Leptomeningeal Metastases

Note: Consider Clinical Trials as treatment options for eligible patients.

EVALUATION

Signs and symptoms suggestive of leptomeningeal metastases

- Physical exam with comprehensive neurologic evaluation[1]
- MRI brain and MRI cervical/thoracic/lumbar spine with and without contrast
- Cerebrospinal fluid (CSF) exam[2] for the following:
  - Cell count with differential, with pathologist review as applicable
  - Glucose
  - Protein
  - Cytopathology (10-12 mL)
  - Flow cytometry for lymphoma or hematologic malignancies
- If indicated, consider:
  - Gram stain and culture
  - Cryptococcal antigen
  - Calcofluor white smear
  - Viral PCR (HSV, CMV, EBV)
  - Fungal and viral cultures
- Lifestyle risk assessment[3]

DIAGNOSIS

- CSF positive for tumor cells

or

- Positive radiologic findings with supportive neurologic findings

or

- Suggestive CSF[4] findings with supportive neurologic findings in a patient with a known malignancy

RISK STATUS

Poor Risk[5]:

- Low Karnofsky performance status (KPS)[6]
- Multiple, serious, major neurologic deficits
- Extensive systemic disease with few treatment options
- Encephalopathy

Good Risk:

- High Karnofsky performance status (KPS)[7]
- No major neurologic deficits
- Minimal systemic disease
- Reasonable treatment options available for systemic disease (if applicable)

TREATMENT

Consider:

- Fractionated external beam radiation therapy to symptomatic sites **and/or**
- Best supportive care

- Involved field radiation therapy[8] to bulky disease **and/or** symptomatic sites
- Consider clinical trials for eligible patients
- Consider systemic therapy with targeted therapies **or** immune checkpoint inhibitors for special patient populations

- Consider placing intraventricular catheter (Ommaya Resevoir) **and/or**
- Consider ventriculoperitoneal shunt with adjustable valve (including on/off or programmable) for intrathecal chemotherapy if symptoms and/or radiological findings suggestive of hydrocephalus

Perform Nuclear Medicine CSF Shunt Evaluation, see Page 2

[1] Mental status, cranial nerves, motor, sensory and cerebellar exam
[2] Use caution for lumbar punctures in patients who are anticoagulated, thrombocytopenic, or who have a bulky intracranial mass
[3] See Physical Activity, Nutrition, and Tobacco Cessation algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice
[4] CSF suggestive of leptomeningeal metastasis in the absence of positive cytology includes high WBC and/or low glucose and/or high protein. If CSF is not positive for tumor cells, up to 3 lumbar punctures may be of clinical value.
[5] Poor risk patients with exceptionally chemosensitive tumors (*e.g.*, small cell lung cancer, lymphoma) may be treated
[6] Refer Karnofsky Performance Status Scale (Appendix A) – Score ≤ 50 is considered a poor risk factor
[7] Refer Karnofsky Performance Status Scale (Appendix A) – Score ≥ 60 is considered a good risk factor
[8] Usually whole brain radiation therapy (WBRT) and/or partial spine field recommended

