Abstract 165 Figure 2

Conclusion We conclude that caffeine has a strong association with Osteopenia of prematurity future studies are needed to confirm these findings and determine the lowest dose of caffeine needed to treat effectively apnea of prematurity without affecting calcium levels.

CAR-SEAT CHALLENGE IN INFANTS DISCHARGED FROM NNU


Aims Safe transportation in a car-seat of preterm and low birth weight infants following discharge from hospital has been a cause for concern for some years. With the car being the most common method of conveyance home and improvement in survival rates with earlier discharge of premature and low birth weight infants, we have seen a substantial increase in the number of smaller babies being transported in car-seats. Physiological monitoring studies have indicated that some preterm infants experience episodes of oxygen desaturations, apnoea, or bradycardia when seated in standard, poorly fitting car-seats.

Methods A simple infant car-seat challenge (ICSC) can be conducted prior to discharge to evaluate safety and avoid adverse outcomes from improper use. The ICSC assesses the infant’s observations for 90 minutes, particularly looking for apnoea (cessation in breathing), bradycardias or desaturations, while placed in their car-seat in the controlled hospital environment. For the purposes of this QIP the ICSC was classified as ‘failed’ if there were any profound bradycardias (<100 bpm), apnoeas or persistent desaturations <93% during the assessment.

Results

Demographics We conducted a prospective quality improvement project on the use of the car-seat safety challenge in 41 preterm (<35 weeks) and/or low birthweight (<2.5kg) infants who were medically fit for discharge from our level 2 neonatal unit at Northwick Park Hospital in North West London.

Results Of these 41 babies, we report on three cases (7.3%) of failed car-seat challenge. In particular we identified one case of significant bradycardia and apnoea, which was a near miss and could have led to a fatal outcome.

Abstract 196 Figure 1

Conclusion We concluded that the Infant car Seat Challenge is an important assessment that can be conducted prior to neonatal discharge. By simply utilising this simple measure we could potentially avoid fatal outcomes, such as death, from poorly fitting car seats.

AN AUDIT OF RED BLOOD CELL TRANSFUSION PRACTICE IN A TERTIARY NEONATAL INTENSIVE CARE UNIT

Sharmila Manivannan, Humayun Amjad, Speciality Registrar, ST4 North West Anglia NHS Foundation Trust; Speciality Trainee, ST2 Basildon University Hospital

Aims Red blood cell transfusions are common in Neonatal Intensive Care Units (NICU). An estimated 90% of Extremely...
Low Birth Weight and 58% of infants born at less than 32 weeks gestation receive blood transfusions during their stay in NICU. Blood transfusion aims to improve tissue oxygenation and cardiac output necessary to maintain oxygenation. The British Society for Haematology (BSH) ‘Transfusion for Fetuses, Neonates and Older Children’ guidelines (2016) recommend transfusion thresholds of haemoglobin for preterm neonates according to postnatal age and respiratory status of the neonate.

We aimed to audit the current practice on the use of red blood cell product in the regional tertiary NICU and to evaluate adherence to the BSH guidelines for top-up transfusion in infants < 32 weeks gestation. We sought to understand reasons for any non-compliance.

**Methods** Preterm infants born at less than 32 weeks gestation and admitted to the NICU during the period between 1st January and 30th April, 2019 were included. We sought data from Blood Transfusion Service via Information Management Services. We extracted data on birth gestation, birth weight and details of each transfusion including postnatal age at transfusion, pre-transfusion haemoglobin and respiratory status from the clinical records of each infant.

**Results** Fifty infants were included in our audit. Thirty-one (62%) infants received red blood cell transfusion. Of those who received transfusion, 12 (38%) infants were born at less than 26 weeks and 15 (48%) infants were born between 27 and 29 weeks; 17 (54%) had a birth weight less than 1 kg. These infants received between one and seven top-up transfusions, apart from 2 outliers who received 14 and 22 transfusions respectively. A total of 121 red blood cell transfusions were administered during the audit period. Fifty-eight (42.3%) of these met the transfusion thresholds in the BSH guidelines. Non-compliance occurred mostly from day 8 onwards, especially in ventilated and oxygen dependent babies (table 1), with pre-transfusion haemoglobin levels between 3 and 29 g/dL above the BSH transfusion thresholds (table 2). The reasons for non-compliance could not be fully ascertained in our audit as the documentation for the indications of top-up transfusion and volume of blood transfused were missing in most of the babies.

