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Do neonatal hypoglycaemia guidelines in Australia and New Zealand facilitate breast feeding?

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ABSTRACT

Objective: to establish how well postnatal ward neonatal hypoglycaemia guidelines facilitate breast feeding and adhere to UNICEF UK Baby Friendly Initiative (BFI) recommendations, and to compare compliance with different recommendations.
Design: an appraisal of guidelines obtained via email survey using a UNICEF UK BFI checklist tool. Information about Baby Friendly Health/Hospital Initiative (BFHI) accreditation status was obtained by email questionnaire.
Setting: tertiary neonatal centres in Australia and New Zealand.
Participants: 22 guidelines were returned from 23 centres eligible to participate.
Findings: guidelines generally scored poorly. On a scale ranging from 31 to 124 of overall guideline quality, the median score was 71. On a scale of 9 to 36 for adherence to recommendations to facilitate breast feeding, the median guideline score was 20. Compliance with the recommendation to promote skin-to-skin contact and early breast feeding was poor across all centres, achieving a score of 59 out of 88. Nine of 22 guidelines mentioned skin-to-skin contact after birth and 14 advised feeding within one hour of birth. The recommendation about discussing artificial milk supplementation with parents received a score of 44 out of 88. Fourteen guidelines listed Large for Gestational Age (LGA) infants to be at risk of hypoglycaemia. Few guidelines included up-to-date references or flowcharts.
Key conclusions: guidelines need to recommend early skin-to-skin contact and discussion with parents before artificial milk supplementation. Guidelines suggest LGA neonates are being screened unnecessarily.
Implications for practice: guidelines need constant revision as evidence for best practice expands. The UNICEF UK BFI checklist provides a readily available quality improvement tool.

Introduction

Neonatal hypoglycaemia is associated with poor neuro-developmental outcomes, brain damage and death (Cornblath and Reisner, 1965; Tam et al., 2012; Boardman et al., 2013). Guidelines to identify and treat neonatal hypoglycaemia are recommended to reduce risk. Clinical guidelines facilitate consistent practice and the translation of research findings into patient care (Bhutta et al., 2013) and may improve clinical outcomes (Yeh et al., 2013). However, there is limited evidence on optimal management of hypoglycaemia and the impact of treatment on outcomes (Boluyt et al., 2006; Hay et al., 2009; Rozance and Hay, 2012). Hypoglycaemia screening can unnecessarily increase mother infant separation and compromise breast feeding if not done with care and multidisciplinary collaboration. Clinical guidelines need to balance harms and benefits of hypoglycaemia screening to prevent a rare but devastating event whilst minimising over-intervention in healthy babies. The Baby Friendly Initiative (BFI) promotes evidence-based practices to support successful breast feeding (World Health Organization, 1998). To facilitate breast feeding UNICEF UK BFI has developed a checklist that provides guidance

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on the development of hypoglycaemia guidelines (UNICEF, 2013) (Appendix A). It is unknown whether this checklist is used.

Including breast feeding and hypoglycaemia management together is important. Though breast-fed babies have lower blood glucose levels than artificial milk-fed babies (Hawdon et al., 1992), breastfeeding facilitates counter-regulation to low blood glucose levels (Ward Platt and Deshpande, 2005), enabling newborns to utilise alternative substrates to glucose (de Rooy and Hawdon, 2002) and preventing cerebral energy failure.

There are a number of expert recommendations on how to practice screening and management of neonatal hypoglycaemia (Williams, 1997; Aziz and Dancey, 2004; Hewitt et al., 2005; Jain et al., 2010; Adamkin, 2011; Hawdon, 2011), including recommendations on breast feeding (Hawdon et al., 1993; Eidelman, 2001; Ashmore, 2002; Chantry, 2005; Wight, 2006) and other methods of prevention (Joanna Briggs Institute, 2007). There are also previous surveys describing how different centres define hypoglycaemia (Koh et al., 1988; Bonacruz et al., 1996; Koh and Vong, 1996) and identify and treat hypoglycaemia according to guidelines (Harris et al., 2009). However there is little published research assessing whether actual clinical practice guidelines adhere to the BFHI recommendations for guideline content and facilitate breast feeding.

