



**ULTRASOUND DOPPLER ULTRASONOGRAPHY OF THE  
MAIN VESSELS OF THE NECK IN PATIENTS WITH  
CHRONIC CEREBRAL ISCHEMIA WITH TYPE 2 DIABETES  
MELLITUS**

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**ABSTRACT**

*Both large and small vessels run through the brain. They supply this most important organ of the human body with blood. The brain consumes more blood than any other organ. It needs a huge amount of oxygen every second. Therefore, any vascular lesion affects its work in the form of neurological and mental disorders. Chronic cerebral ischemia (CCI) is one of the pathologies of the vessels that run through this organ. Diagnosed in time, the disease can be corrected without affecting physical and mental health and life expectancy.*

Introduction. Vascular pathology develops primarily in old age. There is a hereditary predisposition. If parents had a stroke or encephalopathy, their children, when they reach old age, are also likely to suffer from vascular pathologies. Hereditary factors and age cannot be influenced, but it is possible to slow down the development of the disease or even prevent it altogether. The main risk factors are atherosclerosis and hypertension. Problems with blood vessels leads to diabetes, obesity, sedentary lifestyle, bad habits, unbalanced diet. In these cases, changes in blood composition, atherosclerotic plaques appear on blood vessels. Cystic fibrosis develops due to emboli, atherosclerotic stenosis, and thrombosis. Spinal diseases, spasms of the neck muscles, blood abnormalities that lead to increased clotting may be a provoking factor. The cause of the disease may be a deformation of the vertebral arteries, caused by

heredity or temporary disturbance of blood flow in them. Patients with type II diabetes mellitus (DM2) are at risk for cerebrovascular disease, often due to impaired cerebral hemodynamics. We present a systematic review of studies assessing cerebral hemodynamics by transcranial Doppler (TCD) in DM2. In this review, we include cross-sectional, prospective, retrospective, randomized controlled, and crossover studies. Symptoms of cerebral ischemia are not always evident. In some people, the disease does not reveal itself at all. Vascular pathology can only be found during a screening examination. So far, screening of cerebral vessels is not included in medical check-ups. But everyone can be screened on his or her own. Timely detection of vascular abnormalities and subsequent management of such patients makes it possible to reduce the probability of stroke by 50%. The same applies to senile



dementia. Doppler ultrasound and many other hardware and laboratory techniques. Diagnosis should be comprehensive. Simultaneously with the examination of blood vessels on the machines, blood tests should be taken. For diagnosis, such parameters as blood concentration of cholesterol, glucose, lipid fractions are important.

Results. A total of 25 articles met the inclusion criteria with data on 100 patients. As the disease progresses, it goes through three stages. In the initial stage, minor symptoms of neurological nature are observed. Headache and dizziness occur. In the second stage, subcompensation occurs. Symptoms progress up to the development

of depression, the first signs of personality change appear. The third stage is decompensation. It comes to severe neurological disorders, vascular dementia. Chronic ischemia of the brain in the future leads to a stroke or dementia. Having detected the first symptoms of this disease, it is necessary to undergo a complete vascular examination, and if abnormalities are found - to begin treatment.

Conclusions: Cerebral autoregulation is often impaired in DM2 patients. The risk increased with increasing duration of DM2, The worse the blood supply of neurons in the brain, the more the disease progresses, deepens, and develops foci of infarction.

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