



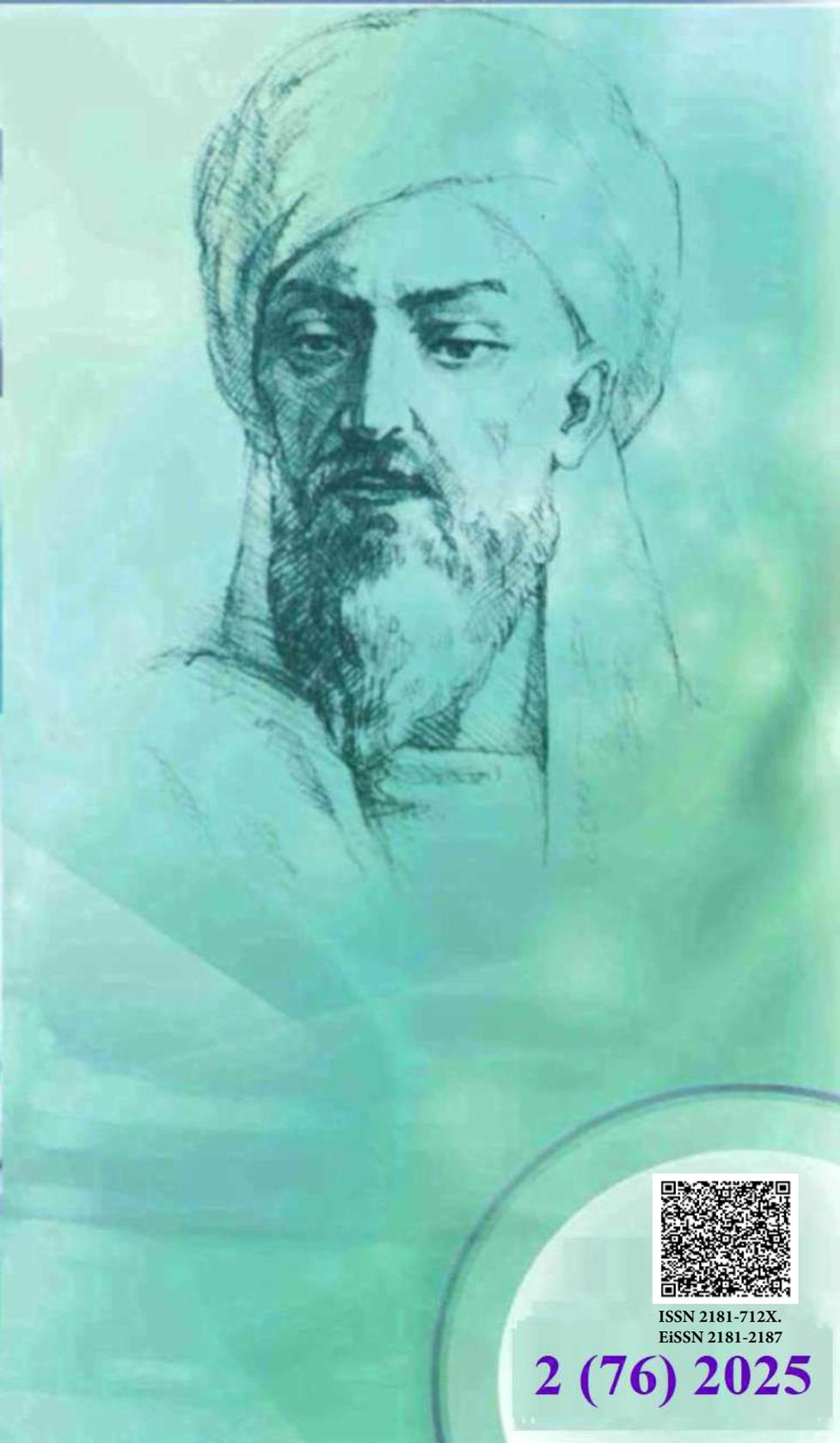
**New Day in Medicine**  
**Новый День в Медицине**

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НОВЫЙ ДЕНЬ В МЕДИЦИНЕ  
NEW DAY IN MEDICINE**

