

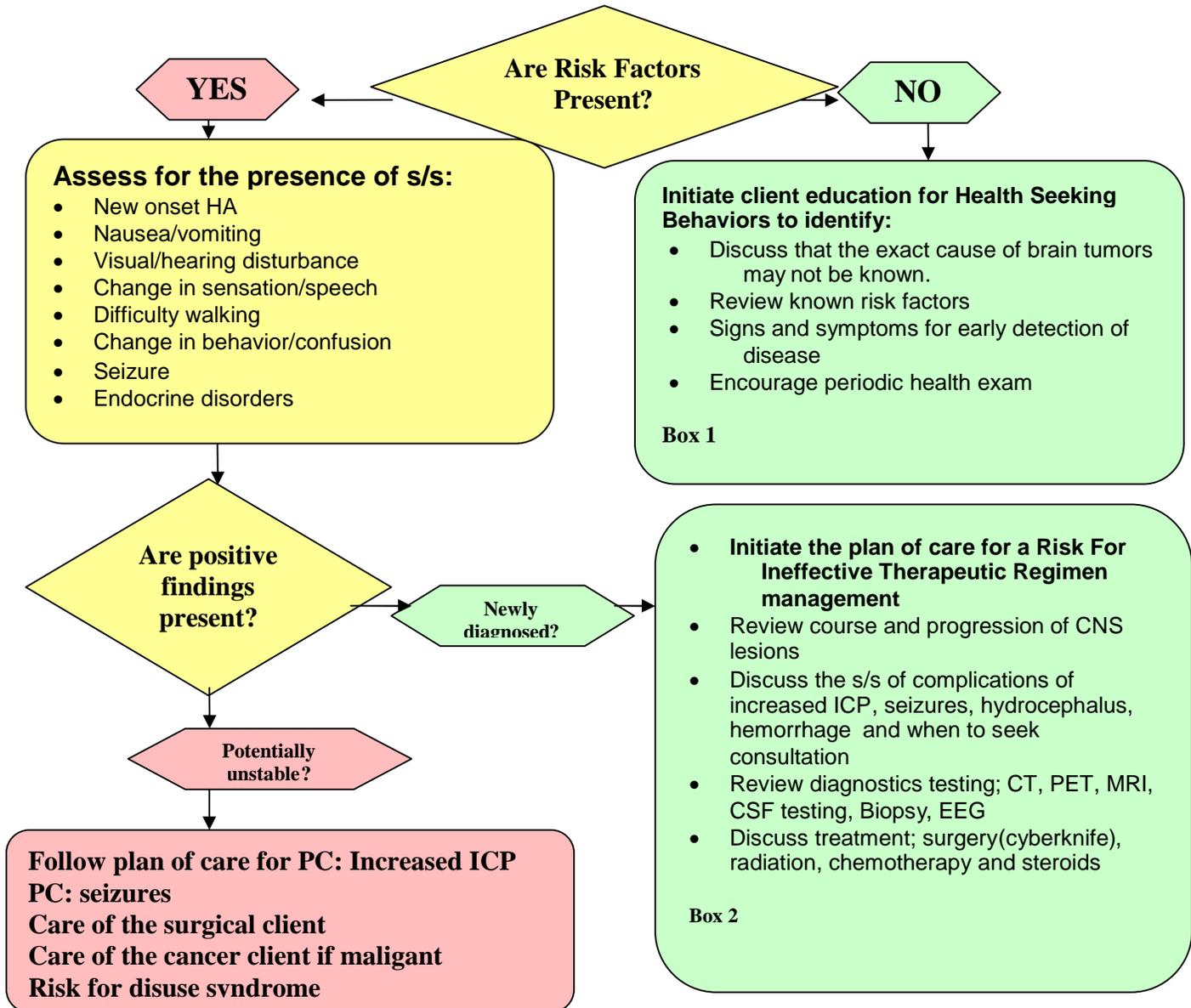
Brain tumor Algorithm

Review definition and pathophysiology

Assess for the presence of risk factors

Exact etiology unknown
 Primary brain cancer
 Metastatic brain cancer
 Prior history of irradiation to the head
 Increased incidence with age
 Seen in white > other races with exception of meningioma (seen > in black population)
 Family history of brain tumors
 Inherited diseases, such as neurofibromatosis, tuberous sclerosis, multiple endocrine neoplasia (type 1), and retinoblastoma
 Occupational exposure to chemicals