**Conclusion** There is increasing evidence to support a restrictive transfusion policy. We found that 52% of top-up red blood cell transfusions in the NICU were administered when pre-transfusion haemoglobin levels were above the BSH recommended transfusion threshold. We recommend a quality improvement cycle to increase awareness of the BSH guidelines, the use of the NHS Blood and Transplant ‘Blood components’ mobile application for accessible reference to the BSH guidelines. Improved documentation for the indication and clinical status post transfusion was recommended. We planned to re-audit once these recommendations were implemented.

**REFERENCES**

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**Abstract 300 Table 2** Range of Hemoglobin for babies transfused above guidelines thresholds (non-compliance)

<table>
<thead>
<tr>
<th>Postnatal age</th>
<th>Respiratory support</th>
<th>Guideline threshold</th>
<th>Range of pre transfusion haemoglobin</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 24 hours</td>
<td>Ventilated</td>
<td>&lt;12.0</td>
<td>12.2 - 12.3</td>
</tr>
<tr>
<td>Days 1 - 7</td>
<td>Ventilated</td>
<td>&lt;12.0</td>
<td>12.1 - 12.5</td>
</tr>
<tr>
<td>Days 8 - 14</td>
<td>On oxygen/NIV</td>
<td>&lt;10.0</td>
<td>10.0 - 10.9</td>
</tr>
<tr>
<td>Day 15 onwards</td>
<td>Ventilated</td>
<td>&lt;9.0</td>
<td>9.0 - 9.5</td>
</tr>
<tr>
<td>Day 15 onwards</td>
<td>Off oxygen</td>
<td>&lt;7.5</td>
<td>7.5 - 8.0</td>
</tr>
</tbody>
</table>

**Abstract 300 Table 1** Non-compliance with guidelines

<table>
<thead>
<tr>
<th>Postnatal age</th>
<th>Respiratory support</th>
<th>Guideline threshold</th>
<th>Range of pre transfusion haemoglobin</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 24 hours</td>
<td>1/1 (20%)</td>
<td>nil</td>
<td>nil</td>
</tr>
<tr>
<td>Days 1 - 7</td>
<td>5/7(71.5%)</td>
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<td>nil</td>
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<tr>
<td>Days 8 - 14</td>
<td>7/15(46.6%)</td>
<td>4/6 (66.6%)</td>
<td>nil</td>
</tr>
<tr>
<td>Day 15 onwards</td>
<td>10/27(37.0%)</td>
<td>31/142(21.8%)</td>
<td>30/32 (83.3%)</td>
</tr>
</tbody>
</table>

**A Study to Assess the Length of Hospital Stay in Pre-term Babies Under 34 Weeks Gestation**

Emily Findlay, Eilidh Cullen, Carolyn Abernethy. University of Glasgow

**Aims**
1. To evaluate the length of hospital stay in pre-term babies under 34 weeks gestation.
2. To determine the average length of hospital stay for babies ranging from 22 to 33+6 weeks gestation.
3. To investigate the frequency of common neonatal medical conditions within each age group.

**Methods** Data was obtained using BadgerNet, a neonatal database used throughout Scotland. The study population was pre-term babies born between 22+0 to 33+6 weeks gestation at the Princess Royal Maternity Hospital in Glasgow. The search was limited from 1st January 2016 to 1st May 2021 providing a study population of 727 babies.

Each baby was given a Study ID and information including sex, gestational age at birth and discharge, and any relevant health conditions was collected from discharge letters on BadgerNet. Six common neonatal conditions were investigated; chronic lung disease, necrotising enterocolitis, infection, patent