

High-Grade Glioma Brain Tumours

Introduction

This page contains information about high-grade brain tumours. It has been written as an addition to the information on the Living with a Brain Tumour page.

This information will provide a basis for your discussions with your doctors and nurses.

What is a Glioma?

The brain substance is made up of nerve cells (Neurons) and supportive tissue (Glia). Supportive tissue comprises of 3 cell types:-

- **Astrocytes**, which are thought to provide the brain's framework and help control the chemistry of brain cells.
- **Oligodendrocytes**, which help as insulators in the transmission of messages in the brain.
- **Ependymal cells**, which line the cavities in the brain.

Most primary brain tumours arise from the supportive tissue and are collectively called Gliomas. Gliomas can be separated further depending on their cell of origin:

- Astrocyte - **Astrocytoma**,
- Oligodendrocyte - **Oligodendroglioma**,
- Ependymal cell - **Ependymoma**.

The World Health Organisation grades astrocytomas into four grades. Grade 1 tumours are the least malignant and grade 4 the most malignant.

- Grade 3 are called Anaplastic Astrocytoma
- Grade 4 are called Glioblastoma Multiforme.

Together these grades are called High Grade Gliomas.

What are the common symptoms?

The symptoms will vary depending on the size and location of the tumour. Everyone is an individual and the symptoms may be different in different people. Some people may experience all, some or none of the symptoms.

The first symptoms may be headache, due to increased pressure in the head, seizures or weakness, numbness or speech problems. It may be helpful for you to read the information in the Living With a Brain Tumour page, which outlines the possible effects.

How is the diagnosis made?

Investigation of a suspected brain tumour follows a standardised procedure. A good neurological examination is essential, followed by some combination of the following tests, depending on the need and availability.

CT Brain scan (Computed Tomography) is a specialised x- ray. It will take 20-30 minutes and an injection, into the back of your hand, of a contrast agent (dye) may be necessary to give the clearest picture of the tumour.

MRI Brain scan (Magnetic Resonance Imaging) is a specialised imaging technique that gives very clear pictures of the brain and will show the site and extent of the tumour. It usually takes 30-40 minutes and uses magnetism instead of x-rays. People with pacemakers cannot have this test and those with any other metallic implant should inform the doctor well before the test.

How common are these tumours and who gets them?

There are about 8 new cases of primary brain tumour diagnosed for every 100,000 people every year. In other words about 4,500 new cases in the UK each year.

About 70-80% of primary brain tumours are **High Grade Gliomas**. They occur most often between the ages of 45 and 65 and affect men more frequently than women.

The cause of **High Grade Gliomas** remains unknown. Research has not proved a hereditary cause. There do not appear to be any links with occupation, infections or head injury.

What treatment might be available?

Your doctor will plan your treatment taking into consideration your general health, your symptoms and signs and the size and position of the tumour. In other words the treatment is planned for each individual.

Surgery

The first treatment choice for accessible tumours is surgery. Accessible tumours are those that can be operated on without a high risk of causing severe neurological damage. High Grade Gliomas may occur in sites that are not easily reached by surgery. In these instances, biopsy alone - examination of a surgical sample of the tumour- may be performed. Biopsy results help to establish the diagnosis and indicate whether the tumour is amenable to other treatments. Tumours that are located in the areas of the brain that control breathing, intellect or physical movement would possibly be considered inoperable.

Radiotherapy

This is the use of high energy x-rays to destroy tumour cells. It is often given after surgery; it may be used alone or given with chemotherapy. For further information see the Radiotherapy for Brain Tumours page.

Chemotherapy

Is treatment with drugs, which destroy tumour cells. It may be given alone or with surgery and/or radiotherapy.

For further information consult your doctor or the Chemotherapy for Brain Tumours page.