REFERENCE CARE PLAN: CRANIOTOMY

PATIENT POPULATION

Patients admitted to the inpatient surgery unit following the craniotomy procedure.

DEFINITIONS

Craniotomy: refers broadly to the surgical removal of a section of the skull in order to access the intracranial compartment. The portion of skull temporarily removed is called a bone flap, and it is replaced to its original position after the operation is completed, typically fastened into place with plates and screws. (11)

Craniectomy: refers to an operation wherein the bone flap is removed but not replaced. (11)

Increased Intracranial Pressure (ICP): A brain injury or another medical condition can cause growing pressure inside your skull. This dangerous condition is called increased intracranial pressure (ICP) and can lead to a headache, often associated with nausea or vomiting, double vision, decreased level of consciousness, and other symptoms. The increased pressure can also further injure your brain or spinal cord. (12)

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<thead>
<tr>
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<tr>
<td>Pain, discomfort and nausea related to surgical procedure.</td>
<td>Patient’s pain is well managed. Patient will remain comfortable during hospital stay.</td>
<td>Assess and document pain every 4 hours and as needed using a developmentally appropriate pain scale.</td>
<td>Regular assessment guides the selection of appropriate pain interventions and provides a baseline for their efficacy. (6)</td>
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<td>Administer analgesic as ordered. If analgesic is ineffective, call most responsible physician. <strong>NOTE:</strong> Consider giving around the clock pain management for the first 24-48 hours post-operatively even if it is ordered as needed.</td>
<td>Treating postoperative pain routinely provides consistent relief and lessens the chance of the patient getting in a pain crisis. (17) (18)</td>
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<td>Administer anti-emetics as ordered.</td>
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<td>Ensure distraction techniques are also used to supplement the pharmacological approach. Distraction techniques include:</td>
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<td>• Movies</td>
<td>Diverting a child’s attention can help reduce pain perception and decrease anxiety.</td>
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| Potential for increased intracranial pressure (ICP). | Patient will maintain normal intracranial pressure. | Monitor for signs and symptoms of increased ICP, such as:  
- Headache  
- Nausea  
- Vomiting  
- Irritability  
- Lethargy  
- Altered level of consciousness/behaviour changes  
- Numbness or weakness  
- Loss of coordination or balance  
- Loss of the ability to see or speak  
- Seizures  

If signs of increased pressure are present, notify the most responsible physician for further instruction | Early recognition and treatment of increased ICP improves patient outcomes. |

**NOTE:** In case of critical increased ICP, ensure...
## Reference Care Plan: Craniotomy

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<td><strong>Potential for CSF leak</strong></td>
<td>Identify cerebrospinal fluid leaks and notify physician immediately</td>
<td>Mannitol is readily available on the unit. Elevate HOB 20-30 degrees at all times. Keep head in midline position.</td>
<td>Reduces post-operative swelling, assists with venous drainage, and promotes CSF circulation.</td>
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<td>Potential for seizure activity</td>
<td>Patient remains seizure free and injury free during hospital stay</td>
<td>Complete a full set of neurovital signs (NVS) at minimum every 4 hours and as needed according to the physician’s orders. <strong>NOTE:</strong> Physician orders represent the minimum frequency of neurological assessment. Increase frequency of NVS when indicated by PEWS score and as per PEWS Escalation Aid on ePOPS. If seizures present, initiate seizure protocol (on ePOPS) and ensure patient is identified as being at risk for falls. Document all seizure activity on the seizure log.</td>
<td>Provides thorough neurological assessment of patients’ clinical status. Become familiar with a patient’s baseline neurologic status, which allows the ability for comparisons to detect any acute changes. Ensure potential complications can be detected early and immediate interventions can be initiated. To prevent physical harm To aid in management and</td>
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| Infection related to surgical procedure. | Patient will be free from:  
  - signs or symptoms of infection  
  - wound infection | Assess temperature with vital signs.  
Monitor wound for signs and symptoms of infection including:  
  - redness extending beyond the immediate wound edge  
  - pus-like/purulent drainage  
  - worsening pain  
  - foul odor from wound  
  - wound slow to heal  
  - Fever >38.5 | Early recognition and treatment of infection improves patient outcomes.  
Patients are at risk for infection postoperatively.  
Postoperative prophylactic antibiotic therapy may be initiated for the first 48 hours to reduce risk of infection\(^\text{13}\)  
If signs are present, inform the physician. |
| Potential for increased blood loss | Dressing will remain intact  
Patient will maintain normal cardiovascular status | If head dressing present, assess head dressing Q1H for first 8 hours then Q4H with vital signs  
  - Drainage should be more serous than sanguineous  
  - If the dressing falls off or becomes saturated and unable to reinforce, call the most responsible physician | Drainage that is more sanguineous than serous may be of concern because of potential blood loss \(^\text{14}\)  
Establishes a baseline and can track changes to patient’s status.  
All indicators of adequate circulating volume and tissue perfusion. Decreased blood volume leads to poor perfusion of |
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| Lab values will remain within normal limits | Assess lab values as ordered  
- If blood values indicate, call the most responsible physician, as the patient might need to be transfused | To monitor hematological status |
| Alteration in fluid balance related to:  
- Surgery  
- NPO status  
- Nausea and vomiting  
- Or secondary to SIADH or Diabetes Insipidus | Patient will maintain:  
- normal vital signs  
- electrolyte stability  
- moist mucous membranes  
- good skin elasticity  
- balanced intake and output | Monitor Vital Signs routinely every four hours and more as needed based on patient status.  
Calculate the patients’ daily fluid requirements and ensure that they are meeting their minimum needs from all fluid sources. Consult the most responsible physician if fluid orders need to be increased or decreased.  
Maintain **strict** intake and output records and ensure totals are done at minimum every 12 hours.  
Encourage oral fluids. Start with clear fluids and progress to full fluid and diet as tolerated.  
**NOTE:** if swallowing is impaired due to surgery, consult Occupation therapy for a swallowing assessment prior to initiating fluids.  
Administer anti-emetics as ordered. Initiate Reference Care Plan for Central Diabetes Insipidus (on ePOPs) if required | Vital signs changes such as increased heart rate, decreased blood pressure, and increased temperature may indicate inadequate fluid status and/or shock.  
To ensure adequate hydration.  
Accurate documentation helps identify fluid losses or replacement needs and influences intervention selection.  
Treating postoperative nausea routinely provides consistent relief and encourages oral intake. |
| Impaired physical mobility related to | By hospital discharge, the patient will return | Before activity, observe for and, if possible, treat pain. Administer analgesic as ordered. Ensure that the patient is Pain limits mobility and is often exacerbated by movement. |
## Reference Care Plan: Craniotomy

