for carotid artery disease as stated below: The higher rating is given if age at diagnosis is less than 55.

Carotid bruit, carotid stenosis, no CVA or TIA	Rating
No symptoms, bruit not investigated	Table C - B
No symptoms, investigated	
No disease	0
Stenosis 1-30% and no ulceration of plaque	Table B - None
Stenosis 31-69% and no ulceration of plaque	Table C-B
With ulceration or with stenosis \geq 70%	Table D-C
Surgical intervention, recovered	Table C-B

To get an idea of how a client with a history of carotid disease would be viewed in the underwriting process, feel free to use the attached Ask "Rx" pert underwriter for an informal quote.

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