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Opinion Article

Temporary Ischemic Attack and Cervical Vascular Ultrasound in Atherosclerosis

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DESCRIPTION

Clinical neurological condition Temporary Ischemic Attack (TIA) refers to transitory neurological dysfunction brought by a localized impairment of cerebral blood flow. Consciousness haziness, visual abnormalities, and unsteadiness while standing or walking are characteristics of TIA and often last no longer than a day. According to research, patients who have TIA have an extraordinarily high risk of stroke, with rates of 4.7% at 7 days and 11.4% at 90 days following the TIA's onset. Research on TIA risk factors is still a major clinical concern and a hot topic. Carotid Atherosclerosis (CAS), which is a component of overall body atherosclerosis, is a term used to describe a number of disorders in which the flexibility of the arterial wall is decreased and the artery wall thickens and narrows. As it may lead to blood artery obstruction, stenosis, or thrombosis formation to cause local brain tissue blood supply abnormalities, CAS is a significant risk factor for stroke. TIA is primarily brought on by a number of factors that disrupt the local and regional blood flow to the brain tissue, leading to hypoxic-ischemic lesions and brain tissue necrosis. Cardiovascular and cerebrovascular disorders are pathologically based on CAS, a systemic lesion. Because the major components of AS are lipid nuclear cells, protein complexes, and cholesterol lipids, it is simple to trigger the rapid rupture of lipid-rich plaques, which causes platelets to become lipid-activated and result in the formation of thrombus when the pressure inside the artery wall considerably increases. CAS grows over time and obstructs blood arteries directly. The rough surface of CAS plaque can lead to platelet aggregation, interfere with the activation of the coagulation system, and result in the formation of thrombus. By causing the carotid artery lumen to narrow, CAS lowers the perfusion pressure at the distal end, which leads to hypo perfusion infarction or marginal band infarction. Elm plaques instability, which causes them to burst and disseminate through the bloodstream while obstructing blood arteries at their distal ends.

The cerebral infarction of the internal carotid artery system (posterior circulation) and the cerebral infarction of the vertebrobasilar artery system (anterior circulation), of which have distinct presentations and call for different management, are two subtypes of TIA that can be distinguished based on the location of the lesion vessel. Therefore, it is crucial for the prevention and management of TIA to accurately identify the type of carotid lesion in patients with TIA and comprehend the connection between the lesions and stroke. In order to do this, the current study was carried out to assess the diagnostic utility of cervical vascular ultrasonography in patients with TIA who have significant arterial lesions of the neck. With a probe frequency of 7.5 MHz, the participant's carotid arteries were examined using the Envisor M2540A color Doppler ultrasonography device.

Partial results were recorded using a Sony thermal camera. The participants were told to bend their heads backwards in order to stretch their necks for the ultrasound. The ultrasonic probe was used to scan the common carotid artery, the extracranial segment of the internal carotid artery, the bifurcation of the common carotid artery, the bilateral subclavian arteries, and the outer cranial portion of the vertebral artery. Each vessel's lumen diameter, blood flow rate, plaque location, form, and characteristics were recorded, along with the degree of luminal stenosis. Most stroke cases are documented in middle-aged and older people, and in China, the incidence of stroke has been on the rise recently. Early prevention and intervention are crucial due to the serious effects of stroke on individuals. According to research, TIAs are frequently associated with stroke risk factors, and preventing TIAs lowers that risk. The risk of TIA has been hypothesized to be influenced by age, smoking, stroke history, and underlying illnesses such diabetes, hypertension, and hyperlipidemia.

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