

Carotid artery intimal-medial thickness distribution in general populations as evaluated by B-mode ultrasound

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Background and Purpose: B-mode ultrasound is a widely used technique for the clinical and epidemiological assessment of carotid Atherosclerosis. This article provides a description of the distribution of carotid Atherosclerosis in the general population.

Methods: Intimal-medial arterial wall thickness was measured by B-mode real-time ultrasound as an index of atherosclerotic involvement in the extracranial carotid arteries as part of the population-based Atherosclerosis Risk in Communities (ARIC) study. The distribution was described by race-sex strata, in which 759 to 4952 individuals were imaged depending on strata and location in the carotid system.

Results: Median wall thickness ranged between 0.5 and 1 mm at all ages; fewer than 5% of ARIC participants had values exceeding 2 mm. Individuals tended to have a larger wall thickness in the carotid bifurcation than in the common carotid artery. Internal carotid artery values were more variable, with higher proportions of both large and small wall thicknesses than in the common carotid. The proportion of individuals with a large wall thickness was greatest at the bifurcation and smallest at the common carotid artery. Men had uniformly larger wall thickness than women. Cross-sectional analysis suggests that age-related increases in wall thickness average approximately 0.015 mm/y in women and 0.018 mm/y in men in the carotid bifurcation, 0.010 mm/y for women and 0.014 mm/y for men in the internal carotid artery, and 0.010 mm/y in both sexes in the common carotid artery.

Conclusions: Estimates provided for wall thickness percentiles can serve as “nomograms” by age, race, and sex.

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