

Final Survey Results

<Treatment priority>

Q1) Which factors do you consider most important in determining the treatment priority during the crisis?

- 1. Presence of acute neurological deterioration with increased intracranial pressure (IICP) (85.7%)**
2. Tumor growth (or progression) rate.
3. Possibility of neurologic recovery after treatment. (9.5%)
4. Long-term prognosis of the tumor after treatment. (4.8%)
5. Patient's age.
6. Underlying disease of the patient.

Q2) If you think of another factor besides the factors presented in question 1 in determining the treatment priority during the crisis, describe it.

Panel's opinions>

- 1. Whether a newly diagnosed case is.**
- 2. Availability of medical resources.**
- 3. Whether the necessity of combined treatment is.**

Q3) Do you agree that a newly diagnosed case has treatment priority over a recurred case with similar clinical characteristics including neurologic symptoms, tumor type, patient's age,

and so on during the crisis? (e.g., newly diagnosed GBM vs. recurred GBM or newly diagnosed meningioma vs. recurred meningioma)

1. Agree (71.4%)

2. Disagree (23.8%)

3. Others (4.8%): according to tumor type.

Q4) Do you agree that a patient with poor life expectancy despite immediate therapy can be delayed in the treatment priority during the crisis? (e.g., elderly GBM, recurrent or progressive GBM, brain metastasis with uncontrolled primary cancer) (presupposed sufficient discussion with patients and their families)

1. Agree (100%)

<Pathology>

Q1) In the restricted situation of medical resources for diagnosis of WHO 2021 diffuse glioma during the crisis, do you agree to proceed with further treatment for diffuse glioma patients based on traditional histological diagnosis without molecular information?

- 1. Agree (95.2%)**
2. Abstention (4.8%)

<Surgery>

Q1) Do you agree that a benign tumor with a good prognosis has surgical priority over a malignant tumor with a relatively bad prognosis during the crisis?

1. Agree (42.9%)
- 2. Disagree (52.4%)**
3. Abstention (4.7%)

Q2) For surgical resection of a malignant tumor with a relatively bad prognosis, do you agree it can limit the extent of surgical resection for the effective distribution of restricted medical resources?

- 1. Agree (52.4%)**
2. Disagree (42.9%)
3. Abstention (4.7%)

Q3) Do you agree with the below the level of surgical priority during the crisis?

Priority A (immediate, <24-48 hours): Patients in whom surgery is required within 24-48 hours because of life-threatening risk or significantly altering the patient's prognosis.

Priority B (< 4 weeks): Patients for whom a delay of < 4 weeks from target would not be anticipated to impact significantly on the patient's prognosis.

Priority C (< 2-3 months): Patients for whom a delay of 2-3 months would be unlikely to affect the patient's prognosis.

1. Agree (95.2%)

2. Disagree (4.8%)

Q4) Do you proceed with the surgical intervention if a patient with a brain tumor suffers from a legally communicable disease?

1. I will perform the surgical intervention for all patients regardless of whether a patient suffers from a legally communicable disease.

2. I will perform the surgical intervention only for the patient with surgical priority A. (90.5%)

3. I will postpone the surgical intervention for all patients until the isolation period from a legally communicable disease is finished. (4.8%)

4. Abstention (4.7%)

Q5) Do you think any situations besides the patient with surgical priority A that we have to proceed with the surgical intervention if a patient with a brain tumor suffers from a legally communicable disease?

Q6) Do you agree with the system for reevaluating surgical priority during the crisis?

1. Agree (95.2%)

2. Abstention (4.8%)

Q7) What factors do we have to consider for reevaluating the surgical priority during the crisis?

Panel's opinions>

- 1. Whether the patient's neurological aggravation.**
- 2. Availability of medical resources (operating room, ICU beds)**
- 3. Whether adjuvant treatment will be given.**

<Radiotherapy>

Q1) During the crisis period with strained health care resources, do you agree that hypofractionated radiotherapy can be preferred to conventional fractionation in elderly patients with high-grade gliomas?