Therefore the aim of this study was to survey tertiary hospitals with neonatal units in Australia and New Zealand on their hypoglycaemia guidelines for term neonates on postnatal wards. Objectives included using the UNICEF UK BFI checklist tool to assess how well the guidelines fit BFI recommendations overall and specifically whether they encourage early and frequent breast feeding, are structured around breastfeeding times and identify appropriate neonates as at risk for hypoglycaemia. We also sought to assess how up-to-date and user-friendly the guidelines are, the blood glucose levels at which hypoglycaemia is defined and how and when blood glucose levels are measured.

Methods

A survey of neonatal hypoglycaemia management in tertiary neonatal hospitals in Australia and New Zealand was conducted from March to May 2012, which included obtaining hypoglycaemia guidelines. Management on the postnatal ward, rather than nursery, was assessed because newborns admitted to the nursery are observed closely and so unlikely to have an unrecognised episode of hypoglycaemia and because keeping mothers and their well babies, who may experience hypoglycaemia, together is a priority. Tertiary centres were chosen because they tend to lead practice.

Data collection

The Heads of Department of all 23 tertiary neonatal units in the Australian and New Zealand Neonatal Network with postnatal wards were contacted by email. Contact details were obtained from the 2011 Directory of Neonatal Intensive Care Units within Australia and New Zealand. The Head of Department was requested to reply with a copy of the unit's hypoglycaemia guideline and a completed questionnaire (Appendix 2). The questionnaire was developed following a review of the literature and input from experienced neonatologists. If no response was received within approximately two weeks another neonatologist from that unit was emailed, and so on until a response was received. All data were handled confidentially.

Data analysis

Information about hypoglycaemia screening from guidelines received was coded according to the recently published UNICEF UK BFI neonatal hypoglycaemia checklist (UNICEF, 2013) (Appendix 1). For each of the 31 'essential points' (29 essential points are numbered but points 23 and 24 are repeated), a score of 4, 3, 2 or 1 was given. 4 out of 4 represented 'completely covered', 3 represented 'partially covered', 2 represented 'ambiguous', and 1 represented 'not covered'. Before assessing the guidelines, criteria for allocating each score to each essential point were decided. For example for 'essential point' 12 on skin-to-skin contact and early breast feeding, a score of 4 indicated the guideline mentioned both skin-to-skin contact and breast feeding within one hour after birth, a score of 3 indicated skin-to-skin contact and 'early' breast feeding without stating feeding should occur within one hour after birth, a score of 2 indicated mention of early breast feeding or skin-to-skin but not both and a score of 1 indicated that neither early breast feeding nor skin-to-skin contact was mentioned. Each of the 22 guidelines was thus given an overall quality score between 31 (1×31) and 124 (4×31). They were also given a score between 9 (1×9) and 36 (4×9) for compliance to recommended practices to support breast feeding, essential points 12–20.

To decide which of the 'essential points' were followed by the most guidelines, each 'essential point' was also given a score ranging between 22 (the minimum score of 1 for all 22 guidelines) and 88 (4×22). Additional information not covered in sufficient detail by the UNICEF UK BFI appraisal criteria but deemed relevant, for example whether centres screened wasted babies, was also obtained from the guidelines and analysed. Descriptive statistics were used to present data from the 22 guidelines.

As guidelines were thought to reflect postnatal ward practice more accurately than the neonatologist survey responses (which sometimes differed), the only information utilised from the survey was BFHI accreditation status.

Ethics

Participation in the survey was voluntary. The Human Research Ethics Committee of Royal Prince Alfred Hospital (a tertiary maternity hospital in Sydney) reviewed the project and had no ethical objections to this research.

Findings

All 23 neonatal units participated in the study (100%) including 18 from Australia and five from New Zealand (NZ); we received 22 hypoglycaemia guidelines and 21 completed surveys (the remaining two respondents requesting that we complete the survey using their guidelines). Two centres submitted the same state-based guideline, which was counted twice in analysis to represent each centre equally. Two survey responses were received from two centres and the first survey returned was used for analysis.

Overall guideline quality based on UNICEF UK BFI checklist

Scores for each guideline are listed in Table 1. The highest possible score was 124 and the lowest 31. The highest actual guideline score was 90 and the lowest 46. The median guideline score was 71. The median score was 71 for Australian guidelines and 72.5 for NZ guidelines.

Compliance scores with the various recommendations in the checklist are listed in Table 2. The highest possible score for an individual recommendation was 88 and the lowest was 22.

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