

## The role of neurologist in the management of brain tumors in COVID-19 era

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### Abstract

Covid-19 poses a huge challenge, in terms of the medical needs of large number of infected patients all over the world. Patients with brain tumors comprise a hetero generous group with regard to age, symptoms verity and prognosis. Thus, we should make clinical decisions on a case-by-case basis. Brain tumor in COVID 19, with the challenges involved in diagnosing and treating brain tumors during these difficult times. Brain tumor types and through a few case presentations. At the end consideration and recommendations in this regard.

**Key word:** Neuro oncology, Brain tumor

### General considerations

At present, the Covid-19 pandemic is the focus of the global community and an all-consuming threat to the health care systems all across the World. Resources and medical staff are reallocated, and planned medical activities are delayed or cancelled. Covid-19 poses a huge challenge, in terms of the medical needs of large number of infected patients, including extensive use of ICU; risk of disease among health professionals; and, not least, diminished health care for other patient groups.

Patients with brain tumors comprise a heterogeneous group with regard to age, symptom severity and prognosis. Thus, we should make clinical decisions on a case-by-case basis. One should consider the best possible timing of surgery or oncological therapy, the risk to the patient if treatment is delayed, medical co-morbidities, other prognostic factors and consequences of prolonged hospital stay, including exposure to infection. In addition to this, we must consider the degree of immunosuppression and concerns for family and caregivers. Finally, we must take into account the availability of postoperative ICU care, rehabilitation facilities and risk related to travelling.

### Cancer patient prioritisation

#### High priority

- Newly diagnosed brain tumour
- New onset or worsening of symptoms indicative of tumour- or treatment-related complications (e.g. neurological symptoms, dyspnoea, chest pain)
- Clinical or radiological evidence for tumour recurrence

- Application of intravenous or intrathecal anticancer treatment
- Wound-healing problems after neurosurgical intervention

#### Medlum priority

- Evaluation of clinical status, laboratory or neuroradiological results in known brain tumour patients without new or worsening symptoms and with active therapy (convert to telemedicine visits whenever possible)
- Prescription of oral anticancer treatment (convert to telemedicine visits whenever possible)
- Post-operative patients without need for active therapy and no complications

#### Low priority

- Evaluation of clinical status, laboratory or neuroradiological results in known brain tumour patients without new or worsening symptoms and without active therapy (convert to telemedicine visits whenever possible)
- Visits of patients on a best supportive care regimen
- Visits of psychological support (convert to telemedicine) Second opinion visits (convert to telemedicine)

### Personal experience

- The first Romanian patient confirmed on February 26, 2020, in Targu Jiu
- On March 16, 2020, the state of emergency was established
- During the state of emergency, the exercise of certain rights was restricted, in the terms and conditions provided by the Decree: free movement; the right to intimate, family and private life; inviolability of the home; the right to education; freedom of assembly; the right of private property; the right to strike; economic freedom.
- First Aid Measures with direct and immediate applicability have been established in several fields of activity: public order, economic, health, labor and social protection, justice, foreign affairs and First Aid Measures with gradual applicability depending on the fulfillment of certain criteria.

At that moment of establishing the state of emergency for the pandemic we faced with:

- General anxiety : patients and medical staff
- Lack of protective equipment
- Lack of testing possibilities
- Lack of etiopathogenic treatment
- Lack of protocols

The general management of our privat outpatient clinic:

- Purchase of protective equipment and disinfectants
- Acquisition of rapid antigen / antibody tests for sars cov 2
- Weekly testing of medical staff and suspicious patients.

Promoting through the internet (ex. Facebook) the way of providing specialized medical assistance by telemedicine ( phone and internet) in the main way, especially for the priority selection.

#### Case1:

Leptomeningeal metastases squamous cell carcinoma:

- 35 y.o . F,
- By internet
- Symptomes: dizznes and headache with constrictive character
- Hystory: Patient known for about one year, with left peripheral facial palsy, negative MRI , lumbar leptomeningial metastasis for squamous cell carcinoma with unknown starting point, surgery, chemo and radiotherapy, with favorable evolution and negative PET scan a month ago.
- Standard tratment with cinnnarizine and AINS for one week and then, CS ( methylprednisolone ) for 5 days did not improved the symptms,

The patient was referred to the neurology department of the public hospital for further evaluation.



- Clinical evaluation : tetraparesis, ataxia, facial biparesis, hearing loss, , internuclear paralysis, sensory aphasia.

- Land tests : severe hyponatremya ( squamos cell carcinoma paraneoplasia by abnormal ADH secretion)

CT scan : Infra and supratentorial leptomeningal contrast intakes, but also the right ppsterolateral C7 cervical level.