1. **Agree (100.0%)**
2. Disagree (0.0%)

Q2) Please describe other clinical scenarios during the crisis in high-grade gliomas other than elderly patients where hypofractionated short-course radiotherapy should be considered over conventionally fractionated standard radiotherapy in 6 weeks?

1. **Patients with poor performance status or frail patients (70.6%)**
2. Patients with limited expected survival or poor prognosis (47.1%)
3. In no other scenarios other than elderly patients (23.5%)

Q3) During the crisis, what is the most preferred hypofractionated short-course radiotherapy schedule for patients with high-grade gliomas?

1. **40–45 Gy in 15 daily fractions (57.1%)**
2. Depends on the severity of shortage of medical resources (28.6%)
3. 34 Gy in 10 daily fractions (9.5%)
4. 25–30 Gy in 5 daily fractions (4.8%)

Q4) For efficient utilization of medical resources during the crisis, which of the following is appropriate in terms of choosing the radiotherapy schedule?

1. **Consider hypofractionated short-course radiotherapy in cases where adequate treatment efficacy is expected or sufficient evidence is published (76.2%)**
2. Strongly consider hypofractionated short-course radiotherapy over conventionally fractionated standard radiotherapy in 6 weeks (23.8%)
3. Consider conventionally fractionated standard radiotherapy in 6 weeks in all cases (0.0%)

Q5) Which criteria is more appropriate for prioritizing radiotherapy treatments?

Priority classification 1

Priority level	Description
High (level A)	Cases where compromised overall survival or neurology is expected unless radiotherapy is initiated immediately or within 4–6 weeks
Medium (level B)	Cases where compromised progression-free survival or local control is expected unless radiotherapy is initiated within 3 months
Low (level C)	Cases where radiotherapy is not expected to substantially affect prognosis (e.g. radiotherapy for palliation of mild symptoms)

Priority classification 2

Priority level	Description
High (level A)	<ol style="list-style-type: none">1. Cases where progressive neurologic symptom is present or impending (e.g. benign brain tumors with optic neuropathy, posterior fossa tumors causing life-threatening hydrocephalus)2. Young and fit patients with high-grade gliomas3. Adult medulloblastoma patients
Medium (level B)	Patients with symptomatic low-grade gliomas or meningiomas
Low (level C)	<ol style="list-style-type: none">1. Elderly/frail patients with high-grade gliomas2. Re-irradiation for gliomas3. Asymptomatic patients with meningioma, pituitary adenoma, craniopharyngioma, pilocytic astrocytoma, or completely resected low-grade glioma4. trigeminal neuralgia or schwannomas5. Patients with expected survival less than 6 months

1. Priority classification 1 (85.7%)

2. Priority classification 2 (14.3%)

Q6) In brain tumor patients requiring radiotherapy during the crisis period, for which priority level (refer to Q5) would you plan radiotherapy?

1. **High priority (level A) only (81.0%)**
2. Medium priority (level B) or higher (9.5%)
3. In all cases irrespective of priority level or severity of strained health care resource (4.8%)
4. Delay radiotherapy in all cases until the crisis is over (4.8%)

Q7) In case you have answered 'High priority (level A)' for Q6, which specific clinical scenarios other than priority level A can be strongly considered for radiotherapy during the crisis period?

Panel's opinions>_

In cases where you can expect very high response rates with radiotherapy such as germinoma or lymphoma, and chemotherapy is not feasible due to the shortage of health care resources

Q8) In which newly diagnosed brain tumor is survival likely to be compromised by delaying radiotherapy due to strained health care resources? (assume that standard systemic therapy is performed in all cases)

Panel's opinions>

1. **High-grade glioma (including glioblastoma)**

- 2. Medulloblastoma**
- 3. Germ cell tumors**
- 4. Other primary malignant brain tumors (anaplastic meningioma, anaplastic ependymoma)**
- 5. Primary central nervous system lymphoma**
- 6. Metastatic brain tumors with rapid progression (e.g. small cell lung cancer)**

<Chemotherapy & clinical trial>

Q1) How should clinicians proceed with chemotherapy during the crisis period?