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**FEA THE ROLE OF PATHOMORPHOLOGICAL EXAMINATIONS IN THE DIAGNOSIS AND TREATMENT PLANNING OF ADVANCED STENOSIS AFTER ATHEROSCLEROSIS IN CORONARY VESSELS**

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✓ *Resume*

*When comparing the results of a study of 20 autopsy cases with ischemic strokes that arose with atherosclerosis and 20 autopsy cases with ischemic strokes against the background of atherosclerosis in combination with type 2 diabetes mellitus (T2DM), data were obtained indicating the high significance of T2DM in the development of severe changes in cerebral arteries and the resulting cerebral infarctions of varying sizes and locations.*

*Keywords: ischemic strokes, atherosclerosis of cerebral arteries, type 2 diabetes mellitus, cerebral infarctions.*

**KORONAR TOMIRLARDA ATEROSKLEROZDAN KEYIN RIVOJLANGAN STENOZNI TASHXISLASH VA DAVOLASHNI REJALASHTIRISHDA PATOMORFOLOGIK TEKSHIRUVLARNING ROLI**

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✓ *Rezyume*

*Ateroskleroz bilan yuzaga kelgan ishemik insult bilan 20 ta otopsi holatini va ateroskleroz fonida ishemik insult bilan 20 ta otopsi holatini 2-toifa diabetes mellitus (T2DM) bilan birgalikda o'rganish natijalarini solishtirganda, t2dm ning yuqori ahamiyatini ko'rsatadigan ma'lumotlar olindi. miya arteriyalarida jiddiy o'zgarishlar va rivojlanish. natijada turli o'lchamdagi va joylardagi miya infarktlari.*

*Kalit so'zlar: ishemik insult, miya arteriyalarining aterosklerozi, 2-toifa qandli diabet, miya infarkti.*

**РОЛЬ ПАТОМОРФОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ В ДИАГНОСТИКЕ И ПЛАНИРОВАНИИ ЛЕЧЕНИЯ ЗАПУЩЕННОГО СТЕНОЗА ПОСЛЕ АТЕРОСКЛЕРОЗА КОРОНАРНЫХ АРТЕРИЙ**

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✓ *Резюме*

*При сравнении результатов исследования 20 аутопсийных случаев с ишемическими инсультами, возникшими на фоне атеросклероза, и 20 аутопсийных случаев с ишемическими инсультами на фоне атеросклероза в сочетании с сахарным диабетом 2 типа (СД2) были получены данные, свидетельствующие о высокой значимости СД2 в развитии тяжелых изменений мозговых артерий и в результате возникают инфаркты головного мозга различных размеров и локализации.*

*Ключевые слова: ишемические инсульты, атеросклероз мозговых артерий, сахарный диабет 2 типа, инфаркты головного мозга.*

## Relevance

The leading risk factors for ischemic stroke include type 2 diabetes mellitus (T2DM), the incidence of which has been steadily increasing in recent decades in our country [1]. T2DM determines a more than 3-fold increase in the risk of death from stroke [2]. Currently, T2DM is considered not only as an independent risk factor for stroke, but also as an obligatory component of metabolic syndrome, which is associated with the most severe course and unfavorable prognosis of ischemic stroke [3]. For type 2 diabetes, the development of diabetic macroangiopathy is very characteristic, one of the manifestations of which is atherosclerosis of the cerebral arteries [4]. Some studies have established a significantly higher frequency of detection of occlusion and pronounced atherosclerotic stenosis (atherosclerosis) of the extracranial parts of the internal carotid and vertebral arteries in patients with type 2 diabetes than in patients without it [5]. In this regard, in individuals with type 2 diabetes, the most common leading pathogenetic subtype of ischemic stroke is atherothrombotic.

Recent studies have shown that in cases of type 2 diabetes, atherostenosis of not only extracranial but also intracranial arteries, i.e. tandem atherostenosis, is very often detected [1]. They can cause the occurrence of ischemic strokes of the hemodynamic subtype during the formation of cerebral infarctions of various sizes and locations, including small deep infarctions (SDI) [2]. At the same time, hypertensive changes in the intracerebral arteries are considered to be the main cause of SDI in individuals with type 2 diabetes; strokes caused by these factors belong to the lacunar subtype [3].

## PURPOSE OF THE STUDY

The primary objective of this study is to evaluate the role of pathomorphological examinations in diagnosing and planning the treatment of advanced stenosis resulting from atherosclerosis in coronary vessels.

