Standardizing Post-Operative Care for Intradural Chiari Decompressions to Decrease Length of Stay

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Disclosures

• None
Introduction

• Amid national and local budget crises, cutting costs while maintaining quality care are top priorities. Chiari malformation is a relatively common pediatric neurosurgical pathology. Postoperative course can be complicated by pain and nausea, which can extend the hospital course. Postoperative care for this group can vary widely. We hypothesized that by making a standardized post-operative care package that we could decrease overall length of stay for our patients and decrease cost to families/hospital system.
Methods

• This is a retrospective study of pediatric patients who underwent an intradural Chiari decompression with expansile duraplasty at a single institution from January 2016 to September 2019. Our protocol was instituted on May 17, 2018. The pre-protocol group and post-protocol groups were analyzed for demographics, length of stay, and calculated expense of a hospital stay.

• This protocol included scheduled diazepam (IV or PO) for 2 days, dexamethasone (IV transitioned to PO) taper over 5 days, scheduled ketorolac IV beginning POD1 for 1 day, removal of indwelling urinary catheter on POD1, and ambulation to hallway three times daily starting POD1. The patients were also given PRN PO oxycodone and PRN IV dilaudid for breakthrough pain. Prior to this protocol, there was no formalized medication regimen or standard for foley removal/ambulation.
Results

• The analysis included 132 pediatric patients that underwent an intradural Chiari decompression with expansile duraplasty. The pre-protocol group included 97 patients and post-protocol group included 35 patients. The age range of all patients was 0.5 to 26 years-old (mean 9.5).
Results

• The average length of stay for pre-protocol was 55.48 hours (range 25.90-127.77 hours) and the post-protocol was 46.39 hours (range 27.58-77.38 hours) (p=0.014, 95% CI 1.87-16.31). Of the pre-protocol group, 21 of the 97 patients discharged POD1 (22%) compared to 14 of the 35 (40%) of the post-protocol group.

<table>
<thead>
<tr>
<th></th>
<th>Pre-Protocol</th>
<th>Post-Protocol</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>45 (46.4%)</td>
<td>17 (48.6%)</td>
<td>0.824</td>
</tr>
<tr>
<td>Female</td>
<td>52 (53.6%)</td>
<td>18 (51.4%)</td>
<td>0.824</td>
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<tr>
<td>Avg Age (years)</td>
<td>9.3</td>
<td>10.0</td>
<td>0.581</td>
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<tr>
<td>Avg LOS (hours)</td>
<td>55.48</td>
<td>46.39</td>
<td>0.014</td>
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<tr>
<td>POD1 discharge</td>
<td>21 (22%)</td>
<td>14 (40%)</td>
<td>0.040</td>
</tr>
<tr>
<td>30 day readmission</td>
<td>11 (11.3%)</td>
<td>2 (5.7%)</td>
<td>0.342</td>
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</tbody>
</table>
Figure 1. Average LOS after intradural Chiari decompression comparing pre-protocol group to post-protocol group.

Figure 2. Longitudinal representation of protocol initiation showing average LOS after intradural Chiari decompression comparing pre-protocol group to post-protocol group.
Results

• The estimated cost of one night on the pediatric neurosurgical intermediate floor is roughly $4500. This estimates overall cost of hospital bed per 100 patients for pre-protocol to be $1,040,000 compared to the cost of post-protocol to be $870,000.
Discussion

• By instituting a Chiari protocol, postoperative length of stay was significantly decreased, which resulted in decreased healthcare costs to the patients’ families while maintaining high quality and safe care.
Summary Points

• Simple interventions decreased length of stay
• Decreased length of stay results in decreased healthcare spending
• Similar postoperative plans can be targeted to other common or similar neurosurgical interventions to improve care and decrease healthcare costs