1. All chemotherapy should be suspended and not be started
- 2. Proceed with chemotherapy when it may markedly improve the prognosis of patients or significantly alleviate tumor-related symptoms (85.7%)**
3. Proceed with chemotherapy according to standard treatment guideline without any special restrictions (9.5%)
4. others (4.8%)

Q2) What are best priorities according to the goals of chemotherapy during the crisis period?

(in order of priority)

- 1. Curative – neoadjuvant/adjuvant – palliative (85.7%)**
2. Curative – palliative – neoadjuvant/adjuvant (9.5%)
3. Neoadjuvant/adjuvant – curative – palliative
4. Neoadjuvant/adjuvant – palliative – curative
5. Palliative – curative – neoadjuvant/adjuvant
6. Palliative – neoadjuvant/adjuvant – curative
7. Proceed with chemotherapy without prioritization
8. Abstention (4.8%)

Q3) Which should be prioritized between neoadjuvant/adjuvant chemotherapy and palliative chemotherapy during the crisis period?

1. **Neoadjuvant/adjuvant (85.7%)**
2. Palliative (9.5%)
3. Abstention (4.8%)

Q4) Which chemotherapy regimen should be prioritized given efficacy, toxicity, and accessibility during the crisis period?

1. Most effective, but toxic and requiring frequent visits to medical institutions (4.8%)
2. **Although not the most effective, it is relatively good, has low toxicity, and can minimize visits to medical institutions (85.7%)**
3. Select chemotherapy regimen according to standard treatment guideline without considering the crisis (4.8%)
4. Abstention (4.8%)

Q5) How to manage non-emergency patients when chemotherapy cannot be performed immediately due to lack of medical resources during the crisis period?

1. Postpone chemotherapy indefinitely until medical resources shortages are resolved (4.8%)
2. **Postpone chemotherapy for a certain period of time, and if the problem is not resolved during that period, the patient is transferred to a medical institution in a region where treatment is available (85.7%)**
3. Transfer the patient immediately to a medical institution in a region where treatment is available (4.8%)

4. Abstention (4.8%)

Q6) Which department is appropriate to determine chemotherapy regimen for a patient for during the crisis period?

1. Department currently applying chemotherapy (38.1%)
2. Medical oncology (4.8%)
3. Radiation oncology
4. Neurosurgery
- 5. Decisions through a multidisciplinary approach/care (52.4%)**
6. others (4.8%)

Q7) How should clinical trials be conducted during the crisis period?

1. All clinical trials should be suspended (4.8%)
- 2. Only ongoing subjects are maintained, and new subjects registration and new clinical trials are suspended (76.2%)**
3. Initiate and maintain clinical trials without restrictions (14.3%)
4. Abstention (4.8%)

<Radiological surveillance>

Q1) What is the adequate timing of f/u MRI according to each disease status (CR, PR, SD, PD), in patients with primary malignant brain tumor (e.g. malignant glioma) who have finished standard treatment in a crisis situation? (Assuming there is no clear evidence for clinical progression or recurrence)

Q1-1) In case of complete response (CR) status after completion of standard treatment.

1. Regardless of the crisis situation, proceed according to the existing protocol. (4.8%)
- 2. Proceed with a longer f/u period than the existing protocol (66.7%)**
3. If there is no evidence of clinical progression, postpone until the crisis situation is resolved. (23.8%)
4. Abstention (4.8%)

Q1-2) In case of partial response (PR) status after completion of standard treatment.

