Adult Nursing II
Nursing management of patients with nervous system disorder:
Brain Tumor

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Brain Tumour: Description

- A brain tumour is a localized space-occupying lesion increasing pressure within the cranium: (ICP)
- It may be:
- A defined spherical mass
- Widespread infiltration of cerebral tissue
- Benign
- Malignant
- Primary or metastatic

BrainTumour: Aetiology

- Unknown aetiology

- Genetic pre-disposition

- Environmental pollution:
- Radiation (Chernobyl nuclear disaster)
- Electric Pylons have been implicated

Brain Tumour: Classification/ Morphology

- Intracerebral gliomas (malignant: 45% of all brain tumours)
- Tumours of specific structures(15%: usually benign)
- Developmental tumours (20-30%: benign)
- Metastases (10%: malignant)

Brain Tumour:
Intracerebral Glioma

- Malignant and infiltrates neural tissue therefore difficult to remove:
- Astrocytoma (grade I, II)
- Glioblastoma multiforme (Astrocytoma grade III, IV)
- Oligodendrocytoma
- Ependymoma
- Medulloblastoma

Brain Tumour:
Tumours of Specific Structures

- Usually benign
- Meningioma (meninges)
- Neuroma (nerves): accoustic neuroma, auditory nerve
- Adenoma (glands): pituitary adenoma

Brain Tumour:
Developmental Tumours

- Benign remnants/ anomalies of embryonic development:
- Angiomas (blood vessels)
- Dermoid
- Epidermoid
- Teroma
- Craniopharyngioma

Brain Tumour: Metastases

- Always malignant
- Seeded from a primary malignant tumour in another part of the body
- Treatment (radiotherapy, maybe also with chemotherapy) is palliative, to relieve pain or symptoms associated with ↑ ICP

Brain Tumour:
Clinical Manifestations

- Space-occupying lesion (↑ ICP). Leads to:
- Headache especially early morning, worse with coughing or straining
- Projectile vomiting (without nausea)
- Diploplia, visual disturbance, papilloedema

Brain Tumour:
Localised Clinical Manifestations

- Sensory/ motor impairment:
- Motor cortex tumour: seizures (Jacksonian epilepsy)

- Cerebellar: ataxia, dizziness, nystagmus

- Frontal: Personality disorder, depression

Brain Tumour: Diagnosis

- Patient history and clinical picture
- Papilloedema: (cerebral oedema) seen in the fundus of the eye by ophthalmoscope
- CT scan
- MRI
- Electro-encephalogram (EEG) locates region affected
- Lumbar Puncture/ CSF for cytology

Brain Tumour:
Medical Management

- Surgery
- *Radiotherapy: the corner-stone of treatment: pre/post-surgery or if inoperable. Reduces tumour size
- Chemotherapy may complement radiotherapy, including intra-thecal doses

Brain Tumour: Surgery

- Craniotomy to remove tumour if possible. While astrocytoma cannot be completely removed, surgery will:-
- ↓ Intra-cranial pressure (ICP)
- ↓ tumour size for radiation/ chemotherapy

- Trans-sphenoidal excision: (pituitary adenoma)
- Gamma knife: radio-surgery (precise “brain-mapping” and multiple beams)

Brain Tumour:
Nursing Considerations

- Emotional/psychological support of the patient and family
- Ensure awareness of aspects of safety
- Orientation to time, place, person
- ICU: head elevated post-surgery
- Neurological assessment (Glasgow Coma Scale): motor function, sensation, speech
- Watch for signs of ↑ ICP; also disordered fluid balance (if posterior pituitary affected)

Medications

- Dexamethasone (reduces cerebral oedema)
- Epanutin (anti-convulsive)
- Post-craniotomy, additional drugs are:
- Analgesia
- Antibiotics
- Mannitol as a diuretic to reduce oedema

Notes on Radiotherapy

- Usually daily session for several weeks
- Advise to keep the marked area dry
- Advise about effect on bone marrow function (regular blood count)
- Patient will experience fatigue/ must rest
- Should see physician if extreme fatigue, any infection, bruising
- Reasonable isolation at home