- The oncology consultation, by phone, recommended radiotherapy.
- Neurosurgical consultation, by internet, recommended ventriculo-peritoneal drainage for hydrocephalus
- The patient was admitted in a privat clinic , in Bucharest, only after sars cov 2 test
- Evolution:hydroelecroylytic rebalancing, drainage , and radiation therapy were administred , but the evolution was unfavorable, pacent died after 2 weeks.



#### Case 2:

Oligodendroglioma:

- 46 y.o M
- By internet : focal seisures on left limbs
- No previous history
- Patient was referred to MRI with contrast for rigt brain tumor suspicion
- Clinical evaluation: free for signs or symptoms at that time .

Treatment: Levetiracetam 2000 mg/day and referred for surgery .

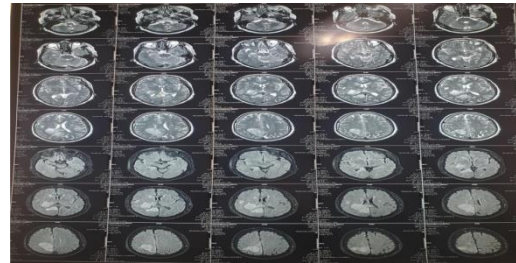
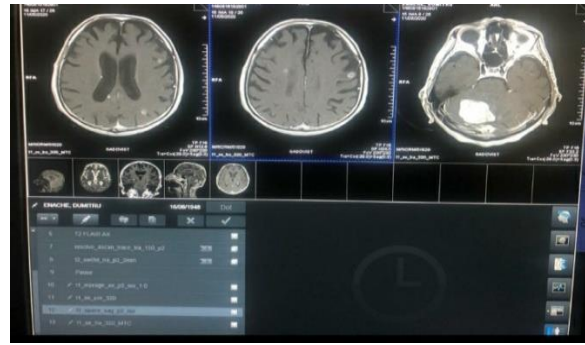


**Case 3:**

Glioblastoma multiforme:

- 66 y.o F
- Presentation : in emergency of outpatient clinic for: dizziness, neglect, headache, mild left ataxia and paralysis. Husband referred her.
- History: head trauma 3 month before, hypertension .

Clinical exam : right parietal syndrome, neglect of left hemibody and mild hemiparesis and hypoesthesia.



**Conclusions and recommendations**

- Patients with brain tumors should exert high levels of care in regard to hygiene measures
- Patients with brain tumors should seek medical advice at once if Covid-19 infection is suspected
- Keep regular follow-up intervals, but employ teleconsultations when safe and feasible

Consider prolonging follow-up MRI appointments in asymptomatic, long-term survivors of less malignant brain tumors, for instance, meningiomas and schwannomas.

**Case 4:**

Cerebral metastasis lung cc:

- 72y.o M
- By phone and internet
- Symptoms: dysarthria, imbalance
- History: smoking, pneumonia
- MRI with gadolinium : metastasis
- Chest and abdomen CT: pulmonary tumor

Treatment: acetazolamide 200 mg /day, referred to neurosurgery and oncology.



- Consider hypofractionated radiotherapy in certain patient groups where outcome is not likely to be affected considerably, in particular elderly glioblastoma patients
- Consider postponing radiotherapy if it seems safe and feasible

Consider refraining from invasive procedures in some cases, for instance biopsy in elderly patients with typical radiological features of glioblastoma, or postpone surgery in some patients if safe

- Due to the risk of immunosuppression, consider avoiding chemotherapy in subgroups of patients in

whom the efficacy is uncertain, such as elderly patients with MGMT unmethylated glioblastoma, patients with low grade glioma without progression or standard risk adult medulloblastoma

- Optimize antiepileptic therapy, according to the recommendations of the SP for epilepsy (LINK)

Taper steroids to the lowest effective dose, if possible

- Consider end-of-life decisions in severely ill patients, in case of infection or need of emergency hospitalization

**Case 5:**

72y.o M

Consider methods to give additional support and information, for instance nurse-led support telephone services, online medical counselling and collaboration with national brain tumor patients organizations

#### *Final remarks*

Patients with brain tumors are aware of their vulnerability. Social isolation and physical distancing may add to anxiety and distress. These are challenging times for patients, patients' caregivers and the professional neuro-oncological community. We do not know the duration or outcome of the pandemic, but we know for sure that it will affect our patients with brain tumors, directly and indirectly.

#### *Biography*

Dr. Mihaela Pungan is consultant neurologist and director of a privat practice in Targu Jiu, Romania. Graduate of the Faculty of Medicine , University of Medicine and Pharmacy "Victor Babes" from Timisoara, Romania, on 2000. She has extensive experience in general neurology with specialization in epileptology. She worked both in the public and private system as consultant neurologist. She had has a rich clinical activity, but also a permanent participation in medical events in the country and abroad as passive and active participant. She is a member of several medical organizations in Romania and in the world.

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