Perspective on management of Transient Ischemic Attack in the emergency department

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ABSTRACT

Transient ischemic attack (TIA) is commonly presented at the emergency department as transient and nonspecific symptoms, which are difficult to localize and interpret. It is often required to have strong clinical suspicion to diagnose TIA. Optimal blood pressure control is of utmost importance to minimize hazardous consequences of TIA and stroke. There have been many scoring systems to predict stroke after TIA but none of them are reliable to access low or high risk for early recurrent stroke. There is emerging evidence among association between high D-Dimer level and acute ischemic stroke followed by TIA but a dose-dependent relationship between D-Dimer and the risk of stroke is yet to be established. Until now neuroimaging has been the investigation of choice for detecting TIA and stroke.

Keywords: dual anti-coagulant, management, presentation, transient ischemic attack

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INTRODUCTION

Transient ischemic attack (TIA) may present with numbness, weakness, slurred speech, dizziness, double vision, hemianopia, transient monocular blindness, imbalance, aphasia, and headache.[1] Recent studies show that it lasts for less than one hour and in 90% of cases less than 10 minutes.[1] This tissue based definition has evolved from the previous purely time based definition of neurologic dysfunction lasting < 24 hours. Hypertension is the major risk factor for TIA, studies have shown that blood pressure of less than 130/80 mm Hg can minimize 75% of TIA and Stroke.[1] Therefore, TIA is a window of opportunity to minimize the catastrophic effects of acute ischemia stroke (AIS). A five-decade analysis of trends of ischemic stroke after TIA showed that subsequent ischemic stroke was estimated to be 2.5% within 2 days, 3.8% within 7 days, 4.1% within 30 days, and 4.7% within 90 days.[2]

DISCUSSION

Patients hospitalized for TIA have a lower risk for AIS compared to those evaluated on an emergency and outpatient basis. In a study conducted at university of Lowa, USA 2010-2015 nationwide readmission database, 90 days of readmission after TIA was 1.4%. Male sex, head/neck vessel atherosclerosis, hypertension, diabetes, atrial flutter or fibrillation, previous history of TIA/Stroke, drug use, and higher Charison Co-morbidity Index score were associated with readmission due to stroke.[3] However a meta-analysis looking into subsequent ischemic stroke within 2,7,30, 90 days and death within 90 days, of TIA patients in acute phase managed in inpatient ward may not be associated with a lower risk of stroke and death compared with urgent outpatient management.[4]

It is very important for timely recognition of subtle clinical findings of TIA. Since, an emergency is the first place for presentation, the clinician in the emergency department must have a fair knowledge of TIA. A systemic review and meta-analysis showed that an expert clinician demonstrated good agreement for TIA diagnosis, interrater variability between clinicians TIA diagnosis and administrative data also showed good agreement. However, there was moderate agreement between referring clinicians and experts at TIA clinics, where 60% of referred cases were TIA mimics.[5] There are various risk scores to predict the risk of stroke after TIA. The ABCD2 scoring has widely been used however a meta-analysis concluded that this scoring system does not reliably discriminate those at low and high risk

of early recurrent stroke.[6] Moreover, large artery stenosis and infraction number were independent predictors of 1-year stroke recurrence in low and moderate risk but not in high-risk patients with TIA stratified by ABCD2 score.[7] A systemic review done to study risks score for predicting new atrial fibrillation after ischaemic stroke or TIA showed that risk scores performed variably in their ability to discriminate. [8]

The association of high D-Dimer level with the risk of stroke and adverse clinical outcomes of the patient with acute ischemic stroke and TIA has also been studied. High D-Dimer levels were significantly associated with the risk of stroke and are correlated with the risk of adverse clinical outcomes in patients with AIS or TIA. However, there was no significant dose-dependent relationship between D-Dimer level and the risk of stroke.[9] Imaging is the most effective method for the diagnosis of TIA i.e. magnetic resonance imaging (MRI) is advantageous over CT to confirm nature and etiology.[10] MRI, and diffusion-weighted MRI is recommended within 24 hours of symptom onset. A CT angiogram is recommended if an MRI cannot be performed, though MRI with diffusion-weighted imaging has greater sensitivity than CT for detecting small infracts. For Cervicocephalic vasculature, carotid Doppler ultrasonography is preferred. Besides this electrocardiogram, echocardiogram, and Holter monitor are recommended to find cardioembolic sources.[11]

Dual antiplatelet therapy (DAPT) with aspirin and clopidogrel or ticagrelor is more effective than aspirin alone for the prevention of recurrent stroke.[12] A meta-analysis also concluded the effectiveness of DAPT however there is a higher risk of major bleeding which needs to be assessed during therapeutic strategies.[13] In a study conducted in Ottawa Hospital, Ontario , Canada there was however no statistical difference between clopidogrel and ticagrelor for the primary outcome of TIA.[14] It is known that TIA is a continuum of upcoming AIS, therefore there is emerging evidence that a reduction in risk following TIA. Timely recognition, investigation, and treatment is the key to achieving a good outcome.

Prevention

TIA can be minimized by controlling blood pressure, high cholesterol, cardiovascular disease, carotid artery disease, diabetes, homocysteine level and weight. Similarly life style modification like quitting smoking, exercise, nutritional diet, illicit use of drugs also help in prevention. Patients

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should also cautiously monitor signs and symptoms of TIA, so that there can be early damage control.

CONCLUSION

TIA is one of the common case presenting in emergency. Early recognition and intervention can be life and disability saving. MRI is the investigation of choice where available else CT angiogram can also be done. There are evidence of increased effectiveness of DAPT then mono-therapy.

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