Introduction

Duodenal atresia is a congenital obstruction of a portion of the lumen of the duodenum of the small intestine. It is one of the more common intestinal anomalies in pediatrics, occurring in approximately 0.9 infants per 10,000 live births worldwide. The majority of cases are isolated and with surgical correction, have an excellent prognosis. However, outlook is also determined by pre and post-operative management, along with the ability to identify and manage the thirty percent of infants with associated anomalies.

Target Users

- Any individuals who may be involved in the care of neonates with duodenal atresia, including: Neonatal Registered Nurses (RNs), Nurse Practitioners (NP), Physicians, Surgeons, Dieticians, Social Workers, and the NICU parent liaison.

Target Patient Population

- Neonates admitted to the NICU at the Hospital for Sick Children with a known or presumed diagnosis of uncomplicated duodenal atresia, and a gestational age of >36+0 weeks.
- Neonates born before 36+0 weeks’ gestational age, those anomalies associated duodenal atresia (trisomy 21, annular pancreas, additional intestinal atresia, etc.), and those with other complications that may affect their care trajectory, should not have their NICU hospitalization guided by this pathway.

Recommendations
<table>
<thead>
<tr>
<th>Goal</th>
<th>DAY 1 OF ADMISSION</th>
<th>DAY 2 - 9 POST ADMISSION (post-operative)</th>
<th>DAY 8 - 5 POST ADMISSION</th>
<th>DAY 5 - 7 POST ADMISSION AND BEYOND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Management</td>
<td>Physical examination to identify potential associated conditions</td>
<td>Initial parenteral nutrition (PN) if not already started</td>
<td>Assess and provide analagous as required</td>
<td>Monitor NET output (volume and color)</td>
</tr>
<tr>
<td>Fluid Management</td>
<td>Transfer to SickKids as soon as possible after birth</td>
<td>Fluid management as per NACU Pre and Post-operative Fluid Management Guide</td>
<td>Continue to monitor and replace NET drainage: 1.1 with 0.9% NaCl and KCO 20 meq/l</td>
<td>Monitor evolving pattern</td>
</tr>
<tr>
<td>Nursing</td>
<td>Total fluid intake 60-80 ml/kg/day</td>
<td>Monitor and replace NET drainage: 1.1 with 0.9% NaCl and KCO 20 meq/l</td>
<td>Assess fluid and electrolyte balance</td>
<td>Monitor feeding pattern</td>
</tr>
<tr>
<td>Nursing</td>
<td>Monitor and take care of infants</td>
<td>Determine timing of IGT PICC insertion</td>
<td>Assess parenteral nutrition</td>
<td>Assess feed readiness for enteral feeds</td>
</tr>
<tr>
<td>Childhood</td>
<td>Consider abdominal ultrasound if per surgical team</td>
<td>IGT PICC preferred prior to transfer to SICU</td>
<td>Administer antibiotics as per surgeon recommendation</td>
<td>Maintain PCC until:</td>
</tr>
<tr>
<td>Family Care</td>
<td>Introduce and review plan of care</td>
<td>Check blood culture result if complete</td>
<td>Assess incision and provide wound care</td>
<td>1. Full feeds established (ie. TPN 150-160ml/kg/day) 2. Steady weight gain demonstrated</td>
</tr>
<tr>
<td></td>
<td>Consult 5S General Surgery Resource Team to prepare patient for transfer and identify projected transfer day</td>
<td>Respiratory</td>
<td>Medical team completes Neonatal transfer Summary Note</td>
<td>Medical team completes Transfer for Transfer</td>
</tr>
<tr>
<td></td>
<td>Consult 5S General Surgery Resource Team to prepare patient for transfer and identify projected transfer day</td>
<td>Vascular access</td>
<td>Nursing completes Transfer to Transfer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete 5S tour and review transition plan</td>
<td></td>
<td>OT consult if feeding difficulties</td>
<td></td>
</tr>
</tbody>
</table>
• The pathway will be posted at the bedside of every neonate admitted with duodenal atresia to remind staff of pathway utilization.
• The Neonatal NP Group will advocate for pathway utilization and remind the team to review it daily during bedside rounds.

Facilitators to implementation

• Ability to better standardize the approach to care of infants with duodenal atresia to allow these patients and their families to experience a smoother hospitalization and transition out of intensive care.
• Parents will be engaged in the process of their child’s care by having the pathway posted at the bedside to facilitate discussion of care between parents and providers.

Barriers to implementation

• Adoption by staff in early stages due to lack of familiarity with the pathway. This will be overcome through education and promotion of the pathways use during bedside rounds daily.

Potential impacts

• Decreased length of stay in the NICU
• Improve patient safety through streamlined care
• Enhance the parent experience by providing some anticipatory guidance on the trajectory of their child's care.

Key outcome indicators for monitoring and audit purposes

• Length of stay, patient and parent experience

Evaluation of CPG

• This clinical care pathway will be evaluated on a monthly basis through the completion of audits on length of stay for this population. The target length of stay is 7 days. Any infants with duodenal atresia exceeding this length of stay will be evaluated and changes will be made to the pathway as necessary.
• The number of patient days will be reported through the hospital executive and the target length of stay will be adjusted based on those numbers.

Related Documents

Pain Management Guidelines for Post-operative Pain in the NICU

References

Guideline Group and Reviewers

Guideline Group Membership:

1. Neonatal Surgical Interest Group
2. Hazel Pleasants-Terashita, Nurse Practitioner, NICU
3. Stephanie Bernardo, Nurse Practitioner, NICU
4. Nicole Da Silva, Nurse Practitioner, NICU

Internal Reviewers:

1. Christopher Thomlinson, MD
2. Kyong Soon Lee, MD
3. Christine Elliott, RN Quality Leader
4. General Surgery Team
5. NICU NiQ Committee
6. Quality Management

Attachments:

Duodenal Atresia Pathway July18.pdf