Central Nervous System Cancers

Overall management of Central Nervous System Cancers from diagnosis through recurrence is described in the full NCCN Guidelines® for Central Nervous System Cancers. Visit NCCN.org to view the complete library of NCCN Guidelines.

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Anaplastic Gliomas\textsuperscript{a}/Glioblastoma

### Glioblastoma Pathology\textsuperscript{d}
- **Good performance status (KPS ≥60)**
  - Methylated
  - Consider clinical trial (preferred for eligible patients)
  - Standard brain RT\textsuperscript{1} + concurrent temozolomide and adjuvant temozolomide + alternating electric field therapy (category 1)\textsuperscript{r,s,t}
  - Standard brain RT\textsuperscript{1} + concurrent temozolomide and adjuvant temozolomide (category 1)\textsuperscript{r,s}
- **Poor performance status (KPS <60)**
  - Unmethylated or indeterminate
  - Hypofractionated brain RT\textsuperscript{1} (preferred) ± concurrent or adjuvant TMZ
  - Temozolomide\textsuperscript{o}
  - Palliative/Best supportive care

### MGMT\textsuperscript{q} Promoter Status
- **Methylated**
  - Consider clinical trial (preferred for eligible patients)
  - Standard brain RT\textsuperscript{1} + concurrent temozolomide and adjuvant temozolomide + alternating electric field therapy (category 1)\textsuperscript{r,s,t}
  - Standard brain RT\textsuperscript{1} + concurrent temozolomide and adjuvant temozolomide (category 1)\textsuperscript{r,s}

### ADJUVANT TREATMENT
- **Unmethylated or indeterminate**
  - Brain MRI 2–6 wk after RT\textsuperscript{p}
  - Brain MRI every 2–4 mo for 3 y
  - Brain MRI every 6 mo indefinitely

### FOLLOW-UP\textsuperscript{b}

\textsuperscript{a}This pathway includes the classification of mixed AOA, AA, AO, and other rare anaplastic gliomas.

\textsuperscript{b}See Principles of Brain and Spine Tumor Imaging (BRAIN-A).

\textsuperscript{c}See Principles of Brain Tumor Pathology (BRAIN-F).

\textsuperscript{d}This pathway also includes gliosarcoma.

\textsuperscript{e}See Principles of Brain and Spinal Cord Tumor Radiation Therapy (BRAIN-C).

\textsuperscript{f}See Principles of Brain and Spinal Cord Tumor Systemic Therapy (BRAIN-D).

\textsuperscript{g}Consider temozolomide if tumor is MGMT promoter methylated.

\textsuperscript{h}See Recurrence (GLIO-5).

\textsuperscript{i}Within the first 3 months after completion of RT and concomitant temozolomide, diagnosis of recurrence can be indistinguishable from pseudoprogression on neuroimaging.

\textsuperscript{j}MGMT= O\textsuperscript{6}-methylguanine-DNA methyltransferase.

\textsuperscript{k}Combination of agents may lead to increased toxicity or radiographic changes.

\textsuperscript{l}Benefit of treatment with temozolomide for glioblastomas beyond 6 months is unknown.

\textsuperscript{m}Alternating electric field therapy is only an option for patients with supratentorial disease.

\textsuperscript{n}Clinical benefit from temozolomide is likely to be lower in patients whose tumors lack MGMT promoter methylation.

All recommendations are category 2A unless otherwise indicated.

Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.
Anaplastic Gliomas\textsuperscript{a}/Glioblastoma

**GLIOBLASTOMA PATHOLOGY\textsuperscript{d}**

- **MGMT PROMOTER STATUS\textsuperscript{d}**
  - Methylated
    - Good performance status (KPS ≥60)
    - Consider clinical trial (preferred for eligible patients)
      or
    - Hypofractionated brain RT\textsuperscript{l}
      + concurrent and adjuvant temozolomide (category 1)\textsuperscript{n,r,s}
      or
    - Standard RT\textsuperscript{l} + concurrent temozolomide and adjuvant temozolomide + alternating electric field therapy (category 1)\textsuperscript{n,r,s,t}
      or
    - Standard RT\textsuperscript{l} + concurrent temozolomide and adjuvant temozolomide\textsuperscript{n,r,s}
      or
    - Temozolomide
      or
    - Hypofractionated brain RT alone\textsuperscript{l}
  - Unmethylated or indeterminate
    - Consider clinical trial (preferred for eligible patients)
      or
    - Hypofractionated brain RT\textsuperscript{l}
      + concurrent and adjuvant temozolomide\textsuperscript{n,r,s}
      or
    - Standard RT\textsuperscript{l} + concurrent temozolomide\textsuperscript{u} and adjuvant temozolomide\textsuperscript{u}
      + alternating electric field therapy (category 1)\textsuperscript{n,r,s,t}
      or
    - Standard RT\textsuperscript{l} + concurrent temozolomide\textsuperscript{u} and adjuvant temozolomide\textsuperscript{n,r,s,u}
      or
    - Hypofractionated brain RT alone\textsuperscript{l}
  - Poor performance status (KPS <60)
    - Hypofractionated brain RT alone\textsuperscript{l}
      or
    - Temozolomide\textsuperscript{o}
      or
    - Palliative/Best supportive care

**FOLLOW-UP\textsuperscript{b}**

- Brain MRI
  - 2–6 wk after RT\textsuperscript{p} then
  - every 2–4 mo for 3 y, then
  - every 6 mo indefinitely

**See footnotes on GLIO-4A**

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