Spanish Journal of Innovation and INTEGRITY
ISSN: 2792-8268
Volume: 29, Apr-2024
http://sjii.indexedresearch.org

Features of Ischemic Strokes after Coronavirus Infection

Narkulov Bekhzod Bakhrom Ogli
3rd year master's student at Tashkent Pediatric Medical Institute, majoring in Neurology, Tashkent, Uzbekistan

Abdukarimov Islom Akhtamovich
Master's degree student of 3rd year of Tashkent Pediatric Medical Institute the field of neurology, Tashkent Uzbekistan

Azimova Nodira Mirvasitovna, Ph.D.
Associate Professor, Department of Neurology, Child Neurology with Medical Genetics, Tashkent Pediatric Medical Institute, Tashkent, Uzbekistan

Abstract: *SARS-CoV-2 is not the first epidemic of coronavirus (CoV) that has emerged in the XXI century: both SARS-CoV 2002 and coronavirus Middle East respiratory syndrome coronavirus 2012 (MERS-CoV) were included in this classification[Kumar A, et al., 2020; Murta V, et al., 2020].*

Widespread reports on SARS-CoV-2 virus exposure (Wuhan, China, February 2020) indicate the frequency and severity of nervous system damage in 1,099 patients, with clinical manifestations ranging from mild headache (13.6%) and myalgia (14.9%) to severe, requiring intensive care. therapy (5%) [Guan W. J., et al., 2020].

Analysis of numerous publications on the new coronavirus infection (COVID-19), using the PubMed, Scopus and GoogleScholar databases, indicates that the membranes, blood vessels, and brain parenchyma may be involved in the pathological process.

Ischemic strokes are the most severe variants of acute cerebrovascular pathology in patients with COVID-19, pose an immediate threat to the patient's life and require additional treatment programs, including the possible use of reperfusion treatment methods (if indicated and there are no contraindications). It is widely known that intrahospital ischemic stroke is characterized by difficulties in timely diagnosis at all stages, leading to delays in providing care, and, as a result, to worse immediate and long-term outcomes [Kolomentsev S. V., et al.,2020].

2. Voznyuk I. A. etal. (2020) clinical observations are consistent with the results published by a group of researchers who observed ischemic stroke on the background of acute occlusion of the proximal arteries of the brain.

The authors also note that stroke cases had a pronounced neurological deficit with a severe course, and associated the development of large arterial trunk thrombosis with coagulopathy and endothelial dysfunction that occurs in COVID-19. Given the current paradigm, hypercoagulation in COVID-19 can lead to rapid clinical deterioration in patients with COVID-19 and be associated, among other things, with the development of acute cerebrovascular pathology. In this connection, the early appointment of anticoagulant therapy is justified in patients with this pathology, and in the event of an

intrahospital ischemic stroke, indications for systemic thrombolytic therapy have an additional pathogenetic justification. Thus, an analysis of the few available publications that mention the problem of COVID-associated ischemic stroke can show not only the significance of the problem, but also reveal the mechanisms of acute cerebral ischemia. Prevention of acute cerebral circulatory disorders (ACVI) in those infected with COVID-19, it is one of the most important clinical cases.

Keywords: *COVID-19, coronavirus, stroke, recurrent ischemic stroke, ischemic stroke.*

Objective: to study the clinical and neurological features of recurrent strokes in patients with coronavirus disease.

Research objectives:

1. To study the risk factors for recurrent strokes in patients , **with coronavirus disease**.
2. To determine the severity of the clinical and neurological course of recurrent strokes in patients who have suffered **from coronavirus disease in a comparative aspect**.
3. Based on the results of the study, to develop an algorithm for the prevention of recurrent stroke and management tactics for patients who have suffered **from coronavirus disease.**

Materials and methods: 60 patients with recurrent strokes will be examined, group 1-the maingroup, consisting of 30 patients with recurrent strokes after перенесенной**a coronavirus disease, group 2-comparison, consisting of 30** patients with recurrent strokes. Clinical and neurological, neuroimaging, and clinical and laboratory research methods will be used in the work.

