# LUMBAR SPINAL DRAIN – ICU

PURPOSE: To outline the management of the patient requiring a lumbar spinal drain.

SUPPORTIVE DATA: A lumbar spinal drain consists of a catheter, connected to a sterile, closed-drainage system, inserted into the spinal lumbar space for the purpose of draining cerebrospinal fluid (CSF). A lumbar drain may be used to treat CSF leak due to skull fractures or post-transsphenoidal hypophysectomy. It may also be used after spinal surgery, e.g., laminectomy or spinal fusion. Drainage of CSF via a lumbar drain helps keep CSF pressure low and facilitates spinal or cerebral dural healing after traumatic injury or surgery. In addition, it may be used for spinal cord protection for patients undergoing thoracic endovascular aortic repair.

ASSESSMENT:

1. Assess the following) a minimum of every 2 hours:
   - Vital Signs
   - Level of consciousness (LOC)
   - Pupil size and response
   - Motor strength
   - Glasgow coma score
   - Leg pain (indicates spinal nerve root irritation)
   - CSF
     - Color, clarity, amount
     - Presence of blood or sediment
   - Signs/symptoms of increased intracranial pressure (ICP):
     - Deterioration in level of consciousness
     - Pupillary abnormalities
     - Motor weakness
     - Abnormal respiratory pattern
     - Widening pulse pressure
     - Bradycardia

2. Assess for the following a minimum of every 4 hours:
   - Headache
   - Nausea/vomiting
   - Lumbar spinal drain site/dressing
     - CSF leak at insertion site
     - Kinks, cracks, or CSF leak from drainage tubing
     - Presence of air bubbles in drainage system
     - Patency of drainage system
   - Signs/symptoms of infection
     - Elevated temperature
     - Photophobia
     - Kernig's and Brudzinski's signs
     - Nuchal rigidity
     - Seizures
     - Lethargy

MAINTENANCE:

3. Drain CSF according to ordered parameters (usual order is no more than 10 mL/hour; do not over drain and do not leave drain unattended when stopcock open to drain).
4. Maintain drainage system below insertion site at all times.
5. Maintain head of bed at ordered level.
6. Assist patient with repositioning (system may also require repositioning).

7. Maintain patient on bedrest as ordered.
8. Lumbar Drain Pressure Monitoring:

- CSF Lumbar Pressure readings will only be measured and recorded as ordered by the provider and no more frequent than every (1) hour.
- Connect the transducer to the bedside monitor and select IC1 or IC2 Pressure (Alternative intracranial pressures)
- CSF Lumbar Pressure will NOT be monitored continuously
- Transducer will be Zeroed every shift and whenever the system has been disconnected from the bedside monitor.
    - **Note:** The stopcock can be opened in 3 directions simultaneously. The direction the prong points to represents the "off" position.
- Level external transducer to level of phlebostatic axis (unless a different leveling point is ordered by the provider).

- Zero:

- Upon assuming care of the patient
- Every 12 hours
- To verify accuracy of questionable values
- Using the level, ensure that the "0" reference on the panel is level with the exit level of the lumbar catheter
- Both the transducer and the mounting panel stopcock must be level with the lumbar space
- By securing both stopcocks at the same point, the transducer and mounting panel can be simultaneously referenced by adjustment of the mounting panel.
- Bring drainage level (the top of the drip chamber) down to zero
- Allow tubing between transducer and drip chamber to completely fill with fluid
- Immediately turn stopcock off to the patient (ensure transducer is open to drip chamber)
- Press zero on the monitor

**9.** Patient Monitoring:

-Monitor lumbar ICP as ordered. Turn stopcock off to drainage for one minute to obtain an accurate measurement.

SAFETY:

10. Keep drainage system away from bedside equipment.

11. Ensure drainage chamber is clamped for transportation and patient repositioning.

DISLODGEMENT/ DISCONNECTION:

12. Perform the following interventions immediately:
- Disconnection: Clamp catheter and apply sterile gauze over the end.
- Dislodgement: Apply sterile gauze to site using firm pressure and notify provider immediately.

REPORTABLE CONDITIONS:

13. Notify provider immediately for:
- Presence of blood, pus, or sediment in CSF
- CSF leaks from drain site or tubing
- Saturated dressing
- Dislodgement or disconnection
- Signs/symptoms of infection

- Signs/symptoms of increased ICP
- Neurological changes from baseline

PATIENT/CAREGIVER EDUCATION:

14. Instruct on the following:
    - Purpose of lumbar spinal drain
    - To ask for assistance when changing patient's position
    - To avoid Valsalva maneuver
    - To notify nursing staff if leak is felt around drain site

15. Consult Neuroscience ICU unit RNs as needed.

ADDITIONAL STANDARDS:

16. Implement the following as indicated:
    - Confusion
    - Immobility
    - Pain
    - Restraints
    - Violent Behavior

ADDITIONAL STANDARDS:

17. Implement the following as indicated:
    - Immobility
    - Pain Management
    - Restraints

DOCUMENTATION:

18. Document in accordance with documentation standards in iView ICU Lines-devices Navigator Bar, Neuro Lines/Devices, add dynamic group “Lumbar Drain”

| Initial date approved: 11/94 | Reviewed and approved by: Professional Practice Committee Anticoagulant Committee Pharmacy & Therapeutics Committee Nurse Executive Council Attending Staff Association Executive Committee | Revision Date: 11/00, 03/05, 8/15, 02/19, 2/24 |
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**References:**


AACN Procedure Manual for High Acuity, Progressive, and Critical Care. 7th Edition. Debra L. Wiegand. Elsevier. (2017).

Care of the Patient Undergoing Intracranial Pressure Monitoring/Externa Ventricular Drainage or Lumbar Drainage. American Association of Neuroscience Nurses (AANN) 2012.

Fedorow, C. et. al. Lumbar Cerebrospinal Fluid Drainage for Thoracoabdominal Aortic Surgery Rationale & Practical Considerations for Management. Anesthesia & Analgesia. July 2010.