A 67-Year-Old Man With Prostate Cancer

J.S. is a 67-year-old Caucasian man who was diagnosed with stage III prostate cancer in 2009. He was initially diagnosed with a T3 (extracapsular presence of tumor), N1 (regional lymph node metastasis), M0 (no evidence of distant metastasis) tumor; therefore, evidence-based treatment included surgical treatment with a retropubic prostatectomy followed by a course of external beam radiation treatments daily for five weeks (National Cancer Institute, 2012). J.S. recovered well with the exception of urinary incontinence, which was treated with pelvic floor strengthening exercises (Kegel exercise) and urinary control products such as incontinence pads. J.S. returned to a fairly active life following surgical recovery and followed up with his oncologist every six months. On his next follow-up visit, his prostate-specific antigen (PSA) result was 1.4 ng/dl. This level indicates a possible return of prostate cancer. J.S. was scheduled for a repeat PSA and bone scan to evaluate for recurrence and to determine if further treatment is indicated.

This morning, J.S. awoke with a sharp pain in his lower back with numbness and tingling in his lower legs. These symptoms improved slightly after getting out of bed and standing. He attributed this pain to "sleeping wrong" or "overexertion yesterday," as he had a very active day that included nine holes of golf and an evening of dancing with his wife.

J.S.'s wife was troubled by his gait, which she noted was unsteady compared to the previous day. When J.S. attempted to urinate, he experienced difficulty initiating the stream and had to brace himself against the wall for balance. He reported a shooting pain that started as he walked out of the bathroom and resulted in a fall to the floor. His wife came to his aid but was unable to help him up, so she called 911.

When the emergency medical technicians arrived, they placed J.S. in a supine position on a backboard for transport to the hospital.

J.S. rated his pain as a 10 on a 0–10 numeric scale. He described the pain as shooting and feeling as if a band was around his lower back and abdomen. He also reported tingling from his back that radiated to his left buttock. His wife called the oncologist, who arranged for a direct admission to the inpatient oncology unit. You are the nurse assigned to J.S. on the oncology unit.

The oncologist orders a magnetic resonance imaging (MRI) scan and a bone scan. Based on J.S.'s symptoms, the most likely rationale for these tests is to rule out

a. Prostate cancer recurrence.
b. Sciatic pain.
c. Spinal cord compression.
d. Osteoporosis.

The correct answer is c. Based on J.S.'s symptoms of back pain, numbness and tingling, altered gait, and pain that improves when upright, spinal cord compression is the most appropriate rationale for the tests ordered. In addition, prostate cancer is associated with spinal cord compression. Approximately 5%–10% of all patients with prostate cancer will experience malignant spinal cord compression (MSCC), with higher incidence among patients whose tumors are hormone-resistant (Benjamin, 2002). Patients with prostate cancer account for 15%–20% of all MSCC cases (Abrahm, Patchell, & Rades, 2009). Answer a is incorrect because prostate cancer recurrence alone would not account for neurologic symptoms. Answer b is incorrect because sciatic back pain is usually unilateral and aggravated by movement, and J.S.'s symptoms improved when he got out of bed. Answer d is incorrect because osteoporosis is not diagnosed with MRI, and it is a symptomless disease.

J.S.'s MRI revealed bony metastasis at T-12 and S1 with a spinal cord compression. The oncologist told J.S. and his wife that he had metastatic disease and spinal cord compression.

The most common cause of cancer pain is

a. Bone metastasis.
b. Liver metastasis.
c. Pancreatic involvement.
d. Brain metastasis.

The correct answer is a. Bone metastasis is the leading cause of cancer pain (Davar & Honore, 2002).

As the nurse assessing J.S., you inquire about the location and precipitating symptoms of his pain. The usual symptoms of a suspected spinal cord compression include all of the following *except*

a. Pain that improves when lying down.
b. Pain that is localized in the back.
c. Pain that increases with sneezing.
d. Pain that increases with neck flexion.

The correct answer is a. Pain from MSCC improves when sitting or standing. This is in contrast to disc disease, which is relieved by lying down (Miaskowski et al., 2005). Answers b, c, and d describe pain symptoms common in MSCC. Pain tends to be localized at the region of cord compression and may increase with coughing, sneezing, or any increase in intrathoracic pressure, as well as with neck flexion (Hunter, 2005).

You receive several physician orders for J.S. Which order is indicated for both treatment of spinal cord compression and pain?

a. Morphine 4 mg IV push now, and then every four hours

b. Dexamethasone 96 mg IV bolus now, followed by 24 mg PO every six hours
c. Zoledronic acid 4 mg IV piggyback over 15 minutes, now
d. Lorazepam 1 mg PO now, and every six hours PRN

The correct answer is b. Dexamethasone is a corticosteroid that works at the tissue level to lower free water content, reduce prostaglandin E_2 levels, and decrease the spinal cord–specific gravity. These three actions help to both reduce spinal cord swelling, decreasing onset of paralysis, and improve pain and neurologic functioning (Rodvelt, 2007). Answer a is incorrect because morphine is an opioid and treats the pain but does not affect the spinal cord compression. Answer c is incorrect because zoledronic acid is indicated for the treatment of bone metastasis but does not have a direct role in pain management. Answer d is incorrect because lorazepam is a benzodiazepine used to treat anxiety.

