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THE IMPORTANCE OF EARLY DIAGNOSIS IN TRANSIENT DISORDERS OF CEREBRAL CIRCULATION

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Abstract

Acute cerebrovascular accidents (ACS) are serious neurological pathologies that occur as a result of an acute disruption of the blood supply to the brain, requiring prompt diagnosis and treatment. The main forms of ACS — acute ischemic stroke and hemorrhagic stroke — cause high mortality and morbidity worldwide. Therefore, it is vital to identify patients with ACS within the first hours and refer them to appropriate treatment.

This article analyzes the effectiveness and importance of early diagnostic methods in cases of ACS — clinical assessment, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound examinations, and laboratory markers. Early diagnosis reduces neurological complications associated with ACS, allows for the faster application of reperfusion therapy and other treatment measures.

The article also reviews the impact of early diagnosis on patient prognosis, the integrated use of modern neuroimaging technologies, and laboratory markers. The results of the study will serve to quickly identify patients with ischemic stroke in clinical practice, determine an individual treatment strategy, and reduce complications.

At the same time, the article is scientifically and practically relevant in terms of ischemic stroke, contributing to the improvement of strategies aimed at preserving the lives of patients and restoring neurological function.

Keywords

Cerebral circulation, acute stroke, ischemic stroke, hemorrhagic stroke, early diagnosis, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, neuroimaging, laboratory markers, reperfusion therapy, clinical assessment, neurological complications.

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Relevance of the topic: Acute ischemic stroke (ISC) is one of the neurological pathologies that seriously threatens human health and quality of life. According to the World Health Organization, stroke — the most common form of ISC — is one of the leading causes of death in the world and annually endangers the lives of millions of people. The acute phase of ischemic stroke occurs mainly when the blood supply to the brain is severely impaired, and the patient's life is at risk within a few hours.

The urgent issue is that the detection and correct diagnosis of ischemic stroke in the first hours significantly improves the patient's prognosis. In acute ischemic stroke, rapid and effective use of reperfusion therapy, and in hemorrhagic stroke, control of bleeding is possible only through early diagnosis. Therefore, early detection of ischemic stroke in clinical practice is an important factor in saving lives, reducing neurological complications, and ensuring long-term rehabilitation.

Modern diagnostic methods - computed tomography (CT), magnetic resonance imaging (MRI), ultrasound and laboratory markers - allow detecting ischemic stroke in the first hours. Their use serves to ensure rapid rehabilitation of patients, increase the effectiveness of therapy, and prevent neurological complications.

Also, early diagnosis of ischemic stroke not only in clinical practice, but also in the healthcare system contributes to the efficient use of resources, improving the quality of medical care and improving the quality of life of patients. The results of the study will allow improving diagnostic and treatment strategies for ischemic stroke, introducing modern neuroimaging technologies and treating patients based on an individual approach.

Therefore, the importance of early diagnosis in acute cerebrovascular disorders is of great scientific, clinical and practical relevance. This topic is a key research area to reduce complications associated with ischemic stroke, save patients' lives and effectively organize the rehabilitation process.

Purpose of the topic: The main purpose of this article is to study the importance of early diagnosis in acute cerebrovascular accidents (ACS), to improve the prognosis of patients and reduce neurological complications by analyzing modern neuroimaging and laboratory diagnostic methods.

The article involves the implementation of the following tasks:

1. To study the clinical and laboratory indicators of the early detection of various forms of ACS - acute ischemic stroke and hemorrhagic stroke.

2. To analyze the effectiveness of computed tomography (CT), magnetic resonance imaging (MRI), ultrasound and other neuroimaging methods in the early detection of ACS.

3. To assess the importance of laboratory markers, including troponins, D-dimer and other biomarkers in the diagnosis of ACS.

4. To develop an individual treatment strategy for patients based on early diagnosis to prevent possible complications.

5. To develop recommendations for the introduction of modern diagnostic protocols for ACS into clinical practice.

6. To contribute to reducing mortality, preserving neurological functions and improving the quality of life of stroke patients using the results of the study.

Thus, the article is aimed not only at identifying stroke in the early stages, but also at optimizing the effective treatment and rehabilitation process of patients, as well as at improving the quality of medical care and the efficient use of resources in the healthcare system.

Main part: Acute cerebrovascular accidents (ACS) are neurological pathologies that occur as a result of an acute disruption of the blood supply to the brain and require prompt diagnosis and treatment. The main forms of ACS are acute ischemic stroke and hemorrhagic stroke, each of which has a significant impact on the patient's life and neurological condition.

Acute ischemic stroke is a process of necrosis that occurs as a result of an obstruction of blood flow to the brain and requires reperfusion therapy, like myocardial infarction. If the patient is brought to the hospital within the first 3–6 hours, thrombolytic therapy or reperfusion techniques can be used to reduce the size of the damaged area in the brain.