Given the increasing prevalence of atherosclerosis-related ischemic strokes, especially in patients with type 2 diabetes mellitus (T2DM), understanding the pathomorphological characteristics of these cases is crucial for developing effective treatment strategies.

This study aims to assess the Impact of T2DM on Atherosclerosis Progression – By comparing autopsy cases of ischemic strokes in patients with and without T2DM, this research seeks to determine the degree of arterial damage and the extent of stenosis caused by atherosclerosis.

Analyze the Pathomorphological Differences Between Patient Groups – The study investigates the frequency, distribution, and severity of atherosclerotic plaques in cerebral arteries, focusing on their role in the development of fatal strokes.

Identify Key Factors Contributing to Cerebral Infarctions – By examining the underlying causes of infarctions, such as occlusive atherothrombosis, arterio-arterial embolism, and cardiogenic thromboembolism, the study aims to establish a clearer understanding of stroke pathogenesis in atherosclerotic patients.

## Materials and methods

We compared the results of a study of 20 autopsy cases with cerebral infarctions that arose with atherosclerosis in combination with type 2 diabetes (group I) and 20 autopsy cases with cerebral infarctions caused by atherosclerosis in the absence of type 2 diabetes (group II). Each of the 20 infarctions in one or the other group determined ischemic stroke with a fatal outcome, while the localization and size of infarctions in cases of group I were similar to those in group II. Among the deceased patients, women predominated (11 and 13 people in groups I and II, respectively). The age of the patients ranged from 45 to 83 years, while the average age in the groups did not differ significantly - 67.3 and 67.8 years, respectively. In all cases of group I and in 17 cases of group II, atherosclerosis was combined with arterial hypertension, the duration of which was 15 years or more. At the time of hospitalization of patients, DM2 was in the subcompensation or decompensation stage. In the overwhelming majority of patients, it had a moderate or severe course; mild course was noted only in 2 cases. The duration of the disease ranged from 5 to 20 years. In each sectional case, extra- and intracranial arteries related to both the carotid system of the brain (the cervical part of the internal carotid arteries with the carotid sinus, their cavernous and cerebral parts, anterior and middle cerebral arteries and their branches) and the vertebrobasilar system (the orifice of the vertebral arteries, their intracranial part with the inferior posterior cerebellar artery, basilar and posterior cerebral arteries with their branches) were examined. In each artery, the number of atherosclerotic plaques (ASP) and the

degree of atherostenosis caused by them, the presence of thromboemboli, and occluding thrombi located on the ASP (occluding atherothrombosis) were taken into account. In the cerebral arteries, aortic arch and its branches (subclavian and common carotid arteries, brachiocephalic trunk), ASP with an ulcerated surface and mural thrombi, which could cause embolism of extra- and intracranial arteries (arterioarterial embolism), were taken into account. In addition, in each case, signs of coronary heart disease were assessed, which could manifest themselves in the form of large-focal postinfarction cardiosclerosis or, according to the data of the previous examination of patients, a permanent form of atrial fibrillation. These changes, identified in 16 and 18 patients in groups I and II, respectively, could have caused thromboembolism of the cerebral arteries from the heart (cardiogenic thromboembolism), and also be additional factors in the deterioration of blood supply to the brain in the presence of atherostenosis of the cerebral arteries [4].

### Results and discussion

The conducted study revealed statistically significant signs of more severe atherosclerosis of cerebral arteries in the presence of type 2 diabetes mellitus than without it. Atherosclerotic plaques in the cerebral arteries were detected in all cases of group I and in 17 (out of 20) cases of group II, with an almost twofold predominance of their number in group I compared to group II (262 and 138 cases, respectively). In group II, single Atherosclerotic plaques were detected 2.5 times more often (from 1 to 9 in each case), while in group I, on the contrary, Atherosclerotic plaques in an amount of 10 or more were detected 2 times more often than single ones (Table 1).

**Table 1: Number of ASB in cerebral arteries in cases with DM2 (group I) and without it (group II).**

Number of ASB	Number of cases	
	Group I (n=20)	Group II (n=20)
0	–	3
1–9	6	12*
10 and more	14	5*

*note. Here and in the following tables: \* – significance of differences  $p < 0.05$*

Atherosclerotic plaques in patients of both groups were equally common in intracranial arteries (78% and 77% in groups I and II), and approximately 3 times less common in extracranial arteries (22% and 23%). At the same time, cerebral atherosclerosis in the presence of type 2 diabetes was more widespread. Thus, in cases of group I, atherosclerosis was determined with approximately the same frequency in the arteries of the carotid and vertebrobasilar systems (47% and 53%, respectively), whereas in cases of group II, they were localized predominantly in the arteries of the carotid system (65%) (Table 2).

A very significant difference in the frequency of detection of pronounced atherostenosis in patients with and without type 2 diabetes was established. In both groups, the degree of severity of cerebral artery stenosis was mainly less than 50%, but the number of atherosclerotic plaques determining arterial stenosis by 50% or more was almost 4 times greater in group I (Table 2). At the same time, atherostenosis of the lumens of extracranial and intracranial arteries of 50% or more was also 2 times more often observed in patients with type 2 diabetes - 12 (out of 20) and 5 (out of 20) for groups I and II, respectively.

In each group, 20 fresh and organizing infarctions were identified that caused fatal strokes, including 4 extensive infarctions occupying the entire basin of the anterior and middle cerebral arteries, 8 large infarctions localized in the basin of the middle cerebral artery (7) and anterior cerebral artery (1), and 8 medium infarctions located in the basin of individual branches of the middle cerebral artery (7) and posterior cerebral artery (1).

**Table 2: localization of aSB in cerebral arteries in cases with DM2 (group I) and without it (group II).**

Localization of ASB	Number of ASB			
	stenosis less than 50%		stenosis 50% or more	
	Group I	Group II	Group I	Group II
Cervical part of the internal carotid arteries	24	23	17	6
Cavernous and cerebral parts of the internal carotid arteries	19	19	5	2
Middle cerebral arteries	31	21	9	7
Anterior cerebral arteries	13	9	6	3
Orifice of the vertebral arteries	13	1	3	2
Intracranial part of the vertebral arteries	27	15	12	–
Basic artery	28	15	7	–
Posterior cerebral arteries	25	14	17	–
Cerebellar arteries	3	–	3	1
Total	183	117	79*	21*

A significant difference was established between cases of cerebral infarction with and without type 2 diabetes in the causes of fresh and organizing cerebral infarctions. In Group I, the main causes of infarctions leading to fatal strokes (13 out of 20) were occlusive atherothrombosis of the internal carotid artery or middle cerebral artery and arterioarterial embolism from the sinus of the internal carotid artery to its cerebral portion or middle cerebral artery. In some cases of this group, infarctions were the result of cardiogenic thromboembolism in the middle cerebral artery or its branches in ischemic heart disease, isolated or tandem atherostenosis (by 70% or more of the lumens of the internal carotid artery and its branches, as well as the posterior cerebral artery), in the presence of additional factors deteriorating the blood supply to the brain (postinfarction cardiosclerosis and atrial fibrillation).

### Conclusion

Thus, the conducted study indicates the high significance of type 2 diabetes in the development of severe atherosclerotic changes in cerebral arteries and the resulting cerebral infarctions of various sizes and locations. In this regard, one of the postulates of modern angioneurology is the requirement for timely and personalized treatment of diabetes mellitus as a measure to prevent the progression of cerebral atherosclerosis and prevent ischemic stroke.

### LIST OF REFERENCES:

1. Vereshchagin N.V., Morgunov V.A., Gulevskaya T.S. Brain pathology in atherosclerosis and arterial hypertension. / Moscow: Medicine, 2017.
2. Gorbacheva F.E., Telysheva Yu.B. Cerebral stroke in patients with type 2 diabetes mellitus. // *Neurol. J.* 2018;1:19-23.
3. Gulevskaya T.S., Morgunov V.A. Pathological anatomy of cerebral circulatory disorders in atherosclerosis and arterial hypertension. / Moscow: Medicine, 2019.
4. Gusev E.I., Shimrik G., Haas A. et al. Ischemic stroke database – main results. // *Neurol. J.* 2012;4:8-12.
5. Dedov I.I. Diabetes mellitus in the Russian Federation: problems and solutions. // *Diabetes mellitus* 2018;1:7-21.

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