Aim: Necrotizing enterocolitis (NEC) is a serious condition with high morbidity and mortality that is most common in premature neonates. As survival rates of premature births are rising overall, so is the prevalence of NEC. Its physiology is complex and not yet fully understood, and this makes preventive care and early intervention difficult. This literature review aimed to investigate new technology and techniques with high-resolution physiological data and establish how they might be used to enable early intervention and predict surgical requirements when managing NEC patients.

Methods: A literature review was conducted on Pubmed, MedlineOvid, and TRIP databases using search terms: NEC, management, treatment, and surgery. The search was limited to English language and full articles. A scoping review of grey literature was also conducted in order to include research conducted on the use of high-resolution physiological data in other conditions.

Results: NEC is currently managed according to clinician’s judgment and Bell’s modified staging criteria, of which physiological observations hold significant weight. There is a lack of quantitative guidelines to support management decisions, which reflects the variability of NEC cases. By utilizing high-resolution physiological data, that complexity is reflected and can be analyzed quantitatively.

The benefit to this would be a definitive evidence-based management plan and the ability to predict the need for surgical intervention, potentially limiting morbidity and mortality. While the perceived advantages of utilizing high-resolution physiological data in NEC are made clear in many studies, there is a lack of research and data to support this. This type of data has been successfully utilized in other areas of neonatology and healthcare overall, and it is reasonable to extrapolate that it may also be successful when applied to NEC management.

Current research has determined that both variability and trends within physiological data are valuable when predicting outcomes. It has also been shown that increasing the number of variables and defined relationships between those variables is most likely to yield accurate outcomes; however, this increases the infrastructure and processing time required and is best accomplished when cognitive computing technology is applied.

With challenges surrounding the development of cognitive computing technology to support the analysis and pattern recognition of NEC data, combined with the lack of established databases, there are significant barriers that still need to be overcome in order to fully investigate and realize the potential of high-resolution physiological data.

Conclusion: High-resolution physiological data is a relatively new medium to work with and requires extensive infrastructure and processing before yielding tangible outcomes. Early studies on the use of high-resolution physiological data in neonatal conditions reflect this potential. Due to the complexity and variability of NEC this detailed insight is particularly valuable, however further research as proof of concept is needed.


Aim: Cardiovascular compromise is common in neonates with Hypoxic Ischaemic Encephalopathy (HIE) and may require a structured approach to management. There is increasing use of targeted neonatal echocardiography (TNE) to assess function and guide management in this condition. We aimed to determine the current practices in managing cardiovascular dysfunction in HIE, including TNE and choice of therapeutic agent for cardiovascular compromise.

Methods: A survey of 10 questions was created using www.surveymonkey.com and sent to every level 3 NICU who performed therapeutic hypothermia for HIE. The survey was sent to clinical leads of each unit and senior consultant colleagues. Results were compiled and analysed into Excel (2019).

Results: 47 of 60 level 3 neonatal intensive care in the UK (78%) responded to the survey. There was a widespread response across every country within the UK. Management of cardiovascular dysfunction varied across units with Dopamine, a fluid bolus of 0.9% Saline, and Dobutamine as the most common first line therapies (figure 1). Dopamine and Saline may be suboptimal therapies in a hypoxic insult to the myocardium, increasing peripheral vascular resistance and volume overload respectively and resulting in ventricular strain. Use of TNE varied used routinely in 70% of units but as standard only in 11%. Units that routinely used TNE showed more utilisation of targeted therapies and less Dopamine and 0.9% Saline. The majority (60%) did not have a guideline addressing the different approaches required in cardiovascular dysfunction following hypoxic insult.

Abstract 1180 Figure 1 First line treatment for CVS dysfunction

Conclusion: Hemodynamic management for infants with HIE varied across the country. A small number of centres based
their choice of agent on findings from neonatal echocardiography.

**Abstract 1203 Table 1**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean (SD)</th>
<th>Median (IQR)</th>
<th>95% CI</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUS score</td>
<td>10.6 (1.2)</td>
<td>10.4 (10.0)</td>
<td>9.4-11.6</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Conclusion** • This study demonstrates that LUS scoring can be used as a sonographic indicator of hsPDA. However, given significant limitations – further studies with a larger population size are required.