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DEGREE OF CAROTID STENOSIS: COURSE OF ISCHEMIC STROKE

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Summary: *A comprehensive examination of 201 patients was conducted, among whom were 106 men (52.74%) and 95 women (47.26%) aged 39 to 89 years, who were in the acute period of ischemic stroke (IS). The results of the study showed that moderate and major stroke was registered in group I in 49 (48.51%) patients, in group II – in 27 (51.92%) patients, in group III – in 29 (60.42%) patients, there is a decrease in the frequency of milder forms of stroke (lacunar and small) and an increase in more severe forms (medium and major) with an increase in the severity of carotid stenosis. Thus, in group I, there is a predominance of milder forms of stroke 52 (51.48%), and in group III, severe forms significantly predominate 29 (60.42%).*

Hemodynamically significant carotid stenosis is not only an independent risk factor for stroke, but is also a "background" condition, on which all other risk factors for stroke are superimposed.

Key words: *ischemic stroke, stenosis, carotid artery, lesion, computed tomography.*

KAROTID STENOZI DARAJASI: ISHEMIK INSULT KECHISHINING

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Rezyume; *201 nafar bemor kompleks tekshiruvdan o'tkazildi, o'rganilganlar orasida ishemik insultning (IS) o'tkir davrida bo'lgan 39 yoshdan 89 yoshgacha bo'lgan 106 nafar erkak (52,74%) va 95 nafar ayol (47,26%) kishi bor. Tadqiqot natijalari shuni ko'rsatdiki, o'rta va katta insult I guruhda 49 (48,51%) bemorda, II guruhda - 27 (51,92%) bemorda, III guruhda - 29 (60,42%) bemorda qayd etilgan, Insultning engil shakllari (lakunar va kichik) chastotasining kamayishi va karotid stenozning og'irligi oshishi bilan og'irroq shakllarining (o'rta va katta) ortishi kuzatiladi. Shunday qilib, I guruhda insultning engil shakllari 52 (51,48%), III guruhda esa og'ir shakllari 29 (60,42%) sezilarli darajada ustunlik qiladi.*

Gemodinamik jihatdan ahamiyatli karotid stenozi nafaqat o'tkir serebrovaskulyar avariya uchun mustaqil xavf omili, balki o'tkir serebrovaskulyar avariya uchun boshqa barcha xavf omillari birlashtirilgan "fon" holatidir.

Kalit so'zlar: *ishemik insult, stenoz, karotid arteriya, lezyon, kompyuter tomografiyasi.*

СТЕПЕНЬ КАРОТИДНОГО СТЕНОЗА: ТЕЧЕНИЕ ИШЕМИЧЕСКОГО ИНСУЛЬТА

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Резюме: *Проведено комплексное обследование 201 пациентов, среди исследованных было 106 мужчин (52,74%) и 95 женщин (47,26%) в возрасте от 39 до 89 лет., находившихся в остром периоде ишемического инсульта (ИИ). Результаты исследования, показали, средний и крупный инсульт зарегистрирован в I группе у 49(48,51%) больных, во II группе – у 27(51,92%) пациентов, в III группе – у 29(60,42%) пациентов, отмечается уменьшение частоты более легких форм инсульта (лакунарный и малый) и возрастание более тяжелых форм (средний и крупный) при увеличении степени выраженности каротидного стеноза. Так в I группе отмечается преобладание более легких форм инсульта 52(51,48%), а в III группе значительно преобладают тяжелые формы 29(60,42%).*

Гемодинамически значимый каротидный стеноз не только самостоятельный фактор риска ОНМК, но также является «фоновым» состоянием, на которое накладываются все другие факторы риска ОНМК.

Ключевые слова: *ишемический инсульт, стеноз, сонная артерия, очаг, компьютерная томография.*

Relevance.

The problem of stroke remains an important and urgent issue in medical, economic, and social aspects. In the Russian Federation, approximately 250,000 people die annually from stroke, and up to 90% of survivors become disabled, with 20% of them requiring assistance from others. Only 8% of patients are able to return to work and their usual

lifestyle after a stroke [1,7]. The economic losses for the state are significant due to the reduction in the working-age population affected by stroke, as well as expenses for social support for disabled individuals, treatment, rehabilitation, and secondary prevention after an acute cerebrovascular accident (ACVA) [2, 3,7]. Annually, acute cerebrovascular accidents (ACVA) occur at a frequency of 400–500 cases per 100,000 population. The mortality rate for ACVA reaches 25%, with an additional 20% of stroke survivors dying within a year, and approximately a quarter of patients remaining severely disabled [2]. Every fifth patient experiences a recurrent stroke within the next five years [4, 6].

Ischemic stroke (IS), according to the criteria of the World Health Organization (WHO), is defined as "an acute focal neurological disorder with clinical manifestations lasting more than 24 hours, likely caused by cerebral ischemia." Atherothrombotic ischemic stroke is the most common type, accounting for approximately 80% of all strokes, which result from atherosclerotic stenosis and thrombosis [1,6,8,9]. Since atherosclerosis affects the extracranial sections of arterial trunks five times more often than intracranial ones, brachiocephalic vessels are frequently involved, as identified through ultrasound diagnostic methods [5,10,11]. Modern neuroimaging techniques (computed tomography, magnetic resonance imaging, angiographic mode, etc.) allow for visualization not only of the infarct zone of cerebral damage but also of the structural features of the brain's vascular system and its blood supply.

The aim of our study is to assess the course of ischemic stroke depending on the degree of carotid stenosis in patients from different groups.

Materials and methods.

The study is based on the results of an examination of 201 patients who were in the acute period of ischemic stroke (IS) in the intensive neurology department of the 1st clinic of TMA. A comprehensive examination of 201 patients was conducted, including 106 men (52.74%) and 95 women (47.26%) aged 39 to 89 years. The patients included in the study were divided into three groups depending on the severity of carotid stenosis, determined by USDG of the BCA upon hospital admission. The classification was based on the NASCET (North American Symptomatic Carotid Endarterectomy Trial) methodology, which categorizes stenoses as moderate—up to 49%, severe—50% to 69%, and critical—70% and above.

Patients with ischemic stroke (IS) were admitted to the emergency diagnostic department, where they underwent a neurological examination within 40–45 minutes. A brain CT scan with contrast enhancement and CT angiography (if indicated) was performed, along with an electrocardiogram (ECG), blood and urine laboratory tests. Ultrasound examinations included Doppler ultrasound of the brachiocephalic arteries (USDG BCA), duplex scanning (DS) of the head and neck vessels combined with color Doppler mapping (CDM). If necessary, additional studies, tests, and consultations with specialists (therapist, cardiologist, endocrinologist, rheumatologist, ophthalmologist, neurosurgeon, etc.) were conducted.

Results and discussion.

The relationship between the size of the ischemic stroke (IS) lesion and the degree of carotid artery stenosis was evaluated. Patients were classified based on CT scan results according to the lesion size: lacunar (up to 10 mm), small (up to 15 mm), medium (20–50 mm), and large (more than 50 mm). Thus, the first (I) group consisted of patients without hemodynamically significant stenotic lesions of the major arteries of the head and neck (0–49% or up to 50% vessel lumen), the second (II) group included those with stenosis of 50–69%, and the third (III) group comprised patients with 70% stenosis up to total occlusion of the vessel. Group I included 101 patients (50.25%), among whom 52 (51.48%) were men and 49 (48.51%) were women. Group II included 52 patients (25.87%), of whom 29 (55.77%) were men and 23 (44.23%) were women. Group III included 48 patients (23.88%), with 25 (52.08%) men and 23 (47.92%) women.As can be seen, the majority of patients were over 60 years old (52, 25.87%). In the 50–59 and 60–69 age groups, men (70 – 66.04%) significantly outnumbered women (35 – 36.84%), whereas in older age groups (70–79 and 80+ years), women predominated—31 (32.63%) and 27 (28.42%), respectively, which may indicate a certain "vulnerability" of the male population to acute cerebrovascular accidents in the 50–69 age range.

The distribution of patients by stroke severity within the studied groups is presented in Table 1. It can be observed that in Groups I and II, all ischemic lesion gradations are relatively evenly represented. In Group III, medium and especially large strokes predominate.

Table 1.

Distribution of stroke severity within the wtudied groups

Group / Stroke	Group-I (0 – 49%)		Group-II (50 – 69%)		Group-III (≥ 70%)		Totall		p-value
	Abs.	%	Abs.	%	Abs.	%	Abs.	%	
Lacunar	23	22,77	13	25,0	9	18,75	45	22,39	0,223
Small	29	28,71	12	23,08	10	20,83	51	25,37	
Medium	39	38,61	23	44,23	21	43,75	83	41,29	
Large	10	9,90	4	7,69	8	16,67	22	10,94	
Total	101	100,0	52	100,0	48	100,0	201	100,0	

The distribution of stroke severity within the studied groups showed that in Group I, lacunar stroke occurred in 22.77% (23 cases), minor stroke in 28.71% (29 patients), moderate stroke in 38.61% (39 cases), and major stroke in 10.89% (10 patients). In Group II, lacunar stroke was observed in 25.0% of cases (13 patients), minor stroke in 23.08% (12 patients), moderate stroke in 44.23% (23 patients), and major stroke in 7.69% of cases (4 patients). As seen, there were no significant differences between patients in Groups I and II.

In Group III, lacunar stroke was recorded in 18.75% of cases (9 patients), minor stroke in 20.83% (10 patients), moderate stroke in 43.75% (21 patients), and major stroke in 16.67% (8 patients). Thus, moderate and major strokes were registered in 49 (48.51%) patients in Group I, 27 (51.92%) patients in Group II, and 29 (60.42%) patients in Group III. As observed, there is a decrease in the frequency of milder stroke forms (lacunar and minor) and an increase in more severe forms (moderate and major) with increasing severity of carotid stenosis. In Group I, milder forms of stroke predominated in 52 (51.48%) patients, whereas in Group III, severe forms were significantly more prevalent in 29 (60.42%) patients.

Conclusion. Hemodynamically significant carotid stenosis is not only an independent risk factor for stroke but also serves as a "background" condition upon which all other stroke risk factors are superimposed.

In this regard, the course of ischemic stroke will undoubtedly have its own characteristics and patterns. To determine the cardiogenic origin of ischemic stroke (as a risk factor for stroke), a more detailed examination is necessary, specifically ECG monitoring of each patient conducted in the vascular department.

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