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Significance of Carotid Intimal Thickening in Hypertensive Patients

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Background: Detection of early atherosclerosis is of utmost clinical importance. Although abnormal intima-media thickness (IMT) measurements correlate well with atherosclerosis and increased cardiovascular events, little attention has been placed on intimal thickening (IT). IT may result from damage caused by retained lipoproteins before they migrate to the media. IT may thus be an early indicator of endothelial dysfunction. IT may precede reduced vessel elasticity, abnormal IMT, stenotic carotid lesions or symptomatic carotid artery disease. Its Doppler presence may therefore be an earlier warning sign of future cerebrovascular events.

Aim of Study: This study was done to evaluate the presence and significance of intimal thickening in the carotid arteries of hypertensive patients.

Methods: Carotid duplex scans of 119 consecutive hypertensive patients were retrospectively reviewed. Bilateral common carotids, carotid bulbs, internal carotids, and external carotids were studied using a linear array 7- to 10-MHz transducer. Intima

was considered thickened if it was visualized as an echodense area, similar to the media-adventia interface in the far wall of the artery. Plaque was present if there was a protrusion into the lumen wall. Patients with IMT were excluded from the study.

Results: Of the total, 71 (59.7%) were male and 48 (40.3%) were female. Their ages ranged from 46 to 88 years. Eighty-three (52 [62.7%] males; 31 [37.3%] females) (69.7%) of the 119 patients showed areas of thickened intima in the carotid arteries. Twenty-one (12 [57.1%] males; 9 [42.9%] females) (17.6%) of the 119 patients had plaque detected. Of these 21 with abnormal plaque, all (100%) showed IT while 62 (40 [64.5%] males; 22 [35.5%] females) (63.3%) of the 98 with no plaque showed IT. Twenty-one (12 [57.1%] males; 9 [42.9%] females) (25.3%) of the 83 with IT revealed an abnormal plaque while none of the 36 (19 [52.8%] males; 17 [47.2%] females) with no IT revealed an abnormal plaque.

Conclusions: We found a high incidence of intimal thickening in the carotid arteries of hypertensive patients. There appeared to be a correlation with atherosclerotic plaque. Since intimal damage precedes media thickening, ultrasound evidence of an abnormal intima may be the first indication of carotid atherosclerosis and prognosticate future progression to IMT and plaque. Further studies are needed to correlate isolated intimal thickening with morbidity and mortality in cardiovascular disease.