Cancer Association of South Africa (CANSA)

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Fact Sheet
on
Spinal Cord Cancer

Introduction

The human vertebral column (backbone or spine) consists of 24 articulating vertebrae and 9 fused vertebrae in the sacrum and the coccyx. The vertebrae are separated from each other by intervertebral discs. It houses and protects the spinal cord in its spinal canal.

The human vertebral column is divided into different regions, which correspond to the curves of the spinal column. These regions are called the cervical spine (neck), thoracic spine (chest), lumbar spine (middle back), sacrum and coccyx (lower back). There are seven cervical vertebrae, twelve thoracic vertebrae and five lumbar vertebrae.

[Picture Credit: Picture of Spinal Cancer]

Spinal Cord Cancer

Spinal cord tumours are masses of abnormal cells that grow in the spinal cord, between its protective sheaths, or on the surface of the sheath that covers the spinal cord. Most non-cancerous tumours develop within the spinal cord rather than spreading from other parts of the body. These are called primary tumours, and they usually are non-cancerous (benign).

Primary spinal cord cancers rarely spread to other parts of the body.

Most cancerous spinal cord tumours are secondary, meaning they spread from a cancer at another site of the body.

Spinal cord tumours can affect people of all ages, but are seen most commonly in young and middle-aged adults.

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Incidence of Spinal Cord Cancer in South Africa

The National Cancer Registry (2014) does not provide any information regarding the incidence of Spinal Cord Cancer.

Incidence of Brain and Central Nervous System Cancer in South Africa

According to the National Cancer Registry (2014) the following number of brain and central nervous system cases was histologically diagnosed in South Africa during 2014:

Group - Males 2014	Actual No of Cases	Estimated Lifetime Risk	Percentage of All Cancers
All males	241	1:913	0,65%
Asian males	5	1:2 161	0,55%
Black males	89	1:2 608	0,81%
Coloured males	38	1:718	0,89%
White males	109	1:266	0,53%

Group - Females 2014	Actual No of Cases	Estimated Lifetime Risk	Percentage of All Cancers
All females	176	1:1 568	0,47%
Asian females	4	1:1 914	0,34%
Black females	66	1:3 616	0,41%
Coloured females	22	1:1 331	0,55%
White females	83	1:390	0,51%

The frequency of histologically diagnosed cases of cancer of the brain and central nervous system in South Africa for 2014 was as follows (National Cancer Registry, 2014):

Group - Males 2014	0 – 19 Years	20 – 29 Years	30 – 39 Years	40 – 49 Years	50 – 59 Years	60 – 69 Years	70 – 79 Years	80+ Years
All males	55	17	21	38	42	34	20	10
Asian males	1	1	2	0	1	0	0	0
Black males	39	7	7	12	10	6	3	2
Coloured males	4	4	3	12	7	4	2	1
White males	10	5	7	14	24	24	15	7

Group - Females 2014	0 – 19 Years	20 – 29 Years	30 – 39 Years	40 – 49 Years	50 – 59 Years	60 – 69 Years	70 – 79 Years	80+ Years
All females	44	11	16	20	30	25	25	3
Asian females	0	0	1	2	0	1	0	0
Black females	27	3	7	6	8	9	4	0
Coloured females	4	2	0	4	2	3	5	1
White females	10	6	8	8	20	12	16	2

N.B. In the event that the totals in any of the above tables do not tally, this may be the result of uncertainties as to the age, race or sex of the individual. The totals for 'all males' and 'all females', however, always reflect the correct totals.

Symptoms of Spinal Cord Cancer

The most noticeable sign of spinal cancer is pain. Pain can come from the tumour's presence in the spinal column, pushing on sensitive nerve endings or causing spinal instability. When the spine is not

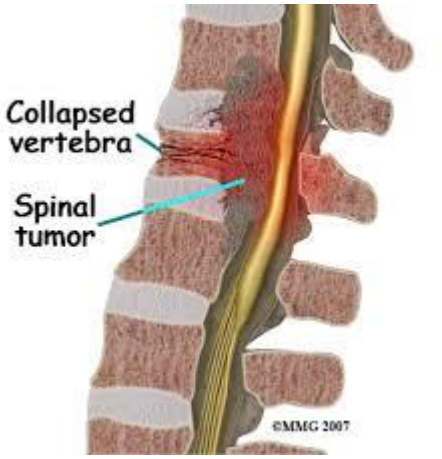
lined up properly, other physically notable symptoms may result (e.g., changes in posture, Kyphosis or hunchback).