1. Regardless of the crisis situation, proceed according to the existing protocol. (4.8%)
- 2. Proceed with a longer f/u period than the existing protocol. (71.4%)**
3. If there is no evidence of clinical progression, postpone until the crisis situation is resolved. (19%)
4. Abstention (4.8%)

Q1-3) In case of stable disease (SD) status after completion of standard treatment.

1. Regardless of the crisis situation, proceed according to the existing protocol. (4.8%)
- 2. Proceed with a longer f/u period than the existing protocol. (71.4%)**
3. If there is no evidence of clinical progression, postpone until the crisis situation is resolved. (19%)

4. Abstention (4.8%)

Q2) What is the adequate timing of f/u MRI after treatment (surgery, SRS, WBRT or CTx or combined treatment) for brain metastasis in a crisis situation based on each disease status (CR, PR, SD, PD)? (Assuming there is no clear evidence for clinical progression or recurrence of brain metastasis)

Q2-1) In case of complete response (CR) status after treatment.

1. Regardless of the crisis situation, proceed according to the existing protocol.
2. **Proceed with a longer f/u period than the existing protocol. (66.7%)**
3. If there is no evidence of clinical progression, postpone until the crisis situation is resolved. (28.6%)
4. Abstention (4.8%)

Q2-2) In case of partial response (PR) status after treatment.

1. Regardless of the crisis situation, proceed according to the existing protocol.
2. **Proceed with a longer f/u period than the existing protocol. (81%)**
3. If there is no evidence of clinical progression, postpone until the crisis situation is resolved. (14.3%)
4. Abstention (4.8%)

Q2-3) In case of stable disease (SD) status after treatment.

1. Regardless of the crisis situation, proceed according to the existing protocol.
2. **Proceed with a longer f/u period than the existing protocol. (76.2%)**

3. If there is no evidence of clinical progression, postpone until the crisis situation is resolved. (19%)
4. Abstention (4.8%)

Q3) Is it possible to postpone f/u MRI for patients with benign brain tumors without clinical signs of progression in a crisis situation until the crisis has been resolved?

1. **Agree (95.2%)**
2. Disagree
3. Abstention (4.8%)

Q4) When considering f/u MRI for patients with benign brain tumor in a crisis situation, even if there is no evidence of clinical progression, if you think that there is a clinical situation in which the f/u imaging test should proceed, please briefly describe the reason along with the reason.

Panel's opinions>

1. **Residual malignant tumor with imaging changes**
2. **Types of tumors known to be at high risk for malignant transformation**
3. **When it is judged that there is a serious risk of irreversible increase in size, the lesion near the brainstem and the lesion near the cranial nerve.**
4. **Clinical findings are the most important.**
5. **The examination planning based on tumor growth rate**

Q5) When considering imaging tests for patients with extra-axial tumor in a crisis situation, do you think other test can be substituted for MRI? (Assuming that the resource for the MRI test is limited)

1. **Yes. It can be replaced with CT (contrast or non-contrast). (76.2%)**
2. No. MRI examination must be performed, even if the MR sequence should be reduced. (19%)
3. Abstention (4.8%)

Q6) When considering imaging tests for patients with intra-axial tumor in a crisis situation, do you think other test can be substituted for MRI? (Assuming that the resource for the MRI test is limited)

1. **Yes. It can be replaced with CT (contrast or non-contrast). (57.1%)**
2. No. MRI examination must be performed, even if the MR sequence should be reduced. (38.1%)
3. Abstention (4.8%)

<Telemedicine>

Q1) In general, telemedicine is basically done via a platform with the video and audio between the doctor and the patient. Do you think that even when conducting telemedicine for brain tumor patients, it is possible to do it with only with a video and audio platform?

1. This is possible only with a video and audio platforms. (33.3%)
2. **In addition to video and audio platforms, additional enhanced platforms are needed. (66.7%)**

Q2) Do you think enhanced platforms for efficient and safe telemedicine can replace face-to-face treatment when considering telemedicine for brain tumor patients in an infectious disease crisis such as the COVID-19 pandemic? If yes, please be specific.