Source: <http://www.mayoclinic.com/health/brain-tumor/DS00281/DSECTION=risk-factors>



Collaborative Problem

Outcomes/Benchmarks:

Alert and oriented X 3, No focal neurological deficit (numbness, parasthesia, paresis/paralysis, blurred vision, cranial nerve deficit, headache, nausea, vomiting)
 ICP < 20, GCS no deterioration, PACO₂ within normal limits
 100 < SBP < 140, CPP > 60, 60 < HR < 100, 12 < RR < 20 no signs of Cushings triad

Potential Complication: Increased ICP

ASSESS s/s of Increased ICP

- change in mental status/consciousness
- focal neurological deficit (numbness, parasthesia, paresis/paralysis, blurred vision, cranial nerve deficit, headache, nausea, vomiting)

Assess for contributing factors:

- Aneurysm rupture and subarachnoid hemorrhage
- Brain tumor
- Encephalitis
- Hydrocephalus
- Hypertensive brain hemorrhage
- Intraventricular hemorrhage
- Meningitis
- Severe head injury
- Subdural hematoma
- Status epilepticus
- Stroke

Monitor for presence of the disorder

Monitor neurochecks according to institution policy for deviation (NIH stroke scale vs. modified Glasgow coma scale)
 Initiate pulse oximetry to identify desaturation
 Monitor results of ABGs to ensure adequate oxygenation and cerebral perfusion (hypercapnia and hypoxemia aggravate cerebral edema)
 Initiate hemodynamic monitoring to identify cushings triad
 Initiate cardiac monitoring to identify bradycardia and dysrhythmia
 Initiate ICP monitoring as ordered
 Monitor temperature for elevations that increase ICP
 If trauma is associated with event, clear spine x ray
 Monitor results of diagnostic testing; PET, CT, MRI, lumbar puncture
 Monitor BMP for electrolyte disturbances frequently seen in associated endocrine dysfunction
 Monitor bleeding times for risk for hemorrhage
 Monitor I/O and daily weights
 Monitor CBC for signs of infection and aggravating anemia

Potential Complication: Increased ICP

DO

Perform nursing actions to control ICP

- Initiate ABCs, airway, ventilation and oxygen, IV access
- Reduce excess environmental stimulation, and administer barbiturates and anesthetics as prescribed
- HOB at 30 degrees (C spine clear in trauma) if SBP normal and CPP > 60. If SBP is low & CPP is compromised, place client in supine position and initiate vasopressor support
- Avoid hip/knee flexion, valsalva, coughing
- Ensure neutral neck position
- Check ET tape to ensure it does not impede venous drainage
- Administer steroids, Mannitol as prescribed to reduce edema
- Administer anticonvulsants to control seizures
- Administer antipyretics to control temperature and initiate cooling strategies and required
- Maintain ICP monitoring systems according to agency protocol
- Initiate ventricular drainage in presence of elevated ICP according to ordered

Performs nursing actions to control contributing factors & minimize complications

- *Treat hypotension*
- *Treat hyperthermia*
- *Treat CSF infection*
- *Initiate seizure precautions*
- *Provide care for disuse syndrome*

CALL

Change in mental status, GCS score, or new focal neurological deficit. CSF becomes bloody, purulent or leaking is noted, problems with ICP waveform or equipment

Initiate ABC's provide supportive care, call ready response team and MD