Some common signs of spinal tumours may include the following:

- Pain (back and/or neck pain, arm and/or leg pain)
- Muscle weakness or numbness in the arms or legs
- Difficulty walking
- General loss of sensation
- Difficulty with urination (incontinence)
- Change in bowel habits (retention)
- Paralysis to varying degrees
- Spinal deformities
- Pain or difficulty with standing
- Focal spine pain that is worse in the morning
- Pain that is severe when there is direct manipulation or compression of the affected area of the spine
- Back pain along with constitutional symptoms, such as loss of appetite, unplanned weight loss, nausea, vomiting, or fever, shills or shakes
- Decreased sensitivity to pain, heat and cold

Types of Spinal Cord Tumours

Spinal cord tumours are classified according to their location in the spine.



[Picture Credit: Spinal Cord Tumour]

Spinal cord tumours may be classified as intradural or extradural depending on where they occur relative to the protective membranes of the spinal cord. Intradermal tumours occur within the dura mater.

Spinal Cord Tumours in Children

In children, spinal cord tumours are often gliomas (including spinal ependymoma). It is also possible for children to get spinal cord neuroblastomas or Ewing's sarcomas. All of these are very rare.

Risk Factors for Spinal Cord Cancer

Risk factors for spinal cord cancer may include:

- Prior history of cancer - cancers that may be more likely to spread to the spine include breast, lung, prostate and multiple myeloma.
- Compromised immune system - some people whose immune systems are compromised develop spinal cord lymphomas.

- Hereditary disorders - Von Hippel-Lindau disease and Neurofibromatosis (NF2) are inherited conditions that are sometimes associated with tumours in the spinal cord.
- Exposures - exposure to radiation therapy or industrial chemicals may increase the likelihood of developing spinal cancer.

Diagnosis of Spinal Cord Cancer

Brain and spinal cord tumours are usually found because of signs and symptoms a person is having. If a tumour is suspected, tests will be needed to confirm the diagnosis. These tests may include:

Medical history - if signs or symptoms suggest one might have a brain or spinal cord tumour, the doctor will get a complete medical history, focusing on the symptoms and when they began. The doctor will also do a neurologic exam to check the brain and spinal cord function. It tests reflexes, muscle strength, vision, eye and mouth movement, coordination, balance, alertness, and other functions.

If the results of the examination are abnormal, the doctor may refer the patient to a neurologist (a doctor who specialises in medical treatment of nervous system diseases) or a neurosurgeon (a doctor who specialises in surgical treatment of nervous system diseases), who will do a more detailed neurologic examination or other tests.

Imaging Tests - the doctor may order one or more imaging tests.

Grading of Spinal Cord Cancer

The grade describes the rate at which tumours grow and the likeliness or ability to spread into nearby tissue. Most central nervous system tumours do not spread in the body. However, the medical team may need to do other tests to check if the cancer has spread (e.g. CT or MRI scans, or checking the cerebrospinal fluid).

Spinal Cord Tumour Treatment

Treatment of spinal cord tumours may include:

Surgery - while surgery is increasingly recommended for benign and malignant primary spinal cord tumours, the role of surgery in spinal metastasis, or cancer that has spread to the spine, is controversial.

Radiation Therapy - most patients with primary spinal cord tumours will most probably not require radiation therapy. Radiation, however, may be used to treat spinal cord compression due to metastatic cancer or cancer that has spread from other locations.

Radiosurgery - with an advanced device called the CyberKnife may be an option for some patients. The CyberKnife is a painless, non-invasive treatment that delivers high doses of precisely targeted radiation to destroy tumours or lesions.

Chemotherapy - chemotherapy, similar to that used for brain tumours, may be recommended in adults for spinal gliomas that progress after surgery and radiation.

Benign or Non-Cancerous Spinal Tumours

Spinal tumours that are usually benign - a benign tumour is not cancerous and will not spread to other parts of the body. Benign spinal tumours include:

- Neurofibromas
- Schwannomas
- Meningiomas
- Ependymomas
- Astrocytomas
- Hemangioblastomas
- Osteosarcomas
- Osteoid osteomas.

About Clinical Trials

Clinical trials are research studies that involve people. They are conducted under controlled conditions. Only about 10% of all drugs started in human clinical trials become an approved drug.

Clinical trials include:

- Trials to test effectiveness of new treatments
- Trials to test new ways of using current treatments
- Tests new interventions that may lower the risk of developing certain types of cancers
- Tests to find new ways of screening for cancer

The **South African National Clinical Trials Register** provides the public with updated information on clinical trials on human participants being conducted in South Africa. The Register provides information on the purpose of the clinical trial; who can participate, where the trial is located, and contact details.

For additional information, please visit: www.sanctr.gov.za/

Medical Disclaimer

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