ICU Pediatric Early Mobilization

Contraindications
- Increased intracranial pressure (ICP) greater than or equal to 15
- Acute or uncontrolled intracranial event
- Positive end expiratory pressure (PEEP) greater than or equal to 10 on invasive mechanical ventilation
- Volumetric diffusive respiration (VDR) or high frequency oscillatory ventilation (HFOV)
- Difficult airway
- Hemodynamic instability

Precautions
- Venous thromboembolism
- External ventricular drain
- RASS score of +1 (Appendix A)
- Mechanical ventilation
- Hemoglobin 8-10 grams/dL
- Continuous dialysis
- Lumbar drain
- Any major surgery
- Vasopressor medication

PROM = passive range of motion
PRAFO = pressure relief ankle foot orthosis

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Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.
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APPENDIX A: Richmond Agitation Sedation Scale (RASS)

<table>
<thead>
<tr>
<th>Score</th>
<th>Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>+4</td>
<td>Combative</td>
</tr>
<tr>
<td>+3</td>
<td>Very agitated</td>
</tr>
<tr>
<td>+2</td>
<td>Agitated</td>
</tr>
<tr>
<td>+1</td>
<td>Restless</td>
</tr>
<tr>
<td>0</td>
<td>Alert and calm</td>
</tr>
<tr>
<td>-1</td>
<td>Drowsy</td>
</tr>
<tr>
<td>-2</td>
<td>Light sedation</td>
</tr>
<tr>
<td>-3</td>
<td>Moderate sedation</td>
</tr>
<tr>
<td>-4</td>
<td>Deep sedation</td>
</tr>
<tr>
<td>-5</td>
<td>Unarousable</td>
</tr>
</tbody>
</table>

APPENDIX B: Mobility Levels

<table>
<thead>
<tr>
<th>Mobility Level</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>PROM BID x 10 repetitions with family/nursing staff/nursing assistant staff</td>
</tr>
<tr>
<td>Functional Level: Total Assist</td>
<td>Splinting and repositioning every 2 hours by nursing staff/nursing assistant staff</td>
</tr>
<tr>
<td></td>
<td>Bed in chair position BID by nursing staff/nursing assistant staff for 20 minutes to 2 hours</td>
</tr>
<tr>
<td></td>
<td>Skilled therapeutic interventions by PT/OT as indicated</td>
</tr>
<tr>
<td>Level 2</td>
<td>ROM exercises BID x 10 repetitions with family/nursing staff/nursing assistant staff</td>
</tr>
<tr>
<td>Functional Level: Maximum to Moderate Assist</td>
<td>Splinting and repositioning every 2 hours by nursing staff/nursing assistant staff</td>
</tr>
<tr>
<td></td>
<td>Bed in chair position BID by nursing staff/nursing assistant staff for 20 minutes to 2 hours</td>
</tr>
<tr>
<td></td>
<td>OOB to neuro chair with family/nursing staff/nursing assistant staff for 30 minutes to 2 hours</td>
</tr>
<tr>
<td></td>
<td>Skilled therapeutic interventions by PT/OT as indicated</td>
</tr>
<tr>
<td></td>
<td>Participate in ADL</td>
</tr>
<tr>
<td>Level 3</td>
<td>Home exercise program BID</td>
</tr>
<tr>
<td>Functional Level: Moderate Assist to Supervision</td>
<td>Reposition every 2 hours while in bed</td>
</tr>
<tr>
<td></td>
<td>OOB to bedside chair for 30 minutes to 2 hours</td>
</tr>
<tr>
<td></td>
<td>Ambulate as directed by PT/OT</td>
</tr>
<tr>
<td></td>
<td>Skilled therapeutic interventions by PT/OT as indicated</td>
</tr>
<tr>
<td></td>
<td>Participate in ADL</td>
</tr>
</tbody>
</table>

APPENDIX C: Signs of Intolerance

- Oxygen saturation less than 88%
- Increased work of breathing
- Use of accessory muscles
- Perioral cyanosis
- Breath holding
- Nasal flaring
- Subcostal retractions
- Change in character of cry
- Development of any contraindications
- Vital signs outside of pediatric normative values (see Appendix D)
- Irritability

APPENDIX D: Pediatric Normative Values

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Respiratory Rate per minute</th>
<th>Heart Rate per minute</th>
<th>Systolic Blood Pressure (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn (less than 1 month)</td>
<td>30-50</td>
<td>120-160</td>
<td>50-70</td>
</tr>
<tr>
<td>Infant (1-12 months)</td>
<td>20-30</td>
<td>80-140</td>
<td>70-100</td>
</tr>
<tr>
<td>Toddler (1-3 years)</td>
<td>20-30</td>
<td>80-130</td>
<td>80-110</td>
</tr>
<tr>
<td>Preschooler (4-5 years)</td>
<td>20-30</td>
<td>80-120</td>
<td>80-110</td>
</tr>
<tr>
<td>School age (6-12 years)</td>
<td>20-30</td>
<td>70-110</td>
<td>80-120</td>
</tr>
<tr>
<td>Adolescent (greater than 12 years)</td>
<td>12-20</td>
<td>55-105</td>
<td>110-120</td>
</tr>
</tbody>
</table>

PROM = passive range of motion
ROM = range of motion
OOB = out of bed
ADL = activities of daily living
BID = twice daily

Key
- Total Assist (patient performs 0-24%)
- Maximum Assist (patient performs 25-49%)
- Moderate Assist (patient performs 50-74%)
- Minimum Assist (patient performs 75-99%)
- Supervision (assist patient with set up and/or cuing)
SUGGESTED READINGS


DEVELOPMENT CREDITS

This practice consensus statement is based on majority opinion of the ICU Pediatric Mobilization experts at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

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