SCIENCE AND INNOVATION
INTERNATIONAL SCIENTIFIC JOURNAL VOLUME 3 ISSUE 5 MAY 2024
ISSN: 2181-3337 | SCIENTISTS.UZ

FEATURES OF CLINICAL AND NEUROLOGICAL CHARACTERISTICS OF POLYNEUROPATHIES OF CORONOVIRUS ETIOLOGY

[1]Madjidova Y.N., [2]Amridinova F.Sh., [3]Shadiev G.N.
[1,2,3]Tashkent Pediatrics Medical Institute
https://doi.org/10.5281/zenodo.11409209

Abstract*. In light of the global COVID-19 pandemic, more and more people are experiencing various morbid manifestations associated with coronavirus infection [2,5,6,7,8]. This infection is characterized by extreme aggressiveness and the ability to cause various complications from many organs and systems of the human body [1,18]. At present, scientists emphasize the impact of the new coronavirus infection on various lesions of the nervous system (NS) [3,4,17,19]. This is due to the fact that even though the coronavirus is not considered to be initially tropic to the cells of the nervous system, a significant risk of formation of various neurological disorders, including dysimmune polyneuropathies (PNP), has been confirmed in this infection. Which is an etiologically heterogeneous group of nosologies with autoimmune damage of the peripheral nervous system (PNS) [10,11,12,13]. PNS damage can occur both during the active phase of infection and after recovery from COVID-19. The main causes of polyneuropathies are inflammation and damage to nerve cells, and exposure of nerves to the systemic inflammatory response [6,7,8,9,14,15].*

Keywords*: polyneuropathies, heterogeneous, neurological disorders, morbid manifestations, somatic status, glucocorticosteroids.*

Purpose of the study: Study and treatment of patients after Covid 19 with complication of polyneuropathy.

Material and methods. 165 patients aged from 40 to 70 years (mean age - 51,4±2,8 years), 93 (56,4%) women, 72 men (43,6%) participated in the study(pic1). In parallel with the general somatic status we emphasized the neurological manifestations of COVID-19.

Distribution of patients by gender and age

Age of patients	men		women		total	
	abs.	%	abs.	%	abs.	%
40-60 years old	42	25,45	49	29,7	91	55,1
60-70 years old	30	18,18	44	26,6	74	44,9
Total:	72	43,6	93	56,3	36	100

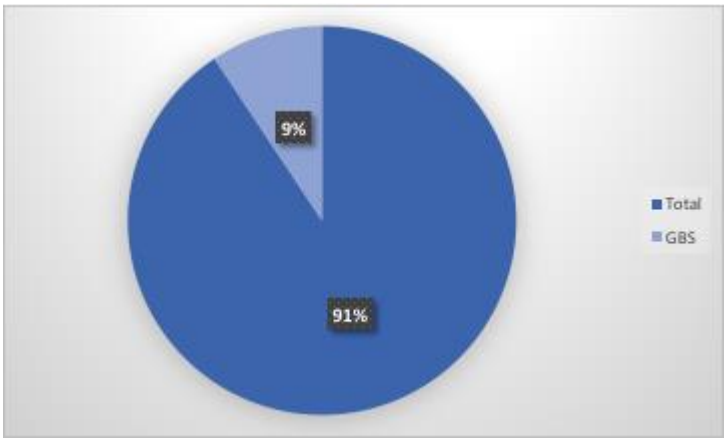
Study Results. As shown in two systematic reviews, clinical manifestations of polyneuropathy in patients with COVID-19 occur on day 14 (interquartile range 7-20 days) and after 11.5 days (7.7-16.0 days). It is likely that the treatment used to treat patients with COVID-19 and glucocorticosteroids can modify the timing of polyneuropathy development, positively influencing its course and consequences.

Guillain-Barré syndrome, an immune-mediated acute polyradiculoneuropathy, occupies a special place among complications of the peripheral nervous system in patients with coronavirus infection [17]. This syndrome is currently the most common cause of acute peripheral tetraparesis and paralysis [9,10].

Since the onset of the COVID-9 pandemic, cases of Guillain-Barré syndrome have been reported in association with this infectious disease [14,16].

