Adult Lumbar Puncture

This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson, including the following: MD Anderson’s specific patient population; MD Anderson’s services and structure; and MD Anderson’s clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other healthcare providers.

Note: This algorithm is used by Acute Care Procedures Team

Provider identifies patient need for lumbar puncture (LP) and pages proceduralist via on-call calendar

Provider/on-call proceduralist discussion:
- Completion of LP order set
- Reason for procedure
- Hemodynamic status
- Anticoagulation medication history

Proceduralist assessment of patient:
- CT or MRI head obtained within 30 days of procedure request. If new onset neuro changes at time of assessment, must obtain current head imaging to rule out worsening intracranial pathology
- Anatomical site limited to L3-4 and L4-5
- Coagulopathy:
  - INR greater than 1.5 and/or
  - Platelets less than 50 K/microliter

Proceduralist to proceed with LP:
- No more than 3 total needle stick attempts to obtain cerebrospinal fluid (CSF)
- For patients with significant obesity obscuring landmarks, consider use of ultrasound at bedside
- For high volume taps due to multiple studies:
  - Discuss with the appropriate lab minimal CSF needed to obtain studies
  - Patient must receive post-procedure care by remaining supine for appropriate amount of time, at least 30 minutes based on the amount of CSF removed
- Procedure must be logged in Mobile Procedure Team (MPT) SharePoint log

Finding of edema, intracranial shift, metastatic lesion, mass, bleed or hemorrhage on CT/MRI head

History of lumbar sacral surgery with instrumentation

Coagulopathy (platelets less than 40 K/microliter and INR greater than 1.5)

Post-surgical scars, wounds, or drain over procedure site

Coagulopathy Threshold

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Minimum platelet threshold</th>
<th>Threshold to infuse platelets during procedure</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumbar Puncture</td>
<td>50 K/microliter</td>
<td>40-50 K/microliter</td>
<td>1.5</td>
</tr>
</tbody>
</table>

1 Heart rate greater than 65 bpm, oxygen saturations greater than 90% (unless decreased oxygen saturation due to ascites) and systolic blood pressure greater than 100 mmHg

2 Refer to Peri-Procedure Management of Anticoagulants algorithm prior to procedure

Nursing communication given to notify primary team and MPT if findings of positional headache, site leak, bleeding or change in neurological status post tap

Neuro-oncologist and/or neurosurgery consultation and written clearance required to perform LP with instruction on minimal amount of CSF to obtain

Refer to diagnostic imaging to perform under fluoroscopy

Must correct coagulopathy prior to procedure

Strongly consider procedure to be done under fluoroscopy if risk for bleeding is high

Refer to diagnostic imaging to perform under fluoroscopy

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SUGGESTED READINGS


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DEVELOPMENT CREDITS

This practice consensus algorithm is based on majority expert opinion of the Acute Care Services Department at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following members:

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