MRNTP Practice Initiative

Improvement of Glucose Monitoring

The Maryland Regional Neonatal Transport Program’s (MRNTP) Hypoglycemia practice initiative has been completed. The goal was to improve glucose testing during the pre-transport phase of care per the S.T.A.B.L.E. curriculum. As is clinically realized, neonatal hypoglycemia is the most common metabolic problem. The critically ill neonate has a 30% chance of occurrence. In addition, hypoglycemia can be clinically asymptomatic. Glucose levels reach the physiologic nadir at 1-2 hours of life. Most importantly, undetected hypoglycemia can lead to neurodevelopmental sequela.

The staff of five referring hospitals completed the Pre-Transport Stabilization Self-Assessment Tool (PSSAT) as a prompted intervention for glucose testing. The participating hospitals were:

- Baltimore Washington Medical Center
- Carroll Hospital Center
- Memorial Hospital of Easton
- Upper Chesapeake Medical Center
- Maryland General Hospital

Per the S.T.A.B.L.E. guidelines, glucose testing should be done at three distinct points in time: at the time of the initial transport call (Time A), the time the transport team arrives at the referral facility (Time B) and the time the transport team departs from the facility (Time C). Prior to the onset of the project, an audit of the transport records for 134 neonates transported by the MRNTP in 2008 from all hospitals within the referral network was done. The audit revealed that glucose testing was completed in 70% of neonates at Time A, 65% at Time B and 11% at Time C. Given that unrecognized hypoglycemia can lead to neurodevelopmental sequela, there was a clinical need to increase the frequency of glucose testing.

After receiving Institutional Review Board (IRB) approval and signed letters of agreement from the participating hospitals, the referral staff was educated regarding the overall aim of the project and how to complete the PSSAT. Data collection commenced on August 15, 2010 and concluded on January 15, 2011. The following information was collected: DOB, primary diagnosis, birth weight, referral facility, and documentation of glucose values at Time A, B & C. PSSAT completion was tracked for the post-intervention group. Statistical analysis was done using a non-paired t-test, Chi Square and ANOVA. There was a statistically significant increase in the number of glucose tests documented in the post-intervention group versus the pre-intervention group.

Overall, the mean number of glucose tests increased from 1.8 tests per neonate to 2.4 tests per neonate. Please refer to the following table for mean glucose tests completed per facility (hospital data reported in random order):

<table>
<thead>
<tr>
<th>Glucose Tests Completed (Mean)</th>
<th>Hospital 1</th>
<th>Hospital 2</th>
<th>Hospital 3</th>
<th>Hospital 4</th>
<th>Hospital 5</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-PSSAT</td>
<td>0.5</td>
<td>1.5</td>
<td>1.0</td>
<td>1.0</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Post-PSSAT</td>
<td>2.0</td>
<td>2.5</td>
<td>2.0</td>
<td>2.0</td>
<td>2.5</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Please refer to the following table for mean glucose tests completed per facility (hospital data reported in random order):
The following two graphs illustrate the number of glucose tests completed on each neonate per facility prior to utilizing the PSSAT and after utilizing the PSSAT. Many more neonates received 3 glucose tests during the pre-transport phase of care after the PSSAT was implemented.

In summary, the PSSAT is effective as prompted intervention for increased testing frequency. The project promoted a higher level awareness of PSSAT, increased compliance with S.T.A.B.L.E. program for glucose testing and most importantly decreased incidence of unrecognized hypoglycemia.

References

This project will be published in an upcoming issue of *Advances in Neonatal Care*.

Thanks to all the staff of the participating hospitals.
Congratulations to MRNTP Staff

GRADUATIONS

- Beth Diehl-Svrjcek, DNP
  Johns Hopkins University-School of Nursing
  “Neonatal Glucose Testing via Prompted Intervention During the Pre-Transport Phase of Care.” (See above)

- Bronwyn Willet, MS
  University of Maryland-School of Nursing
  “Rapid Sequence Intubation in Neonates: an examination of practitioner attitudes and beliefs”. (September-October, 2010 newsletter)

- Mike Norton, RN
  Community College of Baltimore County (CCBC)
  Paramedic to RN Bridge Program

Welcome Chris Mekins

Chris is the newest member of the MRNTP medic staff. He is a graduate of Chesapeake H S. He is a volunteer firefighter with Anne Arundel County Fire Department. He is a diesel mechanic as well as an EMT. He joined the MRNTP staff in January of 2011. He enjoys boating, fishing, muscle cars, and motorcycles. He and his wife are the proud parents of a two year old daughter “Kristi”. A black Labrador named “Buddy” completes their family. Please join us in welcoming him to the transport team.

March of Dimes

On May 7, 2011, the MNTP participated in the Baltimore city based four mile walk to support the March of Dimes. This was the seventh year of team involvement. The March for Babies began in 1970 and is one of the oldest and most popular walking events in the nation. It is held in 1,100 communities across the nation. Funds generated support prenatal education efforts, education for parents of NICU graduates, smoking cessation classes for pregnant women and research initiatives to discover the genetic basis for many birth defects. The MRNTP displayed the specialty ambulances and equipment utilized to transport neonates from approximately 30 hospital facilities across the State of Maryland.

MRNTP Outreach Education

NRP Instructor- TBA
NRP
8.3.11- COMPACT Center
STABLE
7.25.11- AAMC
8.26.11- Location Pending
STABLE CARDIAC

For more info contact Webra Price-Douglas
wpdouglajhmi.edu