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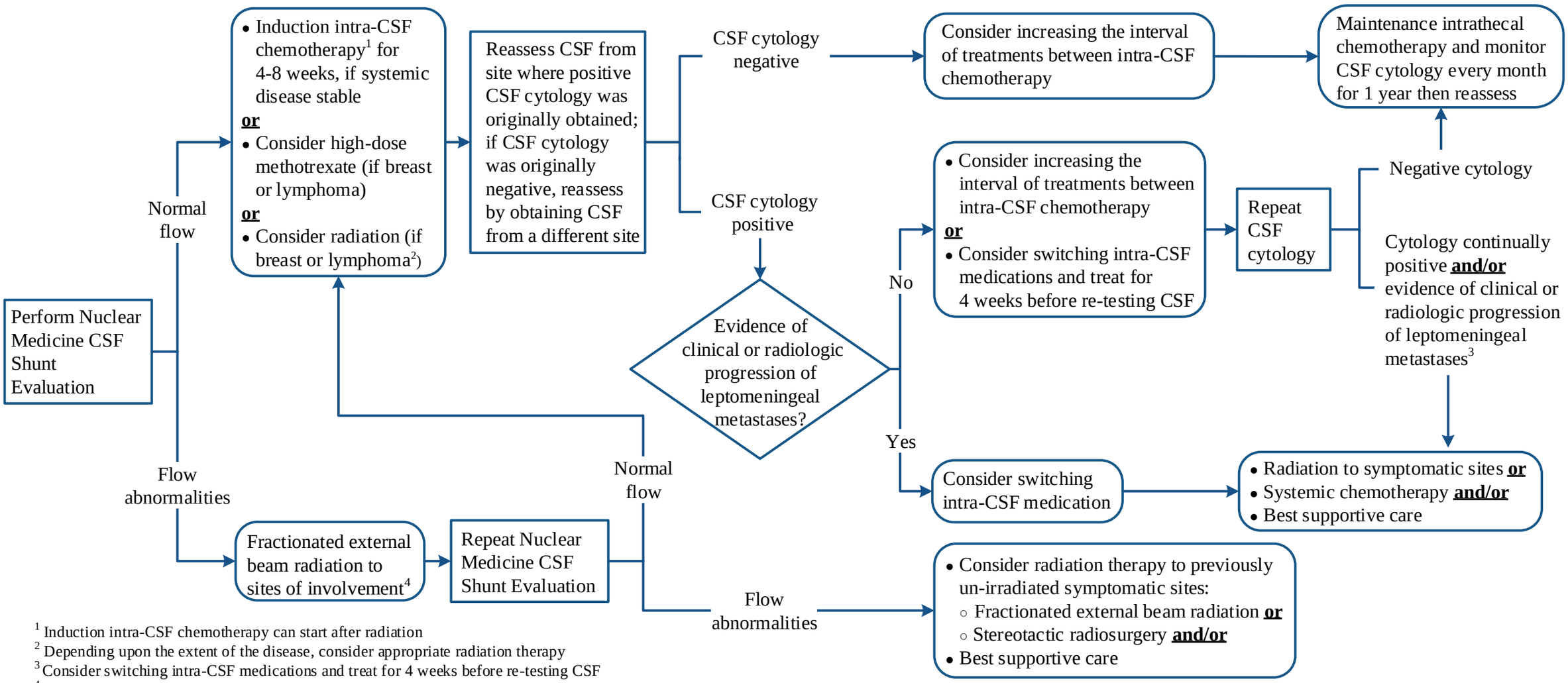
Approved by the Executive Committee of the Medical Staff on 06/25/2019

Leptomeningeal Metastases

Note: Consider Clinical Trials as treatment options for eligible patients.

PRIMARY TREATMENT

POST-INDUCTION THERAPY



[1] Induction intra-CSF chemotherapy can start after radiation
[2] Depending upon the extent of the disease, consider appropriate radiation therapy
[3] Consider switching intra-CSF medications and treat for 4 weeks before re-testing CSF
[4] Usually WBRT and/or partial spine field recommended

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APPENDIX A: Karnofsky Performance Status Scale Definitions

Able to carry on normal activity and to work; no special care needed	100	Normal; no complaints; no evidence of disease
	90	Able to carry on normal activity; minor signs or symptoms of disease
	80	Normal activity with effort; some signs of disease
Unable to work; able to live at home and care for most personal needs; varying amount of assistance needed	70	Cares for self; unable to carry on normal activity or to do active work
	60	Requires occasional assistance, but is able to care for most of his personal needs
	50	Requires considerable assistance and frequent medical care
Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly	40	Disabled; requires special care and assistance
	30	Severely disabled; hospital admission is indicated although death not imminent
	20	Very sick; hospital admission necessary; active supportive treatment necessary
	10	Moribund; fatal processes progressing rapidly
	0	Dead

SUGGESTED READINGS

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DEVELOPMENT CREDITS

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