Panel's opinions>

1. **A platform with tele-neurological function assessment system**
2. **Remote measurement and transmission of blood pressure/body temperature/BMI/sugar level, remote stethoscope, remote digital hearing/vision meter, remote nervous system function evaluation system**
3. **Digital measuring instrument for vital signs and remote nervous system function evaluation system**
4. **It is possible in a general case, but it seems that there must be a platform that will help in situations where physical exam or cranial nerve function evaluation is possible when there is a first visit or a change in the patient's condition.**

<Q3~Q6 In the following questions about whether telemedicine can be substituted, it is assumed that the platform and technology for telemedicine are sufficiently equipped for telemedicine>

Q3) Do you agree that telemedicine can be actively considered when treating brain tumor patients in an infectious disease crisis such as the COVID-19 pandemic?

1. agree (100%)

Q4) These are questions about whether telemedicine can be substituted for each clinical situation in an infectious disease crisis such as the COVID-19 pandemic.

Q4-1) In patients with primary malignant brain tumors (e.g. malignant glioma) who have completed standard treatment, what do you think about replacing face-to-face treatment with telemedicine for a follow-up?

1. Regardless of disease status (CR, PR, SD, PD), it is possible to substitute to telemedicine for all. (14.3%)
- 2. Except for cases in which the disease status is PD (i.e., whether additional treatment should be discussed or additional treatment methods should be discussed), telemedicine can be substituted. (85.7%)**
3. Telemedicine is impossible in all cases

Q4-2) What do you think about replacing face-to-face treatment with telemedicine for follow-up in patients who have undergone treatment (surgery or SRS or WBRT or Chemotherapy or combined treatment) for brain metastasis?

1. Regardless of disease status (CR, PR, SD, PD), it is possible to substitute to telemedicine for all. (14.3%)
2. **Except for cases in which the disease status is PD (i.e., whether additional treatment should be discussed or additional treatment methods should be discussed), telemedicine can be substituted. (85.7%)**
3. Telemedicine is impossible in all cases

Q4-3) What do you think about replacing face-to-face treatment with telemedicine for postoperative follow-up of patients with benign brain tumors (e.g. grade 1 meningioma, schwannoma, pituitary adenoma, etc.)?

1. **Regardless of whether there is a residual tumor, it can be replaced by telemedicine. (90.5%)**
2. Telemedicine can be substituted only in completely resected cases. (9.5%)
3. Telemedicine is impossible in all cases

Q5) These are questions about whether telemedicine can be substituted for patient interviews or progress checks during chemotherapy or radiation treatment in an infectious disease crisis such as the COVID-19 pandemic.

Q5-1) Is it possible to substitute telemedicine for a patient interview or progress check during chemotherapy?

- 1. Substitutable (90.5%)**
2. Unsubstitutable. (4.8%)
3. Abstention (4.8%)

Q5-2) Is it possible to substitute telemedicine for patient interviews or progress checks during radiotherapy?

- 1. Substitutable (95.2%)**
2. Unsubstitutable (4.8%)

Q6) These are questions about whether telemedicine can be substituted for treating new patients in an infectious disease crisis such as the COVID-19 pandemic.

Q6-1) Is it possible to substitute telemedicine for the treatment of new patients in neurosurgery who need surgery?

1. Substitutable (23.8%)
- 2. Unsubstitutable (71.4%)**
3. Abstention (4.8%)

Q6-2) Is it possible to substitute telemedicine for the treatment of new patients in neurosurgery who need radiation therapy?

1. Substitutable (33.3%)
- 2. Unsubstitutable (66.7%)**

Q6-3) Is it possible to substitute telemedicine for the treatment of new patients in neurosurgery who need chemotherapy?

1. Substitutable (33.3%)
- 2. Unsubstitutable. (61.9%)**
3. Abstention (4.8%)