



## Letter to the editor

## Reorganization of multiple sclerosis health care system in Clinical Centre of Montenegro during the COVID-19 pandemic



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## ABSTRACT

The COVID-19 epidemic has brought a number of changes to health systems, including the provision of health services to patients with multiple sclerosis (MS). Work in the Clinic for Neurology of the Clinical Center of Montenegro (CN-CCM) with MS patients continued as much as possible during the epidemic. The administration of the already started disease-modifying therapy (DMT) continued, and the introduction of the new one was postponed until the moment when the epidemic started to slow down. During the epidemic period, plasmapheresis treatment was performed in CN-CCM without any complications. New ways of communications (special e-mail address and phone line) with MS patients during epidemic were realized. During epidemic, smaller number of relapses were reported compared to same period in 2019. There were not MS patients in Montenegro suffering from SARS-Cov2 virus infection.

In the early 2020, the entire world defined the SARS-Cov2 virus as an impending threat to human health. All countries faced a challenge - to reorganize the health care system so as to enable patients with COVID-19 adequate treatment, and on the other hand, patients suffering from other diseases, including chronic ones, should not be neglected. Montenegro, as a small Balkan country with about 650,000 inhabitants, is the last country in Europe where, on March 17, a case of COVID-19 was registered.

As the largest and the only institution at the tertiary level of health care, the greatest responsibility in the fight with COVID-19 fell to the Clinical Center of Montenegro (CCM). Respecting the recommendations and orders, the Clinic for Neurology of the Clinical Center of Montenegro (CN-CCM) has made changes in its work, with all patients, including MS patients. In the Montenegrin health system, CN-CCM is a reference MS institution - patients with suspected demyelinating disease of the central nervous system, as a rule, are referred to the CN-CCM for further diagnostic processing and then, after diagnosis, consilium examination in CN-CCM makes the decision to treat the patient. All disease-modifying therapy (DMT) is introduced during a one-day hospitalization at the CN-CCM. Also, the neurologists of the CN-CCM often have the opportunity to verify the relapse of disease and prescribe pulse corticosteroid therapy for patients living in Podgorica and surrounding cities.

During the epidemic, neurologists of CN-CCM constantly monitored the latest research on SARS-Cov2, especially the neurological symptoms of this infection presented in several scientific papers [1], and recommendations for the treatment of MS patients during this epidemic [2]. The epidemiological situation in Montenegro, and consequently the organizational situation in CN-CCM, can be divided into two periods: A - before the first cases and during active epidemic in Montenegro (March 10 – April 30) and B - the period of slowing epidemic (May 1 – May 20), when the number of new patients is 0–1/day. Aware of the fact that MS patients are a vulnerable group, it was decided that patients who have already started DMT will continue the same, with special caution when coming to the clinic - epidemiological survey,

checking for symptoms of SARS-Cov2 infection, laboratory tests results, wearing protective equipment. On the other hand, the introduction of new DMT was suspended during period A of the epidemic in Montenegro. The difference in the number of newly introduced DMT is due to the following: epidemiological situation, reorganization of all health care institutions (eg it took a long time for patients to perform all necessary analyzes before starting new therapy) and reduced workload in administrative health care institutions. The administration of pulse corticosteroid therapy for relapses verified by neurologists was regularly continued. Consilium examinations with presence of patients were suspended in period A, and therefore a special e-mail address was introduced which patients used to send laboratory, imaging and other results which were then interpreted by neurologists and a decision was made. Also, the CCM management opened a special telephone line for consultations of patients with specialists, among whom were also neurology specialists. The entry of data into the MS register continued during epidemic.

The results achieved during the epidemic in relation to MS patients and a comparison with the same period in 2019, obtained from the official CN-CCM records, are shown in [Table 1](#). It is important to emphasize that there were not MS patients in Montenegro suffering from SARS-Cov2 virus infection. During period A, in CN-CCM one plasmapheresis treatment of severe relapse of MS was done and finished without any complications.

As it can be seen from the [Table 1](#), during the epidemic, a smaller number of relapses of the disease was verified compared to last year, and the administration of DMT continued. We believe that the smaller number of verified relapses during the epidemic period, among other things, is related to the patients' fear of coming to the examination. It is especially important that no case of adverse reactions to prescribed drugs has been registered.

Every health care system, including the Montenegrin one, had to adapt to the new situation regarding the COVID-19 epidemic. The results achieved in CN-CCM show that health care for Montenegrin MS patients during the COVID-19 epidemic was provided at the maximum

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**Table 1**

Examinations, treatment, reported relapses and adverse drug reactions during the epidemic and in the comparative period of 2019.

	Period A (March, 10 –April, 30)	Period B (May, 1 – May, 20)	Total during epidemic	Total in the period March 10 to May 20, 2019
Hospitalizations for diagnostic procedures related to MS	1	1	2	18
<b>Treatment</b>				
Pulse corticosteroid therapy administered during > 2-days hospitalizations	1	1	2	4
Pulse corticosteroid therapy administered ambulatory	4	3	7	15
Plasmapheresis	1	0	1	1
Adverse-drug reactions	0	0	0	1
Newly introduced DMT	1	17	18	68
Ocrelizumab	0	1	1	21
Dimethylfumarate	0	7	7	0
Fingolimod	1	1	2	5
Interferon-beta 1b	0	2	2	21
Interferon-beta 1a sc.	0	1	1	10
Interferon-beta 1a im.	0	0	0	11
Teriflunomid	0	5	5	0
Continued DMT	21	11	32	8
Ocrelizumab	15	7	22	0
Natalizumab	6	4	10	8
<b>Consultations, examinations</b>				
Call-centre - consultations	16	5	21	0
Consilium-examinations	156	45	201	287

possible level. As the epidemic weakens, the number of medical services provided to MS patients has increased, and as the epidemic disappears, the CN-CCM will be ready to immediately return to the situation before the COVID-19 crisis.

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