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Titel des Beitrags:
Quality control of B-mode ultrasonic measurement of carotid artery intima-media thickness: the European Lacidipine Study on Atherosclerosis.

Abstract:
BACKGROUND: The European Lacidipine Study of Atherosclerosis (ELSA) was a prospective, randomized, double-blind, multinational interventional trial using B-mode ultrasound measurement of carotid intima-media thickness (IMT) in 2259 hypertensive individuals. ELSA showed that 4-year treatment with the calcium antagonist, lacidipine, significantly slowed down progression of carotid atherosclerosis as compared with treatment with the beta-blocker, atenolol. OBJECTIVE: To report data on cross-sectional and longitudinal quality control of the ultrasound measurements implemented throughout ELSA. METHODS: Patients underwent scans at baseline and at each annual visit. All endpoints were measured while the study was in progress (initial measurements). In addition to the cross-sectional quality control procedures, a longitudinal quality control procedure of re-reading 250 baseline scans at yearly intervals was implemented, to control possible reader drift. After the study had been completed, the primary endpoint was measured again under the same condition of cross-sectional quality control. RESULTS: Cross-sectional quality control data showed high reliability for all endpoints at all time points except for single maximum IMT (Tmax) and internal carotid IMT. Within-reader reliability was constantly better than between-reader reliability.
but, for the primary endpoint, between-reader reliability remained excellent. Initial and longitudinal quality control measurements showed a time trend toward lower IMT values. After application of a correction factor calculated from longitudinal quality control, all initial measurements no longer decreased with time, and the corrected IMT measurements were reasonably similar to those made after completion of the study. CONCLUSION: For long-term epidemiological studies and clinical trials, both cross-sectional and longitudinal quality control are critical to the reliability of measurements. In order to evaluate the absolute change in IMT and interpret study results without bias, both must be implemented.

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