

Short Communication**Extracranial cerebral arterial atherosclerosis in
Iranian patients suffering ischemic strokes***Sayed Ali Mousavi*, Majid Ghasemi*, Tahereh Hoseini*, Ali Mehrabi****Abstract**

BACKGROUND: To determine the distribution and severity of extracranial carotid arterial atherosclerosis in Iranian patients with ischemic stroke.

METHODS: 328 patients with ischemic stroke were included in this study. Doppler ultrasound was used for evaluation of atherosclerosis in extracranial carotid arteries. The NASCET criteria were used to measure carotid stenosis.

RESULTS: Ninety of 328 patients (27.4%) were found to have atherosclerotic plaques; 40 of these patients were women and 50 were men. Sixty-eight patients (20.7%) had artery stenosis <50%, 13 patients (3.95%) had 50-70 % artery stenosis and 6 (1.8%) had >70% artery stenosis.

CONCLUSIONS: Extracranial atherosclerosis is not rare in Iranian patients with ischemic stroke, but most carotid artery lesions were plaques with <50% stenosis.

KEY WORDS: Atherosclerosis, ischemic stroke, carotid stenosis.

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Among all the neurologic diseases of adult life, the cerebrovascular diseases clearly rank first in terms of frequency and importance. At least 50% of the neurologic disorders in a general hospital are of this type¹. Atherosclerotic lesions of the carotid artery are a common cause of ischemic stroke². The distribution and severity of atherosclerotic cerebrovascular disease has been reported to vary among patients of different ethnic origins³. Duplex Ultrasonography of the extracranial arteries is a valid, noninvasive examination procedure for evaluation of carotid disease⁴. Hence, the objective of this study was to identify the distribution and severity of atherosclerosis of the extracranial portion of carotid artery in Iranian patients with ischemic stroke.

Methods

We recruited 328 patients who had been admitted to Alzahra Hospital, Isfahan, Iran for neurologic evaluation between September 2002 and July 2004 following an ischemic stroke. A stroke was defined as a rapidly developing focal or global cerebral dysfunction of presumed vascular origin lasting >24 hours, later confirmed by CT scan or MRI. Patients with possible migraine events, non-focal neurological symptoms, or established cardiogenic embolic stroke were excluded.

Extracranial carotid arteries were evaluated through Doppler examination with a high-resolution real-time scanner equipped with a 5 MHz transducer using a GE Logic 500 device with the subject lying in a supine position, the

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extracranial carotid arteries were visualized in the longitudinal and transverse planes. Common carotid arteries, carotid bifurcations, internal carotid and vertebral arteries were examined for the presence of atherosclerotic plaques and carotid stenosis. Carotid stenosis was measured based on flow velocity criteria for grading carotid stenosis used in the Neurosonology Laboratory of the Wake Forest University Baptist Medical center ².

Results

Of 328 patients, 200 were men and 128 were women. Ninety of 328 patients (27.4%) were found to have atherosclerotic plaques, and 238 patients (72.6%) had normal extracranial arteries. Sixty-five patients (19.8%) had unilateral carotid stenosis, 17 (5.1%) had bilateral carotid stenosis and 8 (2.4%) had unilateral vertebral artery stenosis (table 1). Sixty-eight patients (20.7%) had arterial stenosis <50%, thirteen (3.95%) had arterial stenosis between 50% and 74%, and six (1.8%) had >74% arterial stenosis.

Discussion

Previous studies have reported that Asian stroke patients have more intracranial small-vessel disease than do white Caucasian stroke patients, whereas extracranial disease is extremely rare ³. Similar to these studies, occlusive lesions of the carotid arteries were not found in our study. Only 19 patients (5.75%) suffered from extracranial artery stenosis >50%, while the incidence of carotid stenosis >50% in similar patients in Germany has been found to be more than 18% ⁵. We speculate that this may be characteristic of carotid atherosclerotic lesions in stroke patients of the Iranian population, which means carotid artery lesions are plaques with <50% stenosis in most of our stroke patients. These results also show that like in other Asians ⁶, atherosclerosis of extracranial carotid arteries is not rare in Iranian patients with ischemic stroke, and that carotid diseases should be considered as an important risk factor for ischemic stroke.

Table 1. Prevalence of unilateral carotid stenosis, bilateral carotid stenosis and unilateral vertebral artery stenosis.

Sex \ Artery Stenosis	Unilateral Carotid Stenosis	Bilateral Carotid Stenosis	Unilateral Vertebral Stenosis
Women	32 9.75%	5 1.52%	3 0.9%
Men	33 10.6%	12 3.65%	5 1.52%
Total	65 19.8%	17 5.1%	8 2.4%

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