Glioblastoma Multiforme

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This month's quiz is based on the article "Glioblastoma Multiforme: Multidisciplinary Care and Advances in Therapy," which begins on page 9 of this issue. Choose the single best answer for each question.

1. **Which of the following is not a typical histologic feature of glioblastoma multiforme (GBM)?**
   (A) Cellular pleomorphism
   (B) Demyelination
   (C) Mitotic figures
   (D) Necrosis
   (E) Neovascularization

2. **Which of the following radiation oncology modalities is considered standard of care in the management of GBM?**
   (A) Brachytherapy seed implants
   (B) Neoadjuvant stereotactic radiosurgery
   (C) Neoadjuvant stereotactic radiosurgery followed by postoperative focused external beam radiotherapy (EBRT)
   (D) Postoperative focused EBRT
   (E) Postoperative whole brain radiotherapy

3. **Which of the following is a unique characteristic of the mechanism of action of temozolomide among chemotherapeutics for malignant gliomas?**
   (A) Depletion of the enzyme O^6-alkylguanine–DNA alkyltransferase (AGT)
   (B) Depletion of the intracellular signaling molecule protein kinase B
   (C) Inhibition of the enzyme type-1 topoisomerase
   (D) Inhibition of the mutant epidermal growth factor receptor vIII
   (E) Inhibition of vascular endothelial growth factor receptor

4. **A previously healthy 55-year-old man presents to the emergency department after suffering a tonic-clonic seizure during dinner with his family. Which of the following findings on contrast-enhanced magnetic resonance imaging of the brain would be most concerning for the presence of GBM?**
   (A) Cortical enhancement of the motor cortex of the left frontal lobe
   (B) Displacement of the cerebellar tonsils through the foramen magnum
   (C) Multiple ring-enhancing lesions at the gray-white junction of both cerebral hemispheres
   (D) A nodular ring-enhancing mass in the right frontal lobe with involvement of the corpus callosum
   (E) A solidly enhancing mass within the dura of the left temporal lobe

5. **A 49-year-old woman with a past medical history of migraine headache and hypertension presents to the emergency department after 2 days of headaches that differ from her typical attacks. Physical examination is normal, but neuroimaging is highly suspicious for malignant glioma and she is admitted for further evaluation and biopsy of the lesion. Which of the following drugs should be avoided on admission because of possible interactions with subsequent therapies?**
   (A) Dexamethasone
   (B) Oxycodone
   (C) Phenytoin
   (D) Propranolol
   (E) Sumatriptan

6. **Which of the following neurologic signs or symptoms would be most concerning for the presence of a malignant glioma or other mass occupying lesion?**
   (A) Acute onset of nuchal rigidity and headache described as "the worst headache of my life"
   (B) Acute onset of right hemiparesis and word finding difficulty
   (C) Chronic unilateral throbbing headache accompanied by photophobia, nausea, and vomiting that lasts 24 hours
   (D) Subacute onset of ascending weakness that started in the feet and progressed to mid-thigh
   (E) Subacute onset of dull postural headache that wakes the patient at night

For answers, see page 48.

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Answers to the Clinical Review Quiz, which appears on page 36. The article on glioblastoma multiforme begins on page 9.

1. (B) Demyelination
2. (D) Postoperative focused EBRT
3. (A) Depletion of the enzyme AGT
4. (D) A nodular ring-enhancing mass in the right frontal lobe with involvement of the corpus callosum
5. (C) Phenytoin
6. (E) Subacute onset of dull postural headache that wakes the patient at night

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