What is the most commonly used treatment for MSCC management?

a. Surgical stabilization
b. Chemotherapy
c. Surgery followed by radiation
d. Radiation therapy

The correct answer is d. Radiation therapy is the most commonly used approach for managing MSCC. Typically, an MRI is performed to identify areas of spinal cord compression. Radiation is targeted to the site of compression and the two vertebrae above and below this site. Length of therapy is two to four weeks with a dosage range of 30–50 Gy. Radiation treatment is administered concomitantly with steroids. The steroids are tapered during the radiation treatment (Abrahm,

Banffy, & Harris, 2008). Answer a is incorrect because surgical stabilization is used for patients who have developed MSCC in sites previously treated with radiation, and in those whose symptoms worsen while receiving radiation. Answer b is incorrect because chemotherapy is not used for treatment of this condition. Answer c is incorrect because radiation would not be used following surgery to the spine.

J.S. was hospitalized for a week for symptom management, pain control, and progressive physical therapy. While on the inpatient oncology unit, he was transitioned from round-the-clock IV morphine to oral morphine. J.S.'s total dose in 24 hours was 30 mg IV.

To convert J.S.'s IV morphine dose to oral morphine, the nurse must first

a. Multiply the 24-hour IV dose of morphine by 3.
b. Divide the 24-hour IV dose of morphine by 2.
c. Use the IV dose as the equivalent for the oral dose.
d. Divide the dose of IV morphine by 12.

The correct answer is a. To convert from IV morphine to oral morphine, the practitioner must first calculate the average daily (24-hour) IV dose of morphine used. Then, use the equianalgesic conversion of a 1:3 ratio of IV to PO morphine (e.g., 10 mg IV morphine is equivalent to 30 mg PO morphine) (Mercadante, 2010; Mercadante, Villari, Ferrera, Bianchi, & Casuccio, 2004). Answer b is incorrect because dividing would provide too small a dose based on his 24-hour IV usage. Answer c is incorrect because the correct IV dose is one-third of the total oral dose. Answer d is incorrect because this is the wrong equianalgesic calculation. Therefore, J.S.'s oral dose would be 90 mg. He was started on long-acting morphine 45 mg every 12 hours.

Which of the following would be an appropriate initial bowel regimen order for J.S. to take with this opioid regimen?

a. Bisacodyl 5 mg daily and docusate sodium 100 mg twice a day
b. No bowel regimen needed
c. Milk of magnesia 30 mg every three hours
d. Cholestyramine powder 15 g three times a day

The correct answer is a. Patients taking daily round-the-clock opioids require a bowel regimen to avoid significant constipation. The opioid effect on opioid receptors in the bowel slows peristalsis. Although tolerance to other side effects may develop, tolerance to constipation will not occur. The use of stimulant laxatives and stool softeners provides effective prevention in most patients (Wong, 2007). Answer b is incorrect because a patient receiving opioids should automatically be started on a bowel regimen; this is the standard of care. Answer c is incorrect because this dosage schedule exceeds the recommended daily dose for this medication and is too frequent and inconvenient for a maintenance regimen. Answer d is incorrect because cholestyramine powder is a medication used to lower cholesterol that causes constipation.

Following discharge, J.S. completed three weeks of radiation therapy and was tapered off dexamethasone. At his next appointment, J.S.'s PSA level was elevated; therefore, he underwent a prostate biopsy that confirmed prostate cancer recurrence. Using the National Comprehensive Cancer Network (2012) guidelines for prostate cancer, J.S.'s oncologist recommended androgen deprivation therapy and ordered a three-week cycle of the antiandrogen flutamide 250 mg PO daily and monthly bisphosphonate therapy to treat the bone metastases. After the initial three-week cycle, J.S. began treatment with a luteinizing hormone-releasing hormone (LHRH). The rationale for the three-week window of strictly anti-

androgen therapy is to prevent the initial flare phenomenon. This flare is thought to be caused by an initial surge of testosterone when the LHRH receptors are stimulated. This condition may be life threatening in men who have high-volume metastatic prostate cancer. Treating with antiandrogen therapy first inhibits the stimulatory effect and prevents this testosterone surge.

At his next appointment with the physician, J.S. indicated his pain was much improved, he was sleeping well, and his leg weakness was almost imperceptible. He had not had any further incidents of falling and was returning to his former activity level. He denied any further urinary problems or any new symptoms.

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