

ALGORITHM FOR THE EVALUATION OF DISABILITY IN PATIENTS WITH ISCHEMIC TRANSIENT ATTACK

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Abstract: Approximately 15% of stroke are preceded by a transient ischemic attack, and approximately 33% of transient ischemic attacks are followed in about 5 years by a cerebral infarction. These statistical data fully justify the importance of establishing a correct clinical diagnosis and the need for patient assessment when morphological and functional disorders lead to reduced adaptability to the professional environment. The positive diagnosis of transient ischemic attack is difficult because in about 10% of cases the doctor assists in an attack. Imaging more difficultly accessible methods, as well as the existence of numerous clinical conditions that can mimic attack, make it difficult to evaluate such a patient. This article proposes to establish an algorithm for the evaluation of patients diagnosed with ischemic transient attack starting from a retrospective study on a group of subjects admitted to the National Institute for Medical Expertise and Work Capacity Recovery in 2014-2015 for evaluation of working capacity

INTRODUCTION

Cerebral ischemic accident is a clinical syndrome characterized by the sudden onset of a neurological deficit due to the decrease of blood flow in a certain cerebral region.(1) After the clinical picture defined by the topographic and evolutionary character of the neurological manifestations, it is classified as transient ischemic attack (TIA) and ischemic stroke (cerebral infarction) with clinical forms as reversible, progression, or with sequelae.(2) An important reduction of the perfusion that lasts enough to cause brain tissue necrosis will result in an ischemic stroke. If flow reduction is transient and does not cause cerebral necrosis, we are talking about an ischemic attack transient.(1)

There is no global consensus on defining TIAs. In the past, the transient ischemic attack was defined as any focal cerebral ischemic event with a neurological deficit lasting less than 24 hours. However, in several series of patients with TIA who underwent diffusion-weighted magnetic resonance imaging, many ischemic episodes with symptoms lasting <24 hours are associated with new infarctions.(3) Subsequently, TIA is redefined as a focal neurological deficit with duration up to 24 hours and a tendency to resolution without clinical and non-infracted sequelae. According to the correct terminology, TIA is currently defined as a short episode of neurological deficit due to focal cerebral ischemia where clinical symptoms typically last for less than one hour with no evidence of acute infarction.(1,3)

Three major mechanisms are incriminated in the production of a TIA.

1. Vascular wall diseases: atherosclerosis, atherosclerotic plaques, arteritis, fibromuscular dysplasia. Atherosclerosis is by far the most common cause of TIA. It may occur at any age, but is more commonly encountered over the age of 45 years.
2. Blood abnormalities: hypercoagulability, polyglobuloma, anaemia, thrombocytosis, embolism (platelets or cholesterol emboli, thromboembolism)

3. Reduction of cerebral perfusion: decrease of cardiac pump pressure, decrease of blood pressure in orthostatism, extra- and / or intracranial blood stealing syndrome, kinking and compression of extra cranial vessels etc.

Associated risk factors have been identified: advanced age, smoking, dyslipidemia, hypertension, obesity, diabetes, sedentary lifestyle. TIA belongs to the atherosclerotic patients with other stigmata of atherothrombosis - ischemic coronary artery disease, peripheral arteriopathy, renal artery stenosis.

Transient ischemic attack (TIA) is associated with a high risk for the development of a major stroke and is therefore considered a medical emergency.(4,5,6) Since 1950 the clinical implications of transient ischemic attacks and their relationship to carotid artery disease and stroke have been described.(7) Studies show that patients with TIA have an early recurrent stroke risk of up to 10% within the first 48 hours.(6)

The TIA, however, remains a neurovascular pathological manifestation that is difficult to identify, with a benign appearance, which is often unknown to the patient and doctors.(3,8) The transient nature of symptoms, often with rapid remission, within less than one hour, the disappearance of symptomatology naturally without treatment, causes the patient not to go to a medical service, the diagnosis being put later on the development of a stroke. Often, the patient assigns the manifestations to other illnesses. Also, if the symptoms have completely disappeared at the time of the consultation, the outcome of the neurological examination may be normal, and the diagnosis will be based on the history and specific investigations.(7)

Signs and symptoms vary according to the vascular affected territory, with TIA presenting two main locations: the carotid system and the vertebral-basilar system.