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| Procedure and postoperative pain | to preoperative mobility, as evidenced by ability to ambulate or mobilize as per patient’s normal status. | not over sedated. 
Encourage and assist patient with position changes, mobility exercises, and ambulation. 
Consult occupational therapy, physiotherapy, and/or speech language pathologist for assessment as needed. (Ex. PT for tone & mobility assessment) 
Encourage participation in developmentally appropriate self-care and diversional or recreational activities. | These actions reduce postoperative atelectasis, pneumonia, thrombophlebitis, and ileus. 
Early mobilization shown to decrease duration of hospitalization. 
This will enhance self-concept and sense of independence. |
| Family anxiety related to hospitalization | Parent copes with child's condition and receives adequate support to help control the anxiety | Encourage family involvement in daily care of child with the purpose to normalize and promote optimum healing 
Review plan of care with patient and family every shift (8) 
Encourage parents to say what they feel and offer support to family 
Seek referral to psychology as appropriate | To promote parent participation and to promote sense of control over situation (15) 
Collaboration between family and health professionals improves functional outcomes and quality of care, as well as patient/family satisfaction 
To promote family functioning and coping (15) |
| Patient/Family discharge planning and teaching. | Patient/Family will be prepared for discharge. | Family will have education and information resources available on discharge from the BCCH Resource Library: 
- Pamphlet ‘Going Home After Neurosurgery’ | Written information will supplement the verbal information provided during discharge. 
Teaching promotes an understanding of the condition and encourages self-care (3,15) |
## Problem/Potential Problem

Ensure families are provided with written information upon discharge to outline the following:

- pain management
- activity parameters/restictions
- wound care
- signs/symptoms of increased ICP
- follow up appointments
- prescriptions for medications if necessary
- name and clinic phone number of neurosurgeon
- contact information of epilepsy nurse clinician and endocrine nurse clinician if required

## Objectives

Effective clinician-patient communication, a clear understanding of patient literacy, and use of the Teach-Back Method are useful tools in helping patients to better understand their own medical conditions.

Educated patients are able to manage their medications, better participate in their treatments, and follow protocols to achieve the goal of safe quality care.

## Anticipatory/Therapeutic Nursing Interventions

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## CROSS-REFERENCES

1. BC Children’s Hospital Seizure Protocol
   [http://policyandorders.cw.bc.ca/resource-gallery/Documents/BC%20Children's%20Hospital/CC.13.15%20seizure%20precautions%5b2626%5d%5b8896%5d.pdf](http://policyandorders.cw.bc.ca/resource-gallery/Documents/BC%20Children's%20Hospital/CC.13.15%20seizure%20precautions%5b2626%5d%5b8896%5d.pdf)

2. Going Home After Neurosurgery

   [http://infosource/cw/content/cw_Parenteral_Man/pdf_docs/MANNITOL.pdf](http://infosource/cw/content/cw_Parenteral_Man/pdf_docs/MANNITOL.pdf)

4. REFERENCE CARE PLAN: Care of patients requiring long term video EEG monitoring
5. REFERENCE CARE PLAN: Central Diabetes Insipidus
http://policyandorders.cw.bc.ca/resource-gallery/Documents/BC%20Children's%20Hospital/00.00%20Reference%20Care%20Plan%20Central%20Diabetes%20Insipidus.pdf

REFERENCE


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Version History

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