**August 2015 Case for Stu News**

*Reviewed by Clinical Pharmacy Challenge Exam Panel*

History of Present Illness: An 80-year-old man is admitted to the hospital for intractable pain, nausea/vomiting, and inability to ambulate. He has hormone-refractory prostate cancer with metastases to the bone and spinal cord; he recently stopped chemotherapy. He describes several different types of pain: shooting pain radiating from the tumor on his spinal cord and aching at the tumor on his right femur.

Medical History: Prostate cancer, hypertension, depression

Social History: N/A

Current Medications:

• Citalopram 40 mg daily x 5 years

• Senna 8.6 mg twice daily x 1 year

• Lisinopril 10 mg daily x 5 years

• Metoprolol XL (extended release) 25 mg daily x 5 years

• Oxycodone ER 40 mg every 8 hours x 1 year

• Oxycodone IR 10 mg every 6 hours as needed x 1 year (usually three doses daily)

• Promethazine 25 mg orally every 6 hours as needed x 1 year (usually three doses daily)

• Zolpidem 5 mg at bedtime as needed x 1 year (usually twice weekly)

Allergies: No known drug allergies

Vital Signs: HR (heart rate) 95 beats/minute; RR (respiratory rate) 15 breaths/minute; BP 130/85 mm Hg; Temp 98.6ºF (37ºC)

Height: 72 inches (182.88 cm); weight: 68 kg (150 lb)

Laboratory Values:

Sodium 137 mEq/L; Potassium 4.2 mEq/L; BUN 44 mg/dL ; SCr 2.4 mg/dL; Estimated glomerular filtration rate (MDRD [Modification of Diet in Renal Disease]) 26 mL/minute/1.73m2; Glucose (random) 142 mg/dL; Measured total calcium 11 mg/dL Albumin 2.5 g/dL ; Corrected total calcium 12.2 mg/dL

Procedural Data: MRI: Spinal cord compression caused by tumor

Abdominal radiograph: Normal

**Question 1**

The patient reports no bowel movement for the past week, despite using senna. Which is the best regimen for relieving his constipation?

1. Sodium phosphate enema twice daily as needed
2. Docusate sodium 100 mg orally twice daily
3. Methylnaltrexone 12 mg subcutaneously every 48 hours
4. Bisacodyl 5 mg orally daily

Answer: 3. Methylnaltrexone 12 mg subcutaneously every 48 hours

Rationale: The patient’s constipation is most likely caused by his opioid use, and methylnaltrexone is a peripherally acting opioid antagonist that will alleviate opioid-induced constipation. Docusate sodium is a stool softener, not a laxative, and will not promote gastric motility. Sodium phosphate enemas should be used with caution in patients with renal impairment and should not be repeated within a 24-hour period. Bisacodyl would be a good addition to the patient’s bowel regimen in the long term, but if immediate relief is desired (as it undoubtedly is, because the patient has gone 1 week without a bowel movement), methylnaltrexone is a better choice.

Citation: Benyamin R, Trescot AM, Datta S, et al. Opioid complications and side effects. Pain Physician J 2008;11:S105-S120.

**Question 2**

Which drug is most appropriate for treating this patient’s bone pain?

1. Ketorolac 30 mg intravenously every 6 hours as needed
2. Oxycodone extended release (ER) 60 mg every 8 hours
3. Calcitonin 8 units/kg intravenously every 6 hours
4. Ibandronate 150 mg orally once

Answer: 2. Oxycodone ER 60 mg every 8 hours

Rationale: The correct answer is 2. Because the patient is not receiving adequate pain relief from his current oxycodone dose, the best course of action is to increase his long-acting opioid. Nonsteroidal anti-inflammatory drugs such as ketorolac are known to be beneficial in bone pain; however, 30 mg every 6 hours is too high a dose, given this patient’s age and renal impairment. The calcitonin dose listed is appropriate for the treatment of hypercalcemia of malignancy, but this drug is not FDA approved for the treatment of bone metastases. Ibandronate is not indicated for the treatment of bone metastases.

Citation: Buga S, Sarria JE. The management of bone pain in metastatic disease. Cancer Control 2012;19:154-66.

**Question 3**

The oncologist considers converting this patient’s current opioid therapy to methadone. Which of the patient’s current medications should not be co-administered with methadone?

1. Citalopram
2. Metoprolol
3. Lisinopril
4. Promethazine

Answer: 1. Citalopram

Rationale: The correct answer is 1. Citalopram and methadone both cause prolongation of the QT interval. The effects on the QT interval may be additive when the two drugs are administered together. Thus, coadministration of these drugs is contraindicated. Metoprolol, promethazine, and lisinopril do not interact with methadone.

Citation: Facts and Comparisons eAnswers [Internet database]. Indianapolis: Wolters Kluwer Health. Updated periodically. Accessed December 29, 2012.

**Question 4**

What is the most appropriate drug to treat the pain associated with this patient’s spinal cord compression?

1. Gabapentin 300 mg orally three times daily
2. Duloxetine 60 mg orally once daily
3. Lidocaine 5% patch topically once daily; remove after 12 hours
4. Dexamethasone 8 mg intravenously x 1 dose; then 4 mg intravenously four times daily

Answer: 4. Dexamethasone 8 mg intravenously x 1 dose; then 4 mg intravenously four times daily

Rationale: Dexamethasone is known to aid in reducing the symptoms of spinal cord compression. Gabapentin and duloxetine are both known to alleviate neuropathic pain; however, because of the patient’s renal status, duloxetine is contraindicated. The maximal dose of gabapentin recommended for patients with a CrCl of 15–29 mL/minute is 700 mg daily. Topical lidocaine is not known to aid in managing the symptoms of spinal cord compression.

Citation: Barton R. Managing complications of cancer. In: Faull C, Carter Y, Daniels L, eds. Handbook of Palliative Care, 2nd ed. Malden, MA: Blackwell, 2005:208-39.

**Question 5**

Since his pain is not well controlled on oxycodone, the treatment team wants to start transdermal fentanyl. Is this patient a candidate for transdermal fentanyl?

1. Yes, but he must wait 24 hours after taking oxycodone extended release (ER) to begin transdermal fentanyl.
2. No, since the patient is not opioid tolerant.
3. Yes, and he should take oxycodone ER at the same time he begins transdermal fentanyl.
4. No, the patient’s age is a contraindication for transdermal fentanyl.

Answer: 3. Yes, and he should take oxycodone ER at the same time he begins transdermal fentanyl.

Rationale: Transdermal fentanyl requires roughly 18-24 hours to reach its full effect. Thus, patients will need to receive a dose of their prior long-acting opioids when applying their first transdermal fentanyl patch in order to avoid gaps in pain relief. Thus, Answer 1 is incorrect. Answer 2 is incorrect because this patient has been receiving 150 mg of oxycodone daily (40 mg extended release three times a day, plus three doses of 10 mg immediate release oxycodone daily) so he is opioid tolerant. Answer 4 is incorrect because while transdermal fentanyl should be used with caution in elderly patients, advanced age is not an absolute contraindication for use.

Citation: Duragesic® [package insert]. Titusville, NJ: Janssen 2003. Available at: http://www.accessdata.fda.gov/drugsatfda\_docs/label/2005/19813s039lbl.pdf Accessed December 31, 2012.