Can Patient Factors Predict Early Discharge After Pyloromyotomy?

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Abstract

Background: Because of increased pressure to shorten hospital stays, some advocate discharging patients with pyloric stenosis within four hours of pyloromyotomy. Because some patients have persistent emesis after pyloromyotomy and thus require prolonged hospitalization to prevent dehydration, it would be helpful to be able to predict which patients this will occur.

Methods: We conducted a retrospective review of pyloromyotomies performed within a six-year period to determine whether patient factors could predict length of hospitalization in patients with pyloric stenosis. The study outcome was time to discharge after pyloromyotomy, and the independent variables were patient’s age, patient’s weight, symptom duration, duration of preoperative hydration, and pyloric length and thickness. Patients were grouped on the basis of time of discharge after pyloromyotomy: <24, 24 to 48, and >48 hours.

Results: Of 230 patients, 58% were discharged within 24 hours, 31% between 24 and 48 hours, and 11% after 48 hours. Patients’ weight was inversely proportional to the postoperative length of hospitalization. Conversely, length of time required for preoperative hydration was directly proportional to the duration of postoperative hospitalization.

Conclusions: Patients with lower weight and a longer preoperative hydration period had an increased risk of prolonged hospitalization after pyloromyotomy.
hours. Patients’ weight was inversely proportional to the postoperative length of hospitalization. Conversely, the amount of time required for preoperative hydration was directly proportional to the duration of postoperative hospitalization.

**Discussion**

It would be useful to predict which patients can tolerate feedings and discharge early after pyloromyotomy and which patients cannot, so as to benefit from the significant cost savings and improved use of hospital beds that result from early discharge and yet prevent Emergency Department visits and readmission for some patients and anxiety for their parents. Previous studies have shown little change in the time to discharge on the basis of feeding regimen. Early feeding (less than four hours) after pyloromyotomy did not decrease the time to full feedings or the duration of postoperative hospitalization. Furthermore, ad libitum feedings also had little effect on time to full feedings and to discharge.

The most recent change in the treatment of pyloromyotomy has been the adoption of laparoscopic pyloromyotomy. A recent multi-institution, prospective, randomized trial by Hall et al. showed that the time to both full feedings and discharge was reduced by 10 hours with the laparoscopic technique. During the study period, the minimally invasive approach had just begun to be implemented, accounting for the low number of laparoscopic pyloromyotomies. However, we did find that the duration of preoperative hydration was directly correlated to duration of postoperative hospitalization. This finding suggests that the severity of dehydration is a more important factor than symptom duration with respect to the postoperative recovery period. Again, we are not advocating early discharge in patients with a short rehydration period, but we believe that this information is helpful in planning a prospective study to validate or refute this finding.

Our study had multiple limitations. First, it was a retrospective study. Several different surgeons performed the pyloromyotomies, and the specific technique used was based on each surgeon’s preference. During the study period, the minimally invasive approach had just begun to be implemented, accounting for the low number of laparoscopic pyloromyotomies. However, we do not believe that the use of different techniques had a major affect on recovery, as shown by multiple previous studies.

### Table 1. Effects of age, weight, symptom duration, duration of preoperative hydration, and pylorus size on duration of hospitalization after pyloromyotomy

<table>
<thead>
<tr>
<th>Variable</th>
<th>Duration of postoperative hospitalization</th>
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<tbody>
<tr>
<td></td>
<td>&lt;24 hours (n = 133)</td>
</tr>
<tr>
<td>Age (weeks)</td>
<td>5.3 ± 2.7</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>4.2 ± 0.8</td>
</tr>
<tr>
<td>Duration of symptoms (days)</td>
<td>8.1 ± 7.0</td>
</tr>
<tr>
<td>Duration of preoperative hydration (days)</td>
<td>0.7 ± 0.8</td>
</tr>
<tr>
<td>Pyloric length (mm)</td>
<td>19.8 ± 3.1</td>
</tr>
<tr>
<td>Pyloric width (mm)</td>
<td>4.9 ± 0.8</td>
</tr>
</tbody>
</table>

... the duration of postoperative hospitalization suggests that the severity of dehydration is a more important factor than symptom duration...

...
that the postoperative feeding regimen was not standardized. Again, we do not believe that this had a major impact on postoperative length of stay, as shown by previous studies. Furthermore, the discharge criterion was fairly standard: Patients had to be tolerating full feedings before discharge. Finally, only slightly more than half of the patients in our study were discharged within 24 hours. This group of patients would most likely be the best candidates for early discharge (after a four-hour observation period), with resumption of feedings at home. We found that this group of patients had a higher weight and shorter length of preoperative hydration than the other groups. Because these differences were small, at this time we believe that until a prospective study confirms these findings, patients should remain hospitalized until they tolerate full feedings after pyloromyotomy. We are now designing just such a prospective study.

**Disclosure Statement**

The author(s) have no conflicts of interest to disclose.

**Acknowledgment**

Katharine O’Moore-Klopf, ELS, of KOK Edit provided editorial assistance.

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**References**


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**Attending to the Nature and Constitution**

Medicine is an art, and attends to the nature and constitution of the patient, and has principles of action and reason in each case.

— Gorgias, Plato, 427-347 BCE, Greek philosopher and educator