The Reliability of Clinical Predictors of Extracranial Artery Disease

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SUMMARY The records of 628 patients admitted to the Joint Study of Extracranial Arterial Occlusion with transient symptoms of carotid system ischemic disease were examined to determine the accuracy of predicting disease of the extracranial internal carotid artery on the basis of clinical information alone.

A patient with a history of episodes of amaurosis fugax is more likely to have a lesion of the internal carotid artery on the same side than if he were having only transient cerebral ischemic attacks.

In patients with transient symptoms and a carotid bruit on the appropriate side, the incidence of an angiographically normal carotid artery was 15%. In those patients with transient symptoms and no palpable pulsatation in the cervical region on the appropriate side, the incidence of an angiographically normal carotid artery was zero.

THE HISTORIES, clinical findings and arteriographical reports on all patients admitted to the Joint Study of Extracranial Arterial Occlusion with transient symptoms of carotid-middle cerebral territory ischemia (amaurosis fugax or transient focal cerebral ischemic attacks or both) were compared in an attempt to determine the value of the clinical information alone in predicting the presence and extent of extracranial internal carotid artery disease. It has been stated that amaurosis fugax seems to be a highly specific indicator of proximally located carotid lesions, being associated with only 4% of normal internal carotid arteries, as compared to 27% for patients with transient focal cerebral attacks alone. That report was based on findings in 64 patients. We felt that it would be of interest to ascertain whether or not our group of 628 patients in these categories corroborated those statistics (table 1). All patients had arteriography during their initial evaluation.

The figures recorded in table 1 tend to substantiate the report cited. The arteriographical demonstration of a normal ipsilateral carotid artery was only 22% (51 of 234) for patients with amaurosis fugax (with or without associated transient focal cerebral ischemic attacks), but was 43% (168 of 394) in patients with transient focal cerebral ischemic attacks alone. Furthermore, the incidence of roentgenographically observed occlusion was 14% (32 of 234) for the patients with amaurosis fugax compared to 8% (31 of 394) for patients with transient hemispheric attacks alone. Thus it appears that when a patient presents with a history of one or more attacks of amaurosis fugax, he is much more likely to have a lesion of the internal carotid artery on the same side than if he were having only transient cerebral ischemic attacks.

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If a bruit is heard during auscultation of the carotid bifurcation area, the likelihood that it originates from the external carotid artery is very small. Of the 628 patients, 272 had an ipsilateral carotid bruit. Forty of those with a bruit had a normal artery, 211 had a stenosis, and 21 had an occlusion (table 2). Almost 40% of patients having an angiographical diagnosis of stenosis had no reported bruit on auscultation. With a normal internal carotid artery, the bruit may arise from a narrowed external carotid artery or from eddy currents or an unusual flow pattern within the distal common or proximal internal carotid artery segment. Of the 40 patients with a normal artery and a bruit, 37 also had a normal external carotid on that side while only three had stenosis of the external carotid. Twenty-one patients with an occluded internal carotid artery had ipsilateral bruits on examination. In 11 of these patients the external carotid artery was normal; in four patients it was stenotic and in three, occluded. (Three patients had the appearance of the external carotid artery listed as "unknown" or "not visualized.")

Most patients had a clinically palpable pulsation in the carotid area no matter what the condition of the internal carotid artery (table 3). The pulsation in patients with internal carotid artery occlusion was presumed to arise from the common carotid artery and/or external carotid artery branches. Absence of carotid artery pulsation in the cervical region is almost invariably associated with common carotid artery occlusion although, even then, a diminished pulsation may be palpable from the collateral vessels supplying the external and internal carotid arteries.

In summary, in patients with transient symptoms and a carotid bruit on the appropriate side, the incidence of an angiographically normal carotid artery was 15% (40 of 272). Dr. Ramirez-Lassepas and associates of the Mayo Clinic also reported a 15% incidence of an angiographically normal carotid artery in the presence of an ipsilateral carotid bruit. In patients with transient symptoms and no palpable pulsation in the cervical region on the appropriate side, the incidence of an angiographically normal carotid artery was zero.

In the early years (1959 to 1965) of the Joint Study, ophthalmodynamometry was requested on all patients. Unfortunately, the procedure was done so seldom that when the protocol was revised, this section was eliminated by general consent. Data on ophthalmodynamometry, therefore, are incomplete.

It may be considered that the patient population was biased. After 1967, patients had to be eligible for surgery in order to be admitted to the randomized part of the Study. Therefore, patients had to have a lesion. This eliminated those individuals who were having transient attacks but had a normal-appearing artery.

It is the opinion of the authors that no single symptom or sign or combination of clinical findings enables one to predict with accuracy the condition of the carotid artery. One can make a reasonable assumption that the artery is diseased, but if surgical management is being considered, arteriography is essential.

It is hoped that new noninvasive diagnostic techniques will soon be available for demonstrating internal carotid artery stenosis or occlusion and thus eliminate the necessity of subjecting patients to the attendant risks of arteriography.

Reference