

Transient Ischemic Attack as Prediktor of
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Article Information

Received date: Jan 07, 2019

Accepted date: Feb 06, 2019

Published date: Feb 12, 2019

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Keywords Transient ischemic attack; Stroke; Hypertension; Diabetes mellitus

Abstract

The predicative role of Transient Ischemic Attacks (TIA) in the formation of a definitive ischemic stroke in a five-year period were studied in a population of 1037 persons aged 42 to 77. We were monitoring outpatients and hospital patients. All patients had laboratory tests with particular reference to the values of glycemia and lipids profile, cardiac investigations (blood pressure, ECG and examination of specialist in internal medicine); brain Computed Tomography (CT) with transcranial doppler ultrasound (in the period of 3 days from the onset of symptoms) and doppler ultrasound of neck arteries. The number of men and women who had symptoms of TIA was almost equal. The leading risk factor among these patients was hypertension, but most of them also had diabetes mellitus, elevated serum lipid levels, and heart arrhythmias. Almost all patients had circulatory changes on the blood vessels of the brain while half of them had degenerative changes in the blood vessels of the neck. In the five-year follow-up period of these patients, a definite ischemic stroke developed in 31.72% and this was more common in those who had repeated TIAs (2 or 3) as well as those with multiple risk factors at the same time.

Introduction

Transient Ischemic Attack (TIA) is a brief episode of neurological dysfunction caused by focal brain or retinal ischemia, with clinical symptoms typically lasting less than one hour, and without evidence of acute infarction [1].

It can be manifested with signs of damage to the front or posterior cerebral circulation, caused mainly due to degenerative changes in the blood vessels. Symptoms of TIA can sometimes give tumor processes in the brain. Stroke is a condition of a disrupted brain function due to a reduced blood supply or a complete cessation of blood flow to a particular irrigation area, usually due to degenerative changes in blood vessels, with symptoms and signs lasting more than one hour with the most clearly marked zones of brain dysfunction with radiological methods.

Degenerative changes in blood vessels are a long-lasting process. It happens often that during the development of degenerative changes in the blood vessels manifestations in terms of TIA, which is usually a sign of a stroke. TIA is more often in the posterior circulation of the brain (vertebrobasilar arterial system) while ischemic stroke arising from the anterior circulation, which involves the carotid arteries.

Objective

The objective is to analyze the predicative role of transient in ischemic attacks the formation of a definite ischemic stroke in a five-year period.

Material and Methods

In this paper we analyzed the patients with transient ischemic attack in the period June 2011-June 2013 (outpatient and hospital patients) in the region of Sarajevo and we were monitoring their condition in terms of the occurrence of ischemic stroke in the next five years. We took medical history of patients and performed a detailed neurological examination.

All patients had laboratory tests with particular reference to the values of glycemia and lipids profile, cardiac investigations (blood pressure, ECG and examination of specialist in internal medicine), brain Computed Tomography (CT) with transcranial doppler ultrasound (in the period of 3 days from the onset of symptoms) and doppler ultrasound of carotid arteries.

Results

In this three-year period, 1037 patients who had TIA were treated, ages between 42 to 77. 527 was male (50.8%) and 510 was women (49.1%). Arterial hypertension was present in 787 (74.45%)

patients, diabetes mellitus at 356, (34.32%), hyperlipidemia in 489, (47.15%) and cardiac arrhythmias in 259 (24.97%) patients.

After transcranial ultrasound was done, circulatory changes in intracranial arteries were founded in 897 (86.49%) of patients, all values was lower compared to standard. 453 women (50.50%) and 444 men (48.50%) had reduced values of cerebral flow. Degenerative changes in neck arteries, with a degree of narrowing above 40%, were recorded in 454 patients (43.78%).

In the five-year follow-up period of these patients, a definite ischemic stroke developed in 329 patients (31.7%), in 177 men (53.79%) and 152 women (46.21%). Stroke was more common with those who had repeated transient ischemic attacks (2 or 3 attacks) as well as those who had several risk factors at the same time.

Discussion

In the three-year period the number of men and women who had symptoms of TIA was almost equal but men had a slightly higher likelihood of a TIA.

In our study (five-year follow-up period) a definite ischemic stroke developed in 31.7 % patients. In people who have a TIA, the incidence of subsequent stroke is as high as 11% over the next 7 days and 24-29% over the following 5 years [2]. Also the risk of stroke and other vascular events at 90 days in the historical cohorts was 12 to 20% [3,4].

In our patients, we monitored modifiable risk factors (hypertension, diabetes mellitus, lipid profile, cardiac arrhythmia and circulatory changes of blood vessels). Nearly three quarters of patients had hypertension. Previous studies also have shown that blood pressure is a major risk factor for TIA and ischemic stroke.

About 25% of patients with symptoms of TIAe had cardiac arrhythmia. Atrial fibrillation has been known to increase the incidence of stroke, but no relation has been proved with TIA [5].

TIA's are often early warning signs of atherosclerotic disease. Atherosclerotic disease of the neck arteries has long been recognized as risk factor for stroke. About 10% of patients with a TIA presenting to California emergency departments returned to the emergency department with a stroke within 90 days [6].

Half of the patients in our study had reduced values of cerebral flow. Intracranial atherosclerosis is a significant risk factor for ischemic strokes and TIA's, accounting for ~10% of such events [7,8].

Our study indicate that TIA's are associated with increased risk of stroke particularly if the TIA's occur more often than once a month or are associated with high blood pressure or other cardiovascular disease. This may imply that early treatment of hypertension and other risk factors for atherosclerosis will have a preventive effect.

Conclusion

The present of risk factors leads to degenerative changes in blood vessels, especially in carotid arteries, which results in transient ischemic attacks. In addition, various heart rhythm disorders can lead to transient ischemic attacks. TIA is a serious warning sign of an ischemic stroke. It is equally common in men and women. That is why patients with TIA should be seriously understood and treated to prevent the onset of definitive stroke, but also his later complications.

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