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## Neurosurgical departments functioning during the COVID-19 pandemic - report

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## **Abstract**

We present a short article on the actual state of functioning of neurosurgical departments, performing neurosurgical procedures during the COVID-19 pandemic on the example of our department - Department of Neurosurgery, Neurotraumatology and Pediatric Neurosurgery of Ludwik Rydygier Collegium Medicum of Nicolaus Copernicus University. The pandemic disrupted so far, proper work of neurosurgical departments and put neurosurgeons in a new reality. Despite the widespread exacerbation of spine diseases, they were pushed to the background. Many neurosurgical departments have been converted into COVID-19 isolation departments. We present a brief report on the actual state of the work of neurosurgeons and that a year after the pandemic began, the work of neurosurgical departments is still disrupted and the prospect of performing non-urgent neurosurgical procedures is uncertain.

**Key words:** neurosurgery, COVID-19, neurosurgical departments

## **Introduction**

The Coronavirus disease 2019 (COVID-19) pandemic caused a lock-down in March 2020 and resulted in the abandonment of normal functioning of neurosurgical departments and performing surgical procedures in the field of neurosurgery. In fact, all non-urgent procedures have been suspended, and the Minister of Health has banned elective procedures, which are neither life-saving nor oncological ones [1]. The rehabilitation of patients treated for osteoarthritis of the spine has also been suspended. The scope of neurosurgery obviously includes life-saving procedures: severe brain injuries, cerebral hemorrhages, ruptured aneurysms, and spine fractures. Neurosurgery also deals with oncological treatment - operations on brain tumors [1]. These all procedures were of course not suspended, but the need to test for the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in every patient, even one with acute intracranial hematoma, operated as soon as possible (ASAP), caused logistical and organizational difficulties for the medical staff. Thus, medical procedures, which in normal times were not of any kind, became difficult for medical staff during the COVID-19 pandemic.

During the pandemic, the Minister of Health of the Republic of Poland also decided to close some neurosurgical wards and convert them into COVID-19 isolation wards [1,2]. This posed a challenge for the medical staff. Doctors in particular, who had often performed medical activities in the field of neurosurgery for many years, were put in a new reality and had to treat and care for patients with COVID-19.

Currently, according to data from the World Health Organization (WHO) and epidemiological data, we have experienced two peaks of the disease and perhaps, despite the vaccination started, we will face a third peak. Each increase in the disease incidence additionally disrupts the functioning of neurosurgical departments. Intensive Care Units must be dedicated to respiratory therapy for COVID-19 patients. This limits the ability to perform neurosurgical operations, but also orthopedic, surgical, vascular, ENT and ophthalmic surgeries [3].

Moreover, in 2020, cases of COVID-19 were observed in medical personnel: doctors, nurses [4], rehabilitators, medical caregivers, paramedics, as well as hospital office administration employees. This resulted in professional absenteeism and often forced to limit the work of hospital departments, including neurosurgical ones [1]. These departments were often closed and surgeries had to be stopped altogether - even emergencies. Back then, patients had to be redirected to other hospitals. It often happened that while one neurosurgical unit was lock down closed for epidemic reasons of staff, another received all emergencies. It seems that the vaccinations of medical personnel (as the zero group), initiated at the turn of 2020/2021, will finally eliminate the problem of professional absenteeism and quarantine among medical staff.

### **Short report**

In Department of Neurosurgery, Neurotraumatology and Pediatric Neurosurgery of Ludwik Rydygier Collegium Medicum of Nicolaus Copernicus University, normal range of neurosurgical operations were performed as normal until March 16, 2020. These were spinal, neurooncological, hydrocephalic, aneurysm, cerebral hemorrhage and trauma procedures.

On March 15, 2020, the National Health Fund (*pol. Narodowy Fundusz Zdrowia*, NFZ) announced the minimization of the risk of transmission of COVID-19 infection. NFZ recommended limiting to the minimum necessary or temporarily suspending the provision of services performed on a schedule or in accordance with the adopted treatment plan [1,2]. This applies mainly to planned stays in hospitals for the purpose of: diagnostic, therapeutic and surgical procedures, medical rehabilitation, psychiatric care and addiction treatment services,

dentistry, outpatient specialist care, outpatient diagnostic tests, such as computed tomography, magnetic resonance imaging, gastroscopy, colonoscopy, ultrasound, as well as preventive examinations and vaccination. However, NFZ emphasized that in each case of postponing the date of providing a service, and especially when a decision is made to suspend the provision of services, it is necessary to assess and take into account the conditions and risks related to the health of patients and the probability of its deterioration [1-3]. Thus, the responsibility was largely transferred to doctors, putting them in a more difficult situation.

In response to this recommendation of NFZ, our neurosurgery department suspended the scheduled work and only implemented life-saving and oncological procedures. This is how the work during the first COVID-19 incidence peak looked like from our point of view. Planned neurosurgical operations (including spine surgery) were resumed on May 4, 2020. Each patient had the SARS-CoV-2 test and had to stay isolated until the test was performed, thus the procedures were carried out much slower than before the pandemic, which limited the possibilities of operating.

In the fall of 2020, during the second peak of the pandemic, there were cases of COVID-19 among medical staff. We had to close our department three times for a 1 week - periods and stop admitting patients completely.

In January 2021, all Staff of Department of Neurosurgery, Neurotraumatology and Pediatric Neurosurgery of Ludwik Rydygier Collegium Medicum of Nicolaus Copernicus University received two doses of the vaccine. We express the hope that there will be no more COVID-19 from the medical staff that would no more disturb the work of the department.

## **Conclusions**

1. Vaccination of medical personnel seems to solve the problem of absenteeism of doctors, nurses, physiotherapists and medical carers. It seems that from the point of view of the medical staff, the functioning of hospital wards is undisturbed.
2. Vaccination of the rest of the population is uncertain in the sense of when it will be possible to vaccinate the majority of the population. For this reason, the current epidemiological restrictions, which will reduce the number of surgeries, seem to be ongoing and it is not known whether or not when or if it will ever be possible to return to work as before the pandemic.
3. The neurosurgical procedures most disrupted by the COVID-19 pandemic are spine surgery due to disc or degenerative disease, and peripheral nerve entrapment surgery.
4. Despite the postponement of these procedures, in most cases the patient's attitude is not demanding, despite suffering from troublesome neuropathic pain. Neurosurgical patients

seem to understand the difficult epidemiological situation. What's more, they often want to postpone surgery themselves. They do not want to leave home and move around medical facilities because of fear of COVID-19.

### **Abbreviations**

- ASAP - as soon as possible
- NFZ - the National Health Fund (*pol. Narodowy Fundusz Zdrowia*)
- SARS-CoV-2 - severe acute respiratory syndrome coronavirus 2
- WHO - World Health Organization
- COVID-19 - Coronavirus disease 2019

**Competing Interests:** The authors declare that they have no conflict of interest.

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