THE UNIVERSITY OF TEXAS MD Anderson Cancer Center
Making Cancer History®

Primary Brain Lesion-Diffuse Glioma – Adult (Greater than or equal to 18 years old)

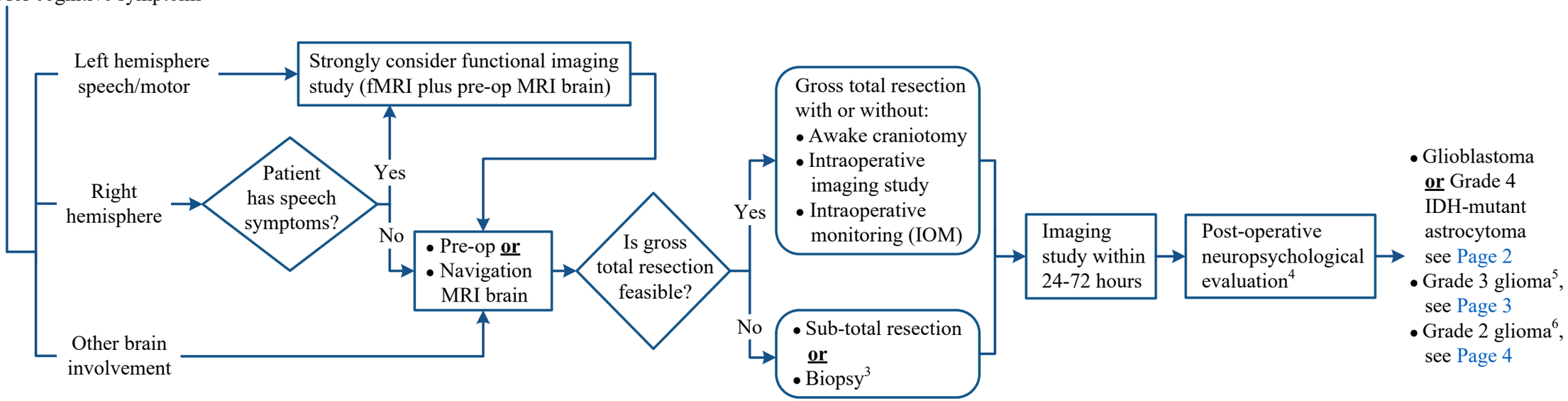
Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.*

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

RADIOLOGICAL PRESENTATION

- Imaging study suggestive of glioma[1]
- Discuss Goal Concordant Care (GCC) with patient or if clinically indicated, with Patient Representative[2]
- Consider pre-op neuropsychological evaluation for cognitive symptoms

PRESURGICAL PLANNING



TREATMENT

[1] Biopsy first if MRI suggestive of CNS lymphoma or non-tumor diagnosis. Observation may be appropriate for some lesions.
[2] GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to the GCC home page (for internal use only)
[3] For select patients, other surgical options can be considered including laser interstitial thermal therapy (LITT)
[4] Consider for patients with a pre-operative neuropsychological evaluation and strongly consider prior to the start of adjuvant therapy
[5] Includes grade 3 Astrocytoma IDH-mutant and grade 3 Oligodendroglioma, IDH-mutant and 1p/19q codeleted
[6] Includes grade 2 Astrocytoma IDH-mutant and grade 2 Oligodendroglioma, IDH-mutant and 1p/19q codeleted

Department of Clinical Effectiveness V6
Approved by the Executive Committee of the Medical Staff on 08/15/2023

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PATHOLOGY

Glioblastoma **or** Grade 4 IDH-mutant astrocytoma

TREATMENT

Good performance status (KPS[1] ≥ 60)

- Strongly consider conducting baseline neuropsychological evaluation prior to treatment
- Consider clinical trial
- Chemoradiaton[2] treatment preferred to start 2-6 weeks after surgery:
  - IMRT/VMAT preferred – fractionated external beam radiation (EBRT) 60 Gy/30 fractions if clinically appropriate **and**
  - Temozolomide[3] 75 mg/m^2 once daily for 6 weeks

Poor performance status (KPS[1] < 60)

- Strongly consider conducting baseline neuropsychological evaluation prior to treatment
- Radiation therapy preferred to start 2-6 weeks after surgery: IMRT/VMAT preferred
  - Can consider shorter course of radiation therapy alone (40-50 Gy in 3 to 4 weeks) **or**
  - 60 Gy in 6 weeks at the physician's discretion
- Consider temozolomide[3] 75 mg/m^2 once daily for the duration of radiation therapy, if clinically appropriate
- If appropriate, consider hospice/Supportive Care

End stage disease → Consider hospice/Supportive Care

SURVEILLANCE

MRI brain[4,5] 3-4 weeks post-radiation

- Adjuvant temozolomide[3] 150 mg/m^2 once daily for 5 consecutive days of a 28-day cycle for 6-12 cycles; dose escalates to 200 mg/m^2 once daily if patient tolerates
- Consider discussing Optune (tumor treating fields)

- MRI brain[5] every 2-3 months for the first 2 years, then as clinically indicated
- Strongly consider neuropsychological evaluation every 3-6 months, or as clinically indicated

Progressive disease?

- Yes → RECURRENCE
- No → Continue surveillance

RECURRENCE

Consider:

- Clinical trials
- Bevacizumab as clinically appropriate
- Temozolomide re-challenge
- Re-irradiation
- Lomustine with or without bevacizumab as clinically indicated
- Surgical interventions[6]
- Targeted therapy as clinically indicated based on molecular profiling

IMRT = intensity-modulated radiation therapy
VMAT = volumetric-modulated arc therapy

[1] Refer to Karnofsky Performance Status (KPS) Scale (see Appendix A)
[2] For the elderly, hypofractionated regimens may also be considered in specific cases
[3] Monitoring/prevention while on therapy:
- Constipation
- Pneumocystis pneumonia prophylaxis
- Intracranial pressure (ICP)
- Labs: CBC twice a month and comprehensive metabolic panel (CMP) once a month
- Neurologic evaluation

[4] Reflected as new baseline; pseudoprogression may be noted
[5] MRI Brain with and without contrast unless contraindicated
[6] Surgical interventions include craniotomy or LITT

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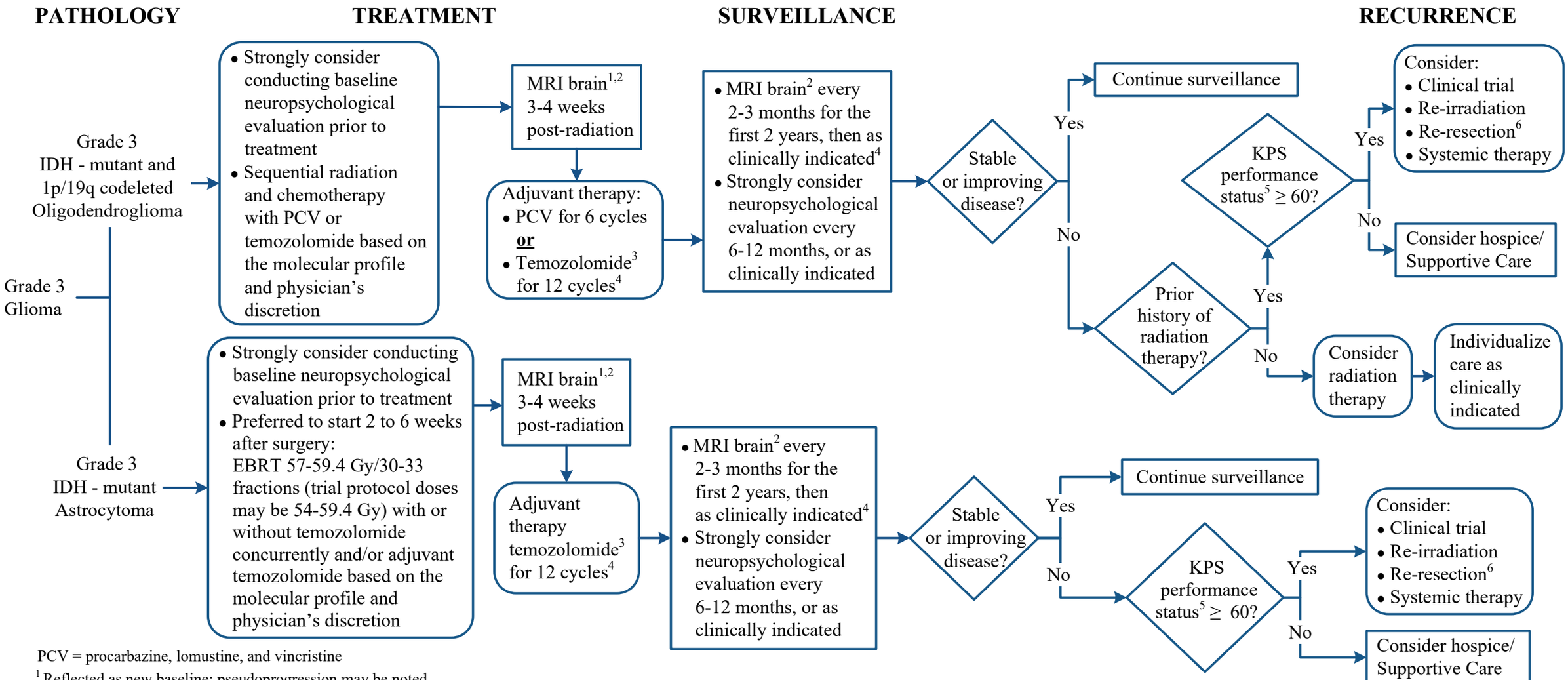

PCV = procarbazine, lomustine, and vincristine

[1] Reflected as new baseline; pseudoprogression may be noted

[2] MRI Brain with and without contrast unless contraindicated

[3] Monitoring/prevention while on therapy:
- Constipation
- Pneumocystis pneumonia prophylaxis
- Neurologic evaluation
- Intracranial pressure (ICP)
- Labs: CBC twice a month and CMP once a month

[4] Based on following factors: KPS performance status, extent of residual disease, imaging, patient's personal preferences

[5] Refer to Karnofsky Performance Status (KPS) Scale (see Appendix A)

[6] Surgical interventions include craniotomy or LITT

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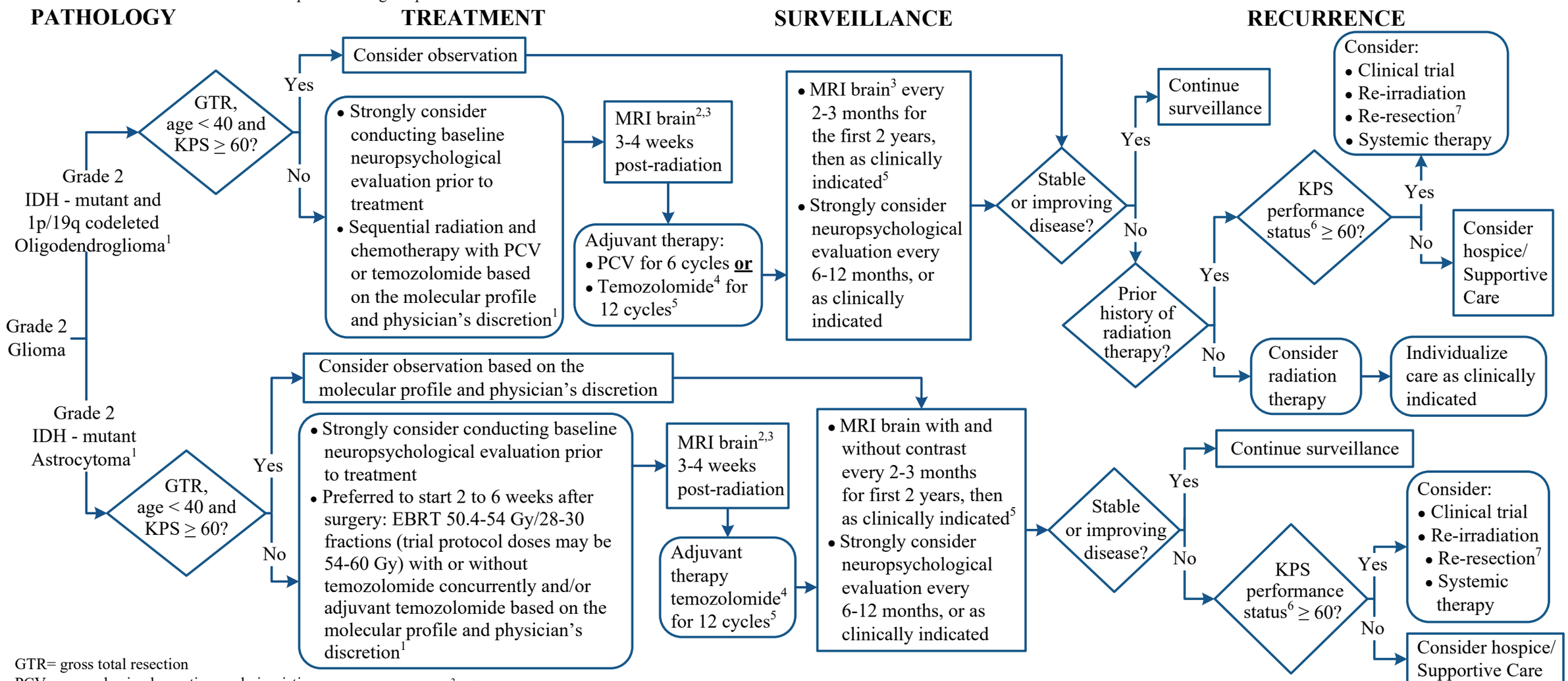

GTR= gross total resection
PCV = procarbazine,lomustine, and vincristine

[1] Prognostic factors (any of the following present or positive):
- Age < 40 years old
- Extent of surgical resection
- Tumor size
- Neurological symptoms

[2] Reflected as new baseline; pseudoprogression may be noted

[3] MRI brain with and without contrast unless contraindicated

[4] Monitoring/prevention while on therapy:
- Constipation
- Neurologic evaluation
- Pneumocystis pneumonia prophylaxis
- Labs: CBC twice a month and CMP once a month
- Intracranial pressure (ICP)

[5] Based on following factors: KPS performance status, extent of residual disease, imaging, patient's personal preferences

[6] Refer to Karnofsky Performance Status (KPS) Scale (see Appendix A)

[7] Surgical interventions include craniotomy or LITT

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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

This practice algorithm is based on majority expert opinion of the Primary Brain Lesion Work Group Faculty at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following:

Core Development Team Leads

Shiao-Pei Weathers, MD (Neuro-Oncology)
Debra N. Yeboa, MD (Radiation Oncology)

Workgroup Members

Leomar Ballester, MD, PhD (Pathology, Anatomical)
Olga N. Fleckenstein, BS♦
Kaitlin Highsmith, PharmD (Pharmacy Clinical Programs)
Thoa Kazantsev, MSN, RN, OCN♦
Sujit S Prabhu, MD (Neurosurgery)
Komal Shah, MD (Neuroradiology)
Jeffrey Wefel, PhD, ABPP (Neuropsychology)

♦ Clinical Effectiveness Development Team