

(Amyotrophic lateral sclerosis).

**Results and discussion.** IS presents with muscle twitching, cramps, hyperhidrosis, and slow relaxation of a muscle after muscle contraction. Our patient had symptoms of weakness, twitching, fasciculation of hand muscles, and decreased vision in both eyes. There can be several causes such as hereditary, genetic, immune-mediated, and other miscellaneous factors. The etiology in our patient could be due to autoimmune, she had an elevated level of anti-TPO.

Another method of establishing a diagnosis is performing an EMG with a high intraburst of irregular frequency. The abnormal EMG is characterized by doublet, triplet, and multiplet single-unit discharges that were also present in our patient. These changes are also known as myokymic and neuromyotonic discharges. The EMG results of the patients showed f-waves and tremors with a lot of artifacts. Patients who had Morvan's syndrome have findings that are similar to those seen in IS, but they also have encephalopathy, headaches, drowsiness, and hallucinations. The patient has not complained of hallucinations, headaches, or drowsiness, nor has she had encephalopathy.

In a patient with Isaacs' syndrome, plasmapheresis resulted in a notable improvement in clinical status, which was accompanied by a reduction in both spontaneous motor unit activity and F-wave after discharge. The patient showed improvement in muscle strength after the course of plasmapheresis for a short time and again the course was repeated.

**Conclusion.** A 51-year-old female was presented in the Regional Hospital of Grodno, Belarus. The patient presented with general weakness in muscles, muscle twitching, generalized fasciculation, decreased sensitivity in fingers, tremors, decreased vision in both eyes, and mood fluctuation. The exact etiology of her condition was unknown but the possible cause of her condition was an autoimmune; her anti-TPO level was greatly elevated. Hence, the anti-TPO could bind at the neuromuscular junction blocking the release of a trophic factor near the neuromuscular junction. Therefore, there can be elevated levels of LDH and creatine kinase levels as the result of muscle wasting. Her EMG revealed frequent artifacts and her MRI revealed thickening of mucous in the maxillary sinus, Schmorl's bodies, and height and hydration of the discs at the level of C2-C7 were reduced. The patient showed improvement with the repetitive course of plasmapheresis treatment.

## **CRYPTOGENIC STROKE IN A YOUNG PATIENT AFTER COVID-19 INFECTION**

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**Introduction.** Cryptogenic ischemic strokes are cerebral infarcts that manifest with symptoms, for which no probable cause can be identified after

conducting an adequate diagnostic evaluation. The determination of a stroke as cryptogenic is contingent on the extent and quality of the etiological investigation and current knowledge regarding stroke mechanisms. A significant proportion of ischemic strokes is currently classified as cryptogenic or with an undetermined etiology. The incidence of cryptogenic stroke varies depending on several factors, including the age of the patients, the definition of cryptogenic stroke used, and the range of the etiological investigation.

**Aim of the study.** To identify possible causes of the condition and further diagnosis and treatment that helped to resolve this rare case.

**Materials and methods.** A 25-year-old male, was admitted to the emergency department of the Neurology unit at the Regional Hospital of Grodno, Belarus. The patient presented with speech difficulties, which had developed two weeks after a moderate COVID-19 infection. Initially he was diagnosed with mild semantic aphasia. The patient had a history of moderate COVID-19 infection. An angiography revealed that the M2 segment of the middle cerebral artery (MCA) in the left hemisphere was not contrasted, indicating an occlusion. MRI and CT scans showed evidence of ischemic changes in the left hemisphere of the brain. The patient was treated with several drugs, including antiplatelet and neuroprotective drugs.

**Results and discussion.** Cryptogenic ischemic strokes are typically associated with less severe neurological deficits, lower mortality, and less severe final disability when compared to strokes with identified origins. Our patient presented mild neurological deficits, including semantic aphasia, and made a complete recovery without any disability at the time of discharge from the hospital. The possible sources of cerebral embolism in patients with CIS include the heart, veins of the lower extremities and pelvis, non-stenotic atherosclerosis of the brachiocephalic arteries, non-atherosclerotic vasculopathy, and hypercoagulable conditions, etc. The etiology of the patient's condition may have been autoimmune antibody formation (ANA), which could lead to vasculopathy and the formation of thrombi, ultimately resulting in stroke. ANAs, which can be track down in many autoimmune diseases and viral infections, might be to blame for the vasculopathy. Infections might cause autoimmune reactions through mechanisms such as epitope spreading, molecular mimicry, cryptic antigens, and bystander activation. ANAs, which are typically not associated with autoimmune diseases, have been documented to be caused by transient auto-reactive B and plasma cell reactivation due to infection.

Autoantibodies, such as antinuclear antibodies (ANAs), lupus anticoagulant, anti-Î2 glycoprotein 1, anti-Ro/SSA, and anti-cardiolipin antibodies, have been discovered in individuals infected with SARS-CoV-2. Various studies conducted on patients with SARS-CoV-2 reveal the prevalence of ANAs between 18% and 57.5%. Our patient also tested positive in the ANA screening test. During the acute stage of the illness, the emergence of autoantibodies is linked to SARS-CoV-2 infections, which supports COVID-19's pathophysiology. Autoantibodies increase in the weeks following recovery but resolve, with a notable reduction in average autoreactivities at 12 months,

with some ANAs still detectable.

Cryptogenic stroke is a diagnosis that is reached by excluding known causes. In our case, the diagnosis was made in accordance with standard guidelines. The physical examination done upon admission revealed only speech impairment. Laboratory diagnostics showed an increase in segmented neutrophils (neutrophilia), a decrease in lymphocytes (lymphopenia), elevated levels of D-dimer, and positive test results for ANA screen Ig (A, G, M). The MRI revealed lesions in both the insula and parietal lobe, while the CT scan showed a subcortical hypodense area with unclear brain contours in the left parietal lobe

**Conclusion.** Our case demonstrates that autoimmune antibody formation, specifically antinuclear antibodies (ANAs), can cause vasculopathy, leading to thrombus formation and stroke. It suggests a potential link between autoimmune antibody formation and stroke in COVID-19 patients.

## **COTININE AS AN OBJECTIVE CRITERION OF SMOKING IN CHILDREN WITH ARTERIAL HYPERTENSION**

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**Introduction.** Smoking is one of the leading controllable risk factors for cardiovascular disease. Currently, the high prevalence of smoking among young people is of particular concern. Determination of nicotine metabolites (cotinine) in urine is an effective method for early detection and monitoring of smoking in children and adolescents.

Cotinine is an alkaloid found in tobacco and is also the predominant metabolite of nicotine, typically used as a biomarker for exposure to tobacco smoke.

The formation of cotinine is the leading link in the biochemical transformation of nicotine, as a result of which about 70-80% of nicotine is converted into cotinine. A small part of cotinine (10-15%) is excreted unchanged from the body in the urine, the rest (40-60%) is converted into its main metabolites (trans-3'-hydroxycotinine and cotinine glucuronide).

While nicotine has a relatively short half-life of about 2 hours, cotinine, a principal metabolite of nicotine, has a half-life of approximately 20 hours, and is a specific and sensitive marker for determining exposure to tobacco.

Urine testing is a common non-invasive method of testing for the presence of cotinine due to its ease of use and low cost.

It should be noted that the concentration of cotinine in urine is 4-6 times higher than its concentration in blood or saliva, and is also less subject to daily