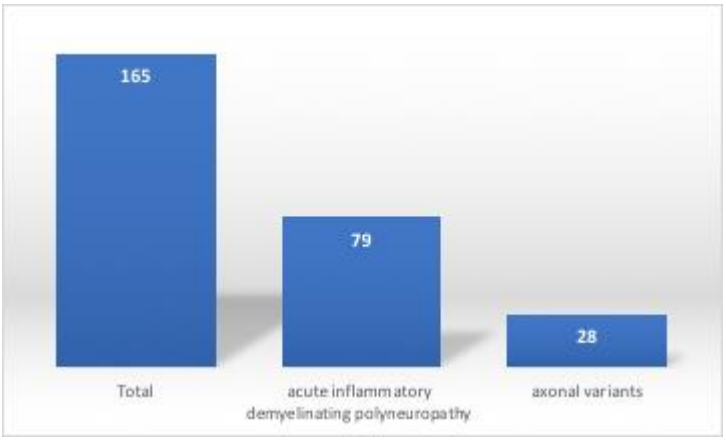
Guillain-Barré syndrome (GBS) is a rare but serious autoimmune disease that affects the peripheral nervous system and can lead to paralysis and sensory disturbances. Symptoms of GBS include muscle weakness, numbness, pain, and loss of control over movements [15]. COVID-19, caused by the SARS-CoV-2 coronavirus, can also affect the body's nervous system and immune system, which may increase the risk of Guillain-Barré syndrome in some patients. The mechanism for the development of GBS in COVID-19 may be related to an immune imbalance that leads to the attack of myelin (nerve sheath) by immune cells. This leads to peripheral nerve damage and the onset of GBS symptoms [11,13].

Of the 165 patients who were included in this study, 17 infected patients were diagnosed with Guillain-Barré syndrome. The development of Guillain-Barré syndrome was most often observed approximately 2 weeks after the onset of COVID-19 symptoms. This syndrome was characterized by the gradual development of limb paralysis with sensory and autonomic dysfunction; 2 patients also had facial nerve involvement (pic2)



Picture 2

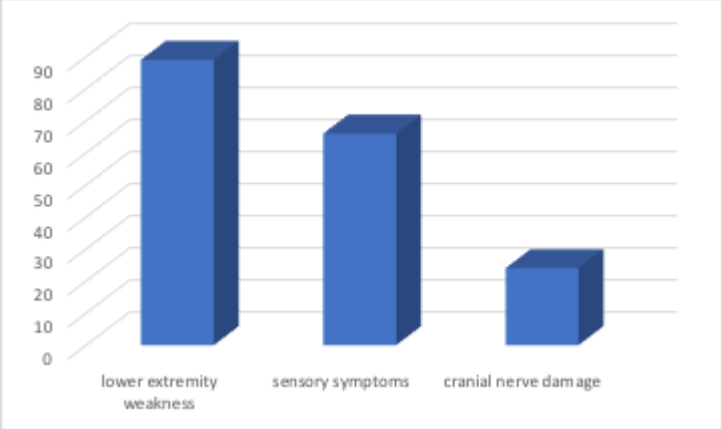
The most common diagnosis was acute inflammatory demyelinating polyneuropathy (48%, or 79 of 165 cases), while axonal variants (acute motor axonal neuropathy and acute motor-sensory axonal neuropathy) were found in 17% of cases (pic 3.)



Picture 3

After analyzing the individual symptom complexes, the following results were found. The most common symptom was lower extremity weakness (in 54% of cases, representing 89 of 165 patients), followed by sensory symptoms (in 40% of cases; 66 patients, including two with sensory ataxia).

Symptoms associated with cranial nerve damage were observed in 15% of cases (24 patients).



Picture 4.

It was also noted that patients with COVID-19 and polyneuropathy are relatively less likely to have myalgias and radiculopathies (14.2%), which are reported in about 2/3 of patients with polyneuropathy without COVID-19

Conclusions. Thus, COVID-19 contributes to the development of neurological disorders already at the early stages of the disease in the form of lesions of the central and peripheral nervous system. In this regard, all patients with COVID-19 need to consult a neurologist in the dynamics of treatment in order to avoid the development of severe neurological complications.