Scientific novelty: It is planned determine the features of neurological manifestations of recurrent strokes in patients who have had COVID-19, depending on the clinical course of the disease.

It is planned to develop preventive measures for the development of repeated strokes in patients who have had caronovirus disease.

Practical significance: Clinical, neurological and biochemical features of the course of recurrent strokes in patientswho have suffered from coronavirus disease will be determined. Tactics for managing and preventing the development of recurrent strokes in patients who have suffered from coronavirus disease will be developed.

Relevance: Currently, there is no unified theory for the development of stroke during COVID-19. However, key mechanisms are known: cytokine storm, activation of the innate immune system, embolic events caused by pre-existing or new arrhythmias, ischemia due to hypoxia secondary to severe pulmonary disease, thrombotic microangiopathy, endotheliopathy/endotheliitis and multifactorial activation of coagulation . COVID-19 affects the development of stroke in different ways, depending on the severity of the disease. However, patients with more severe disease have a higher risk, which is confirmed by data on the occurrence of stroke in 5.7% of patients[1,2].

Presented by I.A. Voznyuk et al. (2020) clinical observations are consistent with the results published by a group of researchers who observed ischemic stroke due to acute occlusion of the proximal cerebral arteries[1].

The authors also note that stroke cases had severe neurological deficits and associated the development of thrombosis of large arterial trunks with coagulopathy and endothelial dysfunction that occurs with COVID-19. Given the current paradigm, hypercoagulation in COVID-19 may lead to rapid clinical deterioration in patients with COVID-19 and may be associated, among other things, with the development of acute cerebrovascular pathology. In this regard, early prescription of

anticoagulant therapy is justified in patients with this pathology, and in the event of in-hospital ischemic stroke, indications for systemic thrombolytic therapy have an additional pathogenetic justification [1,3].

The purpose of the study was to study the clinical and neurological features of ischemic stroke (IS) after coronavirus infection.

Materials and research methods: We examined 34 patients with IS who had a history of caronovirus infection, confirmed by the presence of positive tests and antibodies for COVID-19.

Research results: An analysis of the spectrum of concomitant diseases in the somatic status of the examined patients was carried out (Table 1).

Table 1. Comorbidities in patients with ischemic stroke

Diseases	Patients with IS (n=34)	
	abs	%
Hypertonic disease	34	100
Atherosclerosis	20	59
Cardiac ischemia	eleven	32
Diabetes	9	26
Rhythm disturbance	4	12
Acquired heart defect	2	6
Chronic heart failure	1	3

As can be seen from Table 1, the most common concomitant comorbid conditions with IS in our observations were hypertension, which was present in absolutely all patients. Atherosclerosis was observed in more than half of the patients (59%). About a third of patients with IS had coronary heart disease and diabetes mellitus (32% and 26%, respectively).

When studying the anamnestic features of IS after suffering from COVID-19, we paid attention to the following. The severity of the clinical picture of COVID-19 determines the likelihood and severity of ischemic stroke. Analysis of anamnesis data regarding the incidence of ischemic strokes after COVID-19 revealed differences in the timing of the development of acute cerebrovascular accident. The duration of AI development ranged from 1 to 6 months. The distribution of the incidence of ischemic stroke by duration of COVID-19 is shown in Table 2

Table 2. Frequency of IS in KB that developed after COVID-19.

PrescriptionCOVID-19(n=34)	1 month	2 months	3 months	4 months	6 months
abs	4	9	eleven	5	5
%	12	26	32	15	15

The obtained anamnestic data suggest that strokes more often developed in the second or third month after suffering from COVID-19.

The low incidence of strokes in the first month after COVID-19 may be due to the therapeutic measures taken, which had a certain preventive effect. According to medical history, up to 88% of patients after COVID-19 took antihypertensive, antiplatelet, and lipid-lowering drugs that affect the rheological properties of blood, etc., for a month. However, by the end of the second month, the number of patients receiving drug therapy had decreased to 20%, which may be the reason for their

stroke. An important factor in the development of stroke after COVID-19 is concomitant comorbid conditions.

