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Cauda equina syndrome (CES) and Nurse's Role

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Abstract
Cauda equina syndrome, is a medical emergency, a rare disorder affecting the bundle of nerve roots (cauda equina) at the lower (lumbar) end of the spinal cord, a serious condition that is not well known also often misdiagnosed.

Keywords: Cauda equina syndrome, disorder, nerves, nurse

Introduction
Cauda equina syndrome, is a medical emergency, a rare disorder affecting the bundle of nerve roots (cauda equina) at the lower (lumbar) end of the spinal cord, a serious condition that is not well known also often misdiagnosed. It occurs when the nerve roots of the cauda equina are compressed, sensation and movement to the lower extremities and bladder is disrupted which can lead to incontinence and permanent paralysis and requires immediate referral for investigation. Prompt diagnosis and early surgical decompression are crucial for a positive result in most patients.

The collection of nerves at the end of the spinal cord is known as the cauda equina, due to its resemblance to a horse's tail. The spinal cord ends at the upper portion of the lumbar (lower back) spine. The individual nerve roots at the end of the spinal cord that provide motor and sensory function to the legs and the bladder continue along in the spinal canal. The cauda equina is the continuation of these nerve roots in the lumbar region which send and receive messages to and from the lower limbs and pelvic organs.

Incidence
CES occurs primarily in adults but can affect people of all ages.

Causes
Herniated disc in the lumbar region.

A single excessive strain or injury may cause a herniated disc.

Potential causes of CES includes:

- Spinal lesions and tumors
- Spinal infections or inflammation
- Lumbar spinal stenosis
- Spinal arteriovenous malformations (AVMs)
- Spinal hemorrhages (subarachnoid, subdural, epidural)
- Postoperative lumbar spine surgery complications
- Spinal anesthesia
- Tumours: metastases, lymphomas, spinal tumours.
- Trauma.
- Birth abnormalities like congenital spinal stenosis, kyphoscoliosis and spina bifida.
- Spondylolisthesis.
- Late-stage ankylosing spondylitis.
- Postoperative haematoma.
- Inferior vena cava thrombosis.
- Sarcoidosis

Symptoms and Diagnosis
CES symptoms mimic those of other conditions. Its symptoms may vary in intensity and evolve slowly over time. CES is accompanied by a range of symptoms, the severity of which depend on the degree of compression and the precise nerve roots that are being compressed. Besides a herniated disc, other conditions with similar symptoms to CES include peripheral nerve disorder, conus medullaris syndrome, spinal cord compression, and irritation or compression of the nerves after they exit the spinal column and travel through the pelvis, a condition known as lumbosacral plexopathy.

Patients with back pain should be cautious of "red flag" symptoms that may indicate CES:

- Severe low back pain
- Motor weakness, sensory loss, or pain in one, or more commonly both legs
- Saddle anesthesia (unable to feel anything in the body areas that sit on a saddle)
- Recent onset of bladder dysfunction (such as urinary retention or incontinence)
- Recent onset of bowel incontinence
- Sensory abnormalities in the bladder or rectum
- Recent onset of sexual dysfunction
- A loss of reflexes in the extremities

Medical history implications
- Recent violent injury to the back
- Recent lumbar spine surgery
- A history of cancer
- Recent severe infection

The following tests may be helpful in diagnosing CES

- **Magnetic resonance imaging (MRI)**: produces images of the spinal cord, nerve roots, and surrounding areas.
- **Myelogram**: shows displacement on the spinal cord or spinal nerves due to herniated discs, bone spurs, tumors, etc.

Treatment

The goal of management is to reverse the symptoms of neural dysfunction or else can result in permanent paralysis and incontinence.

Clients the red flag symptoms should consult a neurosurgeon as soon as possible. Treating patients within 48hours after the onset of the syndrome provides a significant advantage in improving sensory and motor deficits as well as urinary and rectal function. But even patients who undergo surgery after the 48-hour ideal timeframe may experience considerable improvement.

Although short-term recovery of bladder function may lag behind reversal of lower extremity motor deficits, the function may continue to improve years after surgery. After surgery, drug therapy is coupled with intermittent self-catheterization can help lead to slow, but steady recovery of bladder and bowel function.

Nurses role in coping with CES

CES can affect people both physically and emotionally, in particular if it is chronic. People with CES may no longer be able to work, either because of severe pain, socially unacceptable incontinence problems, motor weakness and sensory loss, or a combination of these problems.

Loss of bladder and bowel control can be extremely distressing and has a highly negative impact on social life, work and relationships. CES affected people may develop frequent urinary infections. Sexual dysfunction may lead to relationship difficulties and depression.

Chronic pain may become "centralized" and radiate to other areas of the body. Neurogenic pain tends to be worse at night and may interfere with sleep and produce a burning feeling that can become constant and unbearable. Sensory loss may range from pins and needles to complete numbness, and may affect the bladder, bowel and genital areas. Weakness is usually in the legs and may contribute to problems walking.

Nurses should provide emotional support. Advice the patient to empty the bladder completely with a catheter 3 to 4 times each day and drink plenty of fluids and practice regular personal hygiene to prevent urinary tract infection.

Presence of waste must be checked regularly and clear the bowels with gloved hands. Use of glycerine suppositories or enemas helps empty the bowels. Use protective pads and pants to prevent leaks. Advice on medication and pain management medications prescribed to address pain, bladder and bowel problems. Provide psychological counseling help them cope with CES. Involve family in care of the patient.

Postoperative patient care includes addressing lifestyle issues (eg, obesity), and also physiotherapy and occupational therapy, depending on residual lower limb dysfunction.

Complications

- Paralysis
- Sensory abnormalities
- Bladder, bowel, and sexual dysfunction

Prognosis

- Prognosis is dependent on the etiology and the time taken before effective treatment is provided.

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