

## WHAT IS SPINAL CORD COMPRESSION?

**Spinal cord compression (SCC)** is considered a medical emergency in which the spinal cord is compressed as a result of pressure, for example from a bone fragment or tumor.<sup>1</sup> SCC can result from myriad atraumatic and traumatic causes, such as wear and tear on the vertebrae, spinal tumor, injury to the spine, bone disease, or infection.<sup>1</sup> SCC occurs in 5%–10% of patients with advanced cancer and qualifies as an end-of-life manifestation because of its incidence in patients with terminal illness.<sup>1</sup>

The spinal column, comprised of numerous soft tissues and bony structures, is built to provide the body's structural support and protect the spinal cord and exiting nerve roots. The encased spinal cord depends upon that stability. However, it is simultaneously vulnerable to a variety of compressive phenomena, such as the expansion of blood products, neoplastic disease, infectious collections, or protrusion of bone or intervertebral disc within the limited area of the fat-filled spinal epidural space and meninges.<sup>2</sup>

## SIGNS & SYMPTOMS

Symptoms depend on the affected region of the spinal cord. Band-like sharp pain may worsen with coughing, sneezing, or straining while toileting, and it may lead to difficulties while walking. Lhermitte's sign, or "barber chair phenomenon," is an electric-shock-like sensation that occurs with flexion of the neck and radiates down the spine into the legs, arms, and sometimes the trunk. Other symptoms may include loss of bladder control, weak limbs, erection problems, and changes in body sensation.<sup>1</sup>

Metastatic SCC (MSCC) is an emergent condition that warrants immediate intervention. MSCC consists of (1) pain in the thoracic area, (2) spinal pain aggravated by straining, (3) localized spinal tenderness, and (4) nocturnal pain preventing sleep. Emergent signs and symptoms that warrant immediate referral in oncology patients are (1) loss of coordination, (2) bladder or bowel dysfunction, and (3) limb weakness and inability to walk.<sup>1</sup>

<b>Four Stages of SCC</b>			
<b>STAGE ONE: Pain</b>	<b>STAGE TWO: Weakness</b>	<b>STAGE THREE: Ataxia</b>	<b>STAGE FOUR: Paralysis</b>
Back and neck pain	Leg and arm weakness or numbness	Ataxia or abnormal gait and nervous system dysfunction (unable to coordinate body movements)  Critical manifestation in patients nearing end of life	Paralysis with complete loss of sensation  Critical manifestation in patients nearing end of life

### **INTERVENTIONS**

- Focus on identifying the underlying etiology of SCC. It is related to cancer or chronic illness most often. The healthcare team should rule out potentially reversible or treatable causes of SCC and aim to improve pain and suffering.
- The management of SCC encompasses nonpharmacological, pharmacological, interventional, behavioral, and complementary treatments.
- Review the goals of care with the patient and family, taking into consideration the extent of the disease, other symptoms, whether palliative treatment is still in process, age, developmental and emotional status, and physical location. In advanced illness, when optimization of treatments for underlying etiologies is not achievable, discuss, as culturally appropriate, shifting goals of care to reduce symptom burden and improve the patient’s functional status and quality of life. Prior to implementing interventions for symptoms, ensure that the patient and family can safely and effectively manage and administer the medications and therapies and that the interventions are in accordance with their goals of care.

NONPHARMACOLOGICAL INTERVENTIONS	PHARMACOLOGICAL INTERVENTIONS
<ul style="list-style-type: none"> <li>• Frequently assess pain and neurological function to evaluate response to therapeutic interventions and prevent additional neurological impairment.</li> <li>• Educate and assist patient and family with maintaining proper body posture when standing, sitting, and sleeping to avoid strain.</li> <li>• Educate and assist patient and family regarding proper body mechanics, such as exercise routines, massages, and hot showers to reduce back pain.<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Non-opioid analgesics advancing to opioids</b> with bowel regimen may be indicated. For severe pain in patients with spinal tumors, opioids are the first-line medications to effectively manage pain and should be titrated accordingly when pain is decreased and managed.<sup>1</sup></li> <li>• <b>Corticosteroids</b> may reduce edema at the compressed site, which will allow optimal radiation therapy. Monitor for side effects: weight gain, fluid retention, increased appetite, and facial puffiness.</li> <li>• <b>Radiation therapy</b> may decrease the size of a tumor compressing the spinal cord. Single fraction radiation therapy may be considered in palliative and hospice patients who have a prognosis of less than six months.<sup>1</sup> Monitor for side effects fatigue, alopecia, nausea, and pain.</li> <li>• <b>Decompression surgery</b> may be considered to remove a tumor compressing the spinal cord. Hospice patients with a prognosis of two to three months may receive palliative radiation instead of surgery if in accordance with the patient and family's goal of care.<sup>1</sup></li> </ul>

## FAMILY & TEAM DISCUSSIONS

### Patient and Family Education and Support:

- Assess the patient's unique coping needs and provide individualized support.
- Consider the patient's and family's goals and wishes, as well as their definition of quality of life, when evaluating treatment options, ensuring they are consistent with the patient and family's goals.
- Provide education on underlying etiology of SCC, treatment options, benefits and burdens of invasive versus noninvasive management, medication adverse reactions, and indicators of response to therapy for reporting to team.

- Facilitate education on appropriate nonpharmacological strategies.

### **Interprofessional Team:**

Successful interventions in caring for patients with SCC benefit from multiple perspectives to anticipate, prevent, and treat physical, psychological, social, and spiritual needs.

Consider social work, psychology, counseling, and spiritual care specialists for palliative and hospice support, as well as interventions to address concerns regarding caregiver support, fear, anxiety, guilt, depression, spiritual and cultural rituals, and financial concerns, as culturally appropriate.

## **SYMPTOM DOCUMENTATION EXAMPLE**

**67 yr old male with metastatic prostate cancer metastasis to lumbar spine** with a PPS (Palliative Performance Scale) of 40% reported worsening thoracic back pain with weakness and heaviness in both of his legs, which resulted in ED visit and subsequent diagnosis of SCC. Ongoing goals-of-care discussions related to SCC progression, emergency interventions, and management discussed with patient and surrogate decision-maker during ED visit. Patient and family opted for symptom management and no radiological or surgical intervention and agreed to hospice referral to evaluate options. Hospice referral made. Family meeting scheduled for this afternoon prior to ED discharge. Plan of care updated to reflect hospice evaluation and patient's and family's desired treatment goals.

## **DESIRED NURSING OUTCOMES**

- Promote optimal patient comfort.
- Improve physical, psychological, social, and spiritual well-being of patient and caregivers experiencing the distressing symptoms of SCC.
- Promote ongoing conversations about goals of care relating to disease progression and emergency interventions and management.
- Reinforce patient and family access to hospice staff 24 hours a day, seven days a week by phone or telehealth applications.

**REFERENCES**

1. Robertson Q, Gershon K. Urgent syndromes at the end of life. In: Ferrell B, Paice J, eds. Oxford Textbook of Palliative Nursing. 5th ed. New York, NY: Oxford University Press; 2019.
2. Singleton JM, Hefner M. Spinal cord compression. Treasure Island, FL: StatPearls Publishing; 2020.