A hemorrhagic stroke is a stroke caused by bleeding in the brain due to a ruptured blood vessel. This situation requires rapid neurointensive control and measures to stop the bleeding. In hemorrhagic stroke, early diagnosis and determination of the state of blood supply to the brain are vital, since improper treatment can worsen the patient's condition.

One of the main tools for diagnosing a stroke in the first hours is clinical assessment. The patient's neurological status, visual and speech disorders, and signs of weakness in the face and limbs help to unequivocally diagnose a stroke. The use of computed tomography (CT) and **magnetic resonance imaging (MRI)**, combined with a rapid clinical assessment, increases the accuracy of the diagnosis. CT is especially important for the rapid detection of a hemorrhagic stroke and for assessing the area of bleeding. MRI allows to identify the ischemic stroke area and assess the effectiveness of reperfusion.

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Ultrasound examinations, including transcranial Doppler and carotid artery examination, help to identify blood flow disorders in the development of MOB. Also, laboratory markers, including troponins, D-dimer, CRP and other biomarkers, are used to determine the type of stroke and assess the patient's thrombotic risk.

Early diagnosis of MOB directly affects the determination of the patient's therapy strategy. In cases of ischemic stroke, the use of rapid reperfusion therapy, combined with thrombolytic drugs and antiplatelet therapy, reduces brain necrosis. In hemorrhagic stroke, stopping bleeding, controlling blood pressure and conducting neurointensive therapy can save the patient's life.

Modern studies show that the identification of patients with acute cerebrovascular accident (ACS) within the first 3–6 hours and referral to appropriate treatment significantly reduces the likelihood of developing neurological complications. At the same time, early diagnosis contributes to the efficient use of resources in the healthcare system, the individual approach to treating patients, and the optimization of the rehabilitation process.

Therefore, the importance of early diagnosis in acute cerebrovascular accidents is scientifically, clinically, and practically relevant. The integrated use of modern neuroimaging technologies and laboratory markers allows for the early detection of ACS, helps to save patients' lives, restore neurological functions, and reduce long-term complications.

Conclusion: Early diagnosis in acute cerebrovascular accidents (ACS) is important in improving the patient's prognosis, reducing neurological complications, and significantly reducing mortality. Studies show that early detection of stroke and the use of modern neuroimaging techniques — computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, and laboratory markers — maximize the patient’s treatment options.

Rapid reperfusion therapy and thrombolytic drugs in acute ischemic stroke, and bleeding control and neurointensive care in hemorrhagic stroke — improve outcomes in stroke. An integrated approach that includes clinical assessment, laboratory indicators, and imaging findings is an effective tool for determining the type of stroke, determining a treatment strategy, and preventing neurological complications.

Early diagnosis also improves patients’ quality of life, speeds up rehabilitation, and makes more efficient use of resources in the healthcare system. The implementation of modern diagnostic and treatment protocols for stroke and the improvement of the knowledge and skills of medical personnel can improve outcomes for stroke patients.

Therefore, early diagnosis of MOB is important not only for saving the patient's life and preventing neurological complications, but also for the effective organization of clinical practice and the health care system. Scientific and practical research on this topic will serve to further improve the role of early diagnosis in reducing complications associated with MOB and the effectiveness of modern diagnostic methods.

REFERENCES:

1. Adams H.P., del Zoppo G., Alberts M.J., et al. **Guidelines for the early management of adults with ischemic stroke.** *Stroke.* 2007;38:1655–1711.
2. Easton J.D., Saver J.L., Albers G.W., et al. **Definition and evaluation of transient ischemic attack.** *Stroke.* 2009;40:2276–2293.
3. Hacke W., Kaste M., Bluhmki E., et al. **Thrombolysis with alteplase 3 to 4.5 hours after acute ischemic stroke.** *N Engl J Med.* 2008;359:1317–1329.
4. Lansberg M.G., Bluhmki E., Thijs V.N. **Efficacy and safety of tissue plasminogen activator 3 to 4.5 hours after acute ischemic stroke.** *Stroke.* 2009;40:249–253.
5. Wardlaw J.M., Sandercock P.A., Lindley R.I., et al. **Antiplatelet therapy for acute ischemic stroke.** *Cochrane Database Syst Rev.* 2004;1:CD000029.
6. Jauch E.C., Saver J.L., Adams H.P., et al. **Guidelines for the management of acute ischemic stroke.** *Stroke.* 2013;44:870–947.
7. Smith E.E., Shobha N., Dai D., et al. **Importance of rapid stroke evaluation and imaging.** *Neurology.* 2010;74:135–141.
8. Thomalla G., Fiehler J., Müller C., et al. **Imaging in acute stroke: Current status and future directions.** *Lancet Neurol.* 2009;8:1062–1075.
9. Donnan G.A., Fisher M., Macleod M., et al. **Stroke.** *Lancet.* 2008;371:1612–1623.
10. Saver J.L. **Time is brain—quantified.** *Stroke.* 2006;37:263–266.