

Insights of Brain Tumor in Patients

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Commentary

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DESCRIPTION

A tumour is produced when abnormal cells grow within the brain. The two main types of tumours are malignant tumours and benign (non-cancerous) tumours. These can also be divided into primary tumours, which originate inside the brain, and secondary tumours, which typically spread from tumours outside the brain and are referred to as brain metastasis tumours. Depending on the tumor's size and the part of the brain it affects, all types of brain tumours may cause a variety of symptoms. Where symptoms are present, they may include vomiting, headaches, seizures, vision issues, and mental changes. Other signs might include inability to speak or walk, sensations, or unconsciousness. Most brain tumours have no known cause. The Epstein-Barr virus, ionising radiation, exposure to vinyl chloride, and inherited syndromes like neurofibromatosis, tuberous sclerosis, and von Hippel-Lindau disease are uncommon risk factors. Studies on the use of mobile phones have not clearly demonstrated a risk ^[1]. Meningiomas, which are typically benign, and astrocytomas like glioblastomas are the two primary tumour types that affect adults the most frequently. The most typical kind in children is a malignant medulloblastoma ^[2].

Medical examination, Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) are typically used to make diagnoses. A biopsy is then frequently used to confirm the outcome. The tumours are classified into different severity levels based on the results.

Chemotherapy, radiation therapy, and/or surgery may all be used in the course of treatment ^[3]. Surgery comes with a risk of the tumour coming back because the brain is the body's only non-fungible organ. Anticonvulsant medication might be required if seizures happen. Medication options for reducing swelling around the tumour include dexamethasone and furosemide. Some tumours develop gradually, necessitating only monitoring and perhaps no further treatment. Researchers are looking into immune system-based therapies. Malignant tumour

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outcomes differ significantly depending on the type of tumour and the extent of its spread at diagnosis. Even though benign tumours only develop in one place, their size and location can make them potentially fatal [4]. Benign meningiomas typically have better prognoses than malignant glioblastomas.

About half of brain metastases are caused by lung cancer, and secondary, or metastatic, brain tumours are about four times more common than primary brain tumours. Around 250,000 people worldwide develop primary brain tumours each year; they account for less than 2% of all cancers. The most frequent type of cancer in children under the age of 15 is acute lymphoblastic leukaemia, with brain tumours coming in second [5].

There are many different signs and symptoms of brain tumours. Regardless of whether a tumour is benign (not cancerous) or cancerous, people can still experience symptoms [6]. Depending on where the tumour is located, how big it is, and how quickly it is growing, primary and secondary brain tumours can both present with the same symptoms. For instance, the capacity to think may change as a result of larger tumours in the frontal lobe. A smaller tumour, however, can cause a greater loss of function in a region like Wernicke's area (a tiny region involved in language comprehension).

Increased intracranial pressure-related headaches can be a sign of brain cancer in its early stages. Although uncommon, isolated headaches without other symptoms, such as visual abnormalities, may manifest before headaches become widespread [7]. There are a few migraine red flags that could indicate brain cancer [8]. The American Academy of Neurology provided the following examples: Some signs that a headache is not a migraine include "abnormal neurological examination, headache made worse by the Valsalva manoeuvre, headache causing awakening from sleep, headache in the older population, progressively worsening headache, atypical headache symptoms, or patients who do not meet the strict definition of migraine.

Risk factors must be determined by epidemiological studies. There are no known environmental factors related to brain tumours besides exposure to ionising radiation or vinyl chloride. Some types of brain tumours are thought to be brought on by mutations and deletions of tumour suppressor genes, like P53. Brain tumours are highly likely to develop in people with inherited diseases like Von Hippel-Lindau disease, tuberous sclerosis, multiple endocrine neoplasia, and neurofibromatosis type 2. The risk of brain tumours is slightly higher in people with celiac disease [9]. Although there has been speculation that smoking increases risk, the data are still ambiguous. Even though there isn't a single, distinct symptom or sign, the presence of several symptoms and the absence of corresponding signs of other causes may point to the need for further examination of the possibility of a brain tumour. When it comes to diagnosis and treatment, brain tumours are comparable to tumours found elsewhere in the body in terms of their traits and challenges. They do, however, produce particular problems that closely match the characteristics of the organ in which they are found [10].

Taking a medical history and noting medical antecedents and present symptoms is frequently the first step in making a diagnosis. Investigations in the clinic and lab will help rule out infections as the source of the symptoms. This stage may involve examinations of the eyes, otolaryngology (or ENT), and electrophysiology. When diagnosing brain tumours, Electroencephalography (EEG) is frequently used.

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