

High-resolution B-mode ultrasound scanning methods in the Atherosclerosis Risk in Communities Study (ARIC)

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Abstract:

The Atherosclerosis Risk in Communities study examined popliteal and extracranial carotid arteries in approximately 16,000 randomly selected participants, aged 45 to 64 years. Vessels were studied noninvasively using high-resolution B-mode ultrasound imaging at baseline, to be repeated again after 3 years. The ultrasound examinations were performed according to a detailed standardized protocol by trained, certified sonographers subject to semiannual evaluation. Data on intrasonographer reliability from May 15, 1987, to June 30, 1989, showed that sonographers were able to visualize consistently a similar number of points along each of four arterial interfaces. Furthermore, the variability of measured combined intima-medial thicknesses was low, with 80% or more of duplicate scans differing by less than 0.267 mm. The validity of B-mode ultrasound imaging to detect asymptomatic carotid and popliteal artery Atherosclerosis combined with high measurement reproducibility provides a powerful noninvasive scientific tool to test cross-sectional and prospective hypotheses related to disease epidemiology.

Abstract Related to MS #032