

September 21st, 2023 11:00 - 12:30

PARALLEL SESSION 17 - EFCNI 3

ID 908. EARLY AND EXCLUSIVE ENTERAL NUTRITION IN VERY PRETERM INFANTS: A RANDOMIZED TRIAL

Doctor Jacqueline Razzaghy¹, Doctor Vivek Shukla¹, Doctor Emily Gunawan¹, Mrs. Audrey Reeves¹, Ms. Kelly Nguyen¹, **Doctor Ariel Alejandro Salas**¹

¹University of Alabama at Birmingham, Birmingham, United States

Background

Feeding preterm infants slowly is a common practice, but early and exclusive enteral nutrition could improve growth outcomes and reduce hospitalization costs.

Methods

This parallel group randomized controlled trial included 102 infants born very preterm (28 to 32 weeks of gestation). Infants randomized to the intervention group received 60–80 ml/kg/day of either maternal or donor milk within the first 36 hours after birth. The control group received 20–30 ml/kg/day (standard trophic feeding volumes). The primary outcome was the number of full enteral feeding days (>150 ml/kg/day) within the first 2 postnatal weeks. All study participants underwent a complete growth and body composition assessment at end of the first 2 postnatal weeks. Stool samples were also collected around 2 weeks after birth.

Results

The mean birthweight was 1477 ± 334 g. Half of the infants were male, and 44% were black. Early and exclusive enteral nutrition within the first 36 hours after birth increased the number of full enteral feeding days (9 vs. 8 days; $p < 0.01$) and fat-free

mass-for-age z-scores (-1.5 vs. -2.0 ; $p= 0.02$). No differences in microbiome diversity were found, but the intervention group had greater length-for-age z-scores (-0.9 vs. -1.5) and lower hospitalization costs (mean difference: $-\$28,754$).

Conclusions

In infants born very preterm, early and exclusive enteral nutrition increases the number of full enteral feeding days. This feeding practice may also improve fat-free mass accretion, increase length, and reduce hospitalization costs.

The authors have no conflicts of interest relevant to this article to disclose. Dr. Salas patented an instrumented feeding bottle and received consulting fees for participation in advisory board meetings.

ID 1025. Implementation of nutritional care bundle within a neonatal unit in a stepwise, graduated approach using QI methodology.

Doctor Anandini Arumugam¹, Miss Corrina Proