



Continuing Pharmacy Education Post-Test

Syntax Communications, Inc., is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. Syntax Communications, Inc., designates this continuing education program for 2.0 contact hours (0.2 CEU). Partial credit (1.0 contact hour; 0.1 CEU) will be awarded for completion of 1 of the 2 programs.

“Discovery, Development, and Clinical Applications of Bortezomib”

Self-Assessment Questions

Please circle the appropriate answer.

1. Which of the following cellular proteins is degraded by proteasomes?

- (a) Cyclin B-1 cell-cycle regulatory protein
- (b) p53 tumor suppressor gene
- (c) bax proapoptotic protein
- (d) All of the above

2. Compared with bortezomib, a disadvantage of other proteasome inhibitors is

- (a) Fast dissociation rate from the proteasome
- (b) Being a substrate for the multidrug-resistance transporter
- (c) Lack of specificity for the proteasome
- (d) All of the above

3. Which of the following malignancies is least likely to respond to bortezomib therapy?

- (a) Non-Hodgkin's lymphoma
- (b) Acute myelogenous leukemia
- (c) Renal cell cancer
- (d) Non-small-cell lung cancer

4. When combined with bortezomib, which of the following chemotherapy agents or combinations have been evaluated in phase I clinical trials, with promising results?

- (a) Carboplatin and gemcitabine
- (b) Trastuzumab
- (c) Cisplatin and etoposide
- (d) All of the above

5. The primary mechanism by which bortezomib overcomes chemotherapy and radiation therapy resistance is downregulation of

- (a) Nuclear factor-kappa beta
- (b) p44/42 mitogen-activated protein kinase pathway
- (c) Multidrug-resistance transporters
- (d) All of the above

6. The results of phase II trials evaluating bortezomib in patients with relapsed or refractory multiple myeloma (MM) showed

- (a) Antitumor responses that were independent of the number and type of prior therapies
- (b) That bortezomib was associated with a shorter time to disease progression than that observed with the most recently administered MM therapy
- (c) Similar response rates in patients with or without chromosome 13 abnormalities
- (d) a and c only

7. The addition of dexamethasone to bortezomib in patients with relapsed or refractory MM does not increase response rates.

- (a) True
- (b) False

8. Based on the interim results of a study assessing the benefits of long-term bortezomib therapy, which of the following toxicities was reported to be increased in patients receiving more than 8 weeks of bortezomib therapy compared with patients receiving 8 or fewer weeks of therapy?

- (a) Lower-extremity edema
- (b) Gastrointestinal complaints
- (c) Peripheral neuropathy
- (d) Neutropenia

9. The Assessment of Proteasome Inhibition for Extending Remissions (APEX) trial is

- (a) A phase III trial comparing the efficacy of bortezomib with or without dexamethasone as primary treatment of MM
- (b) A phase II trial evaluating the efficacy of long-term bortezomib therapy with or without dexamethasone in patients with relapsed or refractory MM
- (c) A phase III trial comparing the long-term efficacy of bortezomib with that of dexamethasone in patients with relapsed or refractory MM
- (d) An extension trial of patients enrolled in the SUMMIT trial

10. Which of the following factors is used to predict shorter survival times in patients receiving bortezomib?

- (a) Low platelet count
- (b) Low albumin level
- (c) > 50% plasma cells in the bone marrow
- (d) All of the above

“Pharmacology, Pharmacokinetics, and Practical Applications of Bortezomib”

Self-Assessment Questions

Please circle the appropriate answer.

1. The ubiquitin-proteasome pathway plays an important role in regulating which of the following cellular processes?

- (a) Angiogenesis
- (b) Apoptosis
- (c) Activation of signal transduction cascades
- (d) All of the above

2. The primary mechanism by which proteasome inhibitors reverse chemotherapy or radiation therapy resistance is

- (a) downregulation of nuclear factor-kappa beta–dependent gene transcription
- (b) downregulation of P-glycoprotein activity
- (c) Increase in p53-mediated gene transcription
- (d) Inhibition of Bcl-2 by bax

3. Which of the following statements about bortezomib is true?

- (a) Bortezomib is metabolized by multiple cytochrome P450 isoenzymes.
- (b) The results of pharmacokinetic studies suggest that bortezomib should not be administered to patients with a creatinine clearance level < 60 mL/min.
- (c) The elimination half-life of bortezomib is < 3 hours.
- (d) Maximum proteasome inhibition occurs within 9–15 hours after administration of a single bortezomib dose of 1.45–2 mg/m².

4. Inhibition of proteasome activity is completely reversed within how many hours?

- (a) 12
- (b) 24
- (c) 72
- (d) 96

5. In phase II trials evaluating bortezomib in patients with relapsed or refractory multiple myeloma, which of the following adverse effects was most commonly reported?

- (a) Peripheral edema
- (b) Gastrointestinal complaints
- (c) Dyspnea

- (d) Anemia

6. Which of the following bortezomib dose modifications is recommended for patients experiencing grade 3 peripheral neuropathy?

- (a) No action required
- (b) Reduce bortezomib dose by 25%
- (c) Withhold bortezomib therapy until toxicity resolves, then restart therapy at 0.7 mg/m²/wk
- (d) Discontinue bortezomib therapy

7. The risk of developing grade 3 or 4 peripheral neuropathy during bortezomib therapy is increased in patients with

- (a) Preexisting liver failure
- (b) Brain metastasis
- (c) Prolonged bortezomib exposure
- (d) Preexisting peripheral neuropathy

8. Risk factors for the development of bortezomib-induced hypotension include

- (a) History of syncope
- (b) Dehydration
- (c) Use of antihypertensive medications
- (d) All of the above

9. Which of the following is a risk factor for developing grade 4 thrombocytopenia during bortezomib therapy?

- (a) Baseline platelet count < 70,000/μL
- (b) Low myeloma paraprotein levels
- (c) Low albumin levels
- (d) < 50% plasma cells in the bone marrow

10. The manufacturer-recommended dose of bortezomib for treatment of refractory or relapsed multiple myeloma is

- (a) 1.3 mg/m² on days 1, 4, 8, and 11 every 3 weeks
- (b) 0.7 mg/m² on days 1, 4, 8, and 11 every 3 weeks
- (c) 1.3 mg/m² on days 12–21 every 3 weeks
- (d) 0.7 mg/m² on days 12–21 every 3 weeks

Please complete the course evaluation form on page 24, answer the self-assessment questions provided above, and return to: Syntax Communications, Inc., Attn: Britt Titmas, 305 West Country Drive, Duluth, GA 30097-5906 or fax to 678-584-9661. A score of 70% or higher must be achieved and a completed course evaluation form must be returned to receive ACPE credit. A statement of continuing education credit will be mailed to you at the address provided on page 24 within 4 weeks of receipt of this post-test and the course evaluation form. Please contact Syntax Communications, Inc., if you have any questions.