REFERENCES

1. Al-Zamil M.H. Clinical and electromyographic features of motor fiber lesions of peroneal and tibial nerves in distal polyneuropathy of the lower extremities in patients with diabetes mellitus types 1 and 2// Clinical Neurology. - 2011. - № 4. - C. 24-35.
2. Al-zamil M.H., Minenko I.A. Algorithm of treatment of carpal tunnel syndrome in patients with diabetes mellitus type 2 with the help of acupuncture and transcutaneous electroneurostimulation in combination with drug therapy// Vestnik novykh meditsinskikh tekhnologii. Electronic edition. - 2016. - № 2. - C. 114-123.
3. Belopasov V.V., Yashu Y., Samoylova E.M., Baklaushev V.P. Nervous system damage in SOVID-19// Clinical Practice. - 2020. - T. 11. № 2. - C. 60-80.
4. Bobyleva E.S., Iskenderov D.E., Panin P.F. Use of acupuncture in the treatment of Guillain-Barré syndrome// Proceedings of the Samara Scientific Center of the Russian Academy of Sciences. - 2010. - T. 12, № 1-6. - C. 1587-1588.
5. Voytenkov V.B., Vilnitz A.A., Klimkin A.V., Skripchenko N.V., Konev A.I., Ivanova G.P. Clinical and neurophysiological features of critical states polyneuropathy in children with infectious diseases// Medicine of Extreme Situations. - 2015. - № 2 (52). - C. 33-37.
6. Gromova O.A., Torshin I.Yu., Semyonov V.A., Putilina M.V., Chuchalin A.G. About direct and indirect neurological manifestations of COVID-19//Journal of Neurology and Psychiatry. C.C. Korsakov. - 2020. - T. 120. № 11. - C. 11-7.Gusev E.I., Martynov M.Y., Boyko A.N., Voznyuk I.A., Lashch N.Y., Sivertseva S.A., Spirin N.N., Shamalov N.A. New coronavirus infection (covid-19) and lesions of the nervous system: mechanisms of neurological disorders, clinical manifestations, organization of neurological care // Journal of Neurology and Psychiatry. C.C. Korsakov. - 2020. - T. 120. № 6. - C. 7-16.

7. Zhivolupov SA, Samartsev IN, Rashidov NA, Tokareva DV, Vorobyeva MN, Yakovlev EV Pathogenetic forms of diseases of the peripheral nervous system (differential diagnosis, principles of treatment)//Vestnik of the Russian Military Medical Academy. - 2013. - № 3 (43). - C. 23-28.
8. Karakulova Y. V., Filimonova T. A. Monitoring of clinical and neurophysiologic parameters in diabetic polyneuropathy in the process of metabolic therapy // Doctor.Ru. - 2017. - № 1 (130). - C. 25-29.
9. Kutlubaev M.A. Clinical and pathogenetic features of lesions of the nervous system in COVID-19 // Journal of Neurology and Psychiatry. C.C. Korsakov. - 2020. - T. 120. № 9. - C. 130-136.
10. Novikova L.B., Akopyan A.P., Sharapova K.M., Latypova R.F.. Neurological and psychiatric disorders associated with COVID-19//Arterial hypertension. - 2020. - T. 26. № 3. - C. 317-326.
11. Nozdryukhina N.V., Kabaeva E.N., Kirilyuk E.V., Tushova K.A., Chmutin G.E. Complication of a new coronavirus infection COVID-19 by Guillain-Barré syndrome// Vestnik neurology, psychiatry and neurosurgery. - 2020. - № 8. - C. 11-18.
12. Odinak M.M., Tsygan N.V., Yakovleva V.A., Ryabtsev A.V., Litvinenko I.V. Clinical features, epidemiology and pathogenesis of nervous system lesions in new coronavirus infection COVID-19// Proceedings of the Russian Military Medical Academy. - 2020. - T. 39. № S3-2. - C. 117-119.
13. Polyakova V.I. Features of detection, course, therapy and prognosis of toxic axonal sensorimotor polyneuropathy// Brain Universe. - 2020. - T. 2. № 1 (4). - C. 22-24.
14. Putilina M.V., Grishin D.V. SARS-COV-2 (COVID-19) as a predictor of neuroinflammation and neurodegeneration: potential strategies for therapy// Journal of Neurology and Psychiatry. C.C. Korsakov. - 2020. - T. 120. № 8-2. - C. 58-64.
15. Маджидова Я.Н. Дуплексное сканирование в диагностике патологии магистральных артерий головы при острых нарушениях мозгового кровообращения в молодом возрасте //Центрально-Азиатский медицинский журнал. 1998г. Том. – №. 4. – С. 2-3.
16. Шарипова М.А., Маджидова Я.Н. Роль Антигенсвязывающих Лимфоцитов У Больных Сенсоневральной Тугоухости //Central Asian Journal of Medical and Natural Science. – 2022. – Т. 3. – №. 5. – С. 171-177.
17. Маджидова Я.Н., Мамбеткаримова М.С. КЛИНИКО-НЕВРОЛОГИЧЕСКИЕ И ДИАГНОСТИЧЕСКИЕ ОСОБЕННОСТИ ДЕТЕЙ С МИКРОЦЕФАЛИЕЙ //Естественные науки в современном мире: теоретические и практические исследования. – 2024. – Т. 3. – №. 1. – С. 54-56.
18. Madjidova Y.et al. Neuromuscular activation using the" exarta" suspended system in rehabilitation of patients after a stroke //International Journal of Pharmaceutical Research (09752366). – 2020. – Т. 12. – №. 3.