TIA in the carotid system has two major groups of symptoms: amaurosis fugax (transient monocular blindness) ipsilateral - pathognomonic for the carotid TIA - and contralateral sensitive - motor deficiency (hemiparesis, rarely

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hemiplegia, usually with brachial predominance and / or sensitive disturbances that are usually unilateral, in the form of paresthesia, hypoesthesia). Sometimes, instead of the deficit, there is a convulsive movement of the limb. It can associate aphasia / acalculia.(9)

TIA in the vertebral-basilar system comprises a wide range of signs and symptoms, with a longer duration and greater probability of developing to an ischemic stroke. Vertigo is the most common sign and often the earliest, mandatory, accompanied by other neurological signs: diplopia, motor deficit, facial paresthesia, ataxia, postural instability. There may be impaired motility alternant disorders, sensory disorders, visual disturbances, unilateral or bilateral passing cranial nerves deficits; drop attacks; ataxic disorders; other signs such as occipital headache, nausea, vomiting, hiccups, deafness.(9)

Note that not all vertigo is TIA! Differential diagnosis is done with peripheral vertigo that accompanies auditory disorders (tinnitus, deafness) and is variable with change of position.

It should be noted that TIA is in fact a clinical manifestation of atherothrombosis and that it is an independent predictor of myocardial infarction and stroke.(9) Approximately 10-25% of patients with TIA develop a stroke in the first year of onset. To accurately identify patients at risk of stroke in the next 48-72 hours after a TIA, use the ABCD2 score. This score was a more accurate predictor than any of the previous scores (7) and is calculated based on 5 important clinical criteria:

1. Age: 1 point for age ≥ 60 years
2. Blood pressure: 1 point for TA $\geq 140/90$ mmHg at presentation
3. Clinical signs: 2 points for unilateral motor deficit, 1 point for motor-free speech disorder
4. Symptoms duration: 2 points for duration ≥ 60 minutes, 1 point for 10-59 minutes, 0 points for less than 10 minutes
5. Diabetes - 1 point if the patient is diabetic

An ABCD2 score of 0-3 signifies a low risk of stroke over the next 48-72h (1%), a 4-5 score shows a moderate risk (4%), and a 6-7 score indicates a high risk (8%) by stroke. Also, an ABCD2 high score is associated with an increased stroke risk at 2, 7, 30 and 90 days after a TIA.(10)

PURPOSE

This study aims to analyze disability through transient ischemic attack in the subjects admitted in the study, as well as the medical conditions that contributed to a degree of disability. The final goal of the study is to establish an algorithm for the evaluation of patients diagnosed with transient ischemic attack, useful for disability classification.

MATERIALS AND METHODS

The study included 52 patients admitted to the National Institute of Medical Expertise and Work Capacity Recovery with the diagnosis of transient ischemic attack. The study was conducted between 2012 and 2015. We tracked the distribution by age, gender, the type of transient ischemic attack (carotid / vertebral-basilar), the frequency of the attacks. For each subject were analyzed the associated medical conditions, the results of the paraclinical investigations and the degree of disability at the admission and discharge of the patient.

We analyzed for the batch the clinical and paraclinical elements that contributed to the disability and, on the basis of these, we established an algorithm for assessing the patient with TIA, which presents for the assessment of the work capacity, useful to the doctor specialized in medical expertise.

RESULTS

Between 2014 and 2015, 52 patients diagnosed with ischemic transient attack were admitted to the National Institute of Medical Expertise and Work Capacity. The analysis of the group in relation to the subject's age identified a predominance of a pathology in the age group 50-59 years - 68% (figure no.1).

The group was uniformly distributed in terms of gender distribution - 46% being women and 54% men. The data are in line with the literature that reports a predominance of TIA to male gender (figure no. 2).

Group analysis based on the vascular localization of TIA showed a predominance of vertebrate-basilar territory - over 80%. The predominant symptom was isolated vertigo, more than half of the subjects diagnosed with TIA in the vertebral-basilar territory showed vertigo without being accompanied by other neurological symptoms or signs.

At admission to the institute, 32 subjects were enrolled to a degree of disability, and 21 were interned to determine the degree of disability. At discharge from the institute I found that only 27% of the subjects were classified as disability, this being totally grade III. In the studied group there were no cases of grade II or I invalidity (figure no. 3).

Analyzing TIA associated risk factors, we retained the predominance of dyslipidemia and obesity (35% of subjects) and high blood pressure (22% of subjects). Diabetes mellitus was found in 8% of cases. We analyzed the presence of associations with risk factors and the correlation with the changes in the paraclinical investigations in subjects who had TIA disability. We found that all disability subjects had associated risk factors (dyslipidemia, obesity, HTA), and had atherosclerotic changes in Doppler echography of cervico-cerebral vessels (plaques and stenosis).

Figure no. 1. Group distribution by age

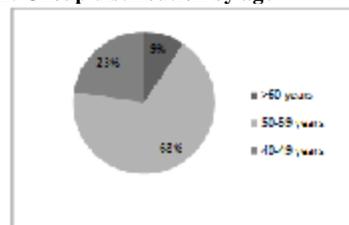


Figure no. 2. Group distribution by gender

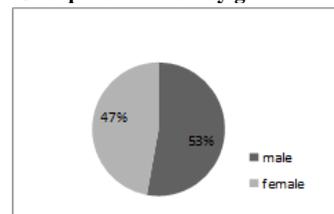
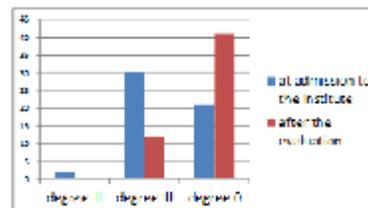


Figure no. 3. Dynamics of TIA disability in the analyzed group



DISCUSSIONS

Evaluating patients with an ischemic transient attack to work capacity is difficult to achieve when the clinical diagnosis is often based only on the data from the anamnesis. The doctor rarely assists in an attack, and there are many other medical conditions that can mimic a transient ischemic attack such as vertigo of labyrinthine causes, short consciousness related to orthostatic hypotension, hypoglycemia, hyponatraemia, migraine with aura. These medical conditions are also labeled as TIA. Thus, in the practice of medical expertise of the work capacity, there is an increase in addressability through TIA and the doctor examining a case has the difficult task to assess whether or not the criteria for inclusion in the degree of disability are met.

In the medical expertise activity, the clinical diagnosis is established on the basis of the medical documents attesting to a TIA, but there is certainty of predisposing factors, favoring, determinants (hypertension, diabetes, atherosclerotic changes in retinal examination, changes in the eco-Doppler of cervical and cerebral arteries). Thus, the paraclinical examinations necessary for the evaluation of a patient with TIA are cerebral MRI, retinal examination, eco-Doppler examination on cervical and cerebral arteries, electrocardiogram, electroencephalogram, echocardiography, laboratory examination (for establishing organic stigmas). Invalidity correlates with changes in atherosclerosis in retinal examination, changes in the eco-Doppler cervical and cerebral artery exams, especially in the presence of vascular risk factor factors: arterial hypertension, dyslipidemia, obesity, smoking, metabolism, diabetes.

We defined the notion of “clinically verified TIA” when the medical papers that the subject presented at the admission confirmed the existence of a TIA with a characteristic symptomatology depending on the territory concerned. However, more than half of subjects diagnosed with TIA in the vertebrate-basilar territory showed vertigo without being accompanied by other neurological symptoms or signs and without meeting the clinical criteria of TIA. We defined the notion of “TIA checked paraclinically” when paraclinical evidence was changed. The most frequent changes in paraclinical examinations were performed at the cervico-cerebral vessels and were represented by atherosclerotic plaques and stenosis.

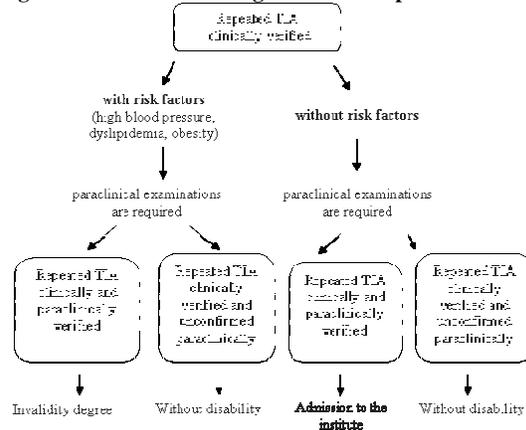
CONCLUSIONS

The study group showed a low level of disability, with only 27% of the subjects being classified as disability. Invalidity through TIA is correlated with the existence of associated risk factors and changes in paraclinical examinations (mainly ecoDoppler changes).

Concluding the data, we consider that patients presenting for disability retirement with diagnosis of clinically untested TIA (the symptomatology described in the medical records does not support the diagnosis) and paraclinically unverified patients can not be classified as disability.

Patients with repeated, clinically and paraclinically confirmed TIA (ecoDoppler and / or MRI imaging or cerebral TC imaging) with associated risk factors will be classified as disability. In patients with repeated TIA clinically verified and associated risk factors, but without paraclinical investigations, additional paraclinical investigations will be required - ecoDoppler cervico-cerebral vessels, and disability classification will keep track of their results. If clinically and paraclinically the repeated TIA diagnosis is sustained without associated risk factors, we recommend checking the case in the institute (figure no. 4).

Figure no. 4. Evaluation algorithm in the patient with TIA



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