In order to clarify the features of the clinical picture of IS after suffering from COVID-19, we studied the clinical picture of IS. It consisted of subjective symptoms and objective clinical symptoms presented in Table 3.

An analysis of the subjective symptoms of patients who underwent IS after COVID-19 showed the prevalence of complaints of general weakness and weakness in the limbs (94% and 91%, respectively).

Table 3. Subjective symptoms in patients with IS after undergoing COVID-19.

Complaints	AI n=34	
	Abs.	%
General weakness	32	94
Weakness in the limbs	31	91
Dizziness	28	82
Increased blood pressure	28	82
Headache	27	79
Speech Impairment	24	70
Numbness of the limbs	19	56
Cognitive impairment	3	9
Visual impairment	2	6
Does not present due to the severity of the condition	2	6

About 82% of patients complained of dizziness (non-systemic), increased blood pressure and headaches. The next most common were sensory and cognitive impairment (56% and 9%, respectively). The average period between COVID-19 and subsequent stroke in our observations was 2.4 months. The latter is of no small importance in the prevention of stroke, i.e. It is during this time period that patients who have suffered from COVID-19 should be under the close attention of neurologists, which will reduce the risk of developing AI.

Next, we analyzed focal clinical symptoms in patients with IS after COVID-19. All cases of IS noted in our observations occurred in the carotid region. Of the 20 cases of IS occurred in the left carotid region, and 14 cases in the right.

The table shows that the most common focal symptoms were hemiparesis and speech impairment (91% and 88% of cases, respectively).

Table 5. Focal neurological symptoms in patients with IS after COVID-19(n=34).

Complaints	AI n=34	
	Abs.	%
Hemiparesis	31	91
Central paresis of VII and XII pairs of cranial nerves	thirty	88
Cognitive impairment	28	82
Aphasia	26	76
Pathological foot signs	23	68
Change in muscle tone	22	65

Hemihypesthesia	18	53
Bulbar syndrome	7	20
Cerebellar-discordant disorder	4	12

In the structure of speech impairment, we noted motor aphasia (27%), sensory aphasia (15%), but the most common cases were mixed or total aphasia (58%). Muscle strength in paretic limbs averaged 2.4±0.7 points and corresponded to paresis. Muscle tone on the side of paresis, as a rule, was increased (62%) and only in 26% of cases we noted muscle hypotension in the acute period of IS. Pathology of the cranial nerves in the form of central paresis of the facial and hypoglossal nerves was observed in 80%. In 68%, pyramidal insufficiency was expressed not only in the form of hemiparesis, but was also accompanied by pathological foot signs.

Conclusions: Thus, our research has shown that most often (59%) AIs develop 2-3 months after suffering from COVID-19. The smallest percentage (12%) of incidence occurs 1 month after COVID-19, which indicates the need for primary stroke prevention measures aimed at changing the rheological parameters of the blood, which also undergo certain changes in patients who have had COVID-19.

Literature:

1. Voznyuk I.A., Ilyina O.M., Kolomentsev S.V. Ischemic stroke as a clinical form and pathogenetic model in the structure of damage to the central nervous system in COVID-19. Bulletin of restorative medicine. 2020; 4 (98): 90-98. https://doi.org/10.38025.
2. Putilina M.V., Vechorko V.I., Grishin D.V., Sidelnikova L.V. Acute cerebrovascular accidents associated with coronavirus infection SARS-COV-2 (COVID-19). Journal of Neurology and Psychiatry. S.S. Korsakov. 2020;120:12:109-117.
3. Tan CH, Ho LP, Kalimuddin S, Cherng BP, Teh YE, Thien SY, Wong HM, Paul Jie Wen Tern PJ, Manju Chandran M, Chay JWM, Nagarajan C, Sultana R, Low JGH, Ng HJ. Cohort study to evaluate the effect of vitamin D, magnesium, and vitamin B12 in combination on progression to severe outcomes in older patients with coronavirus (COVID-19). Nutrition. 2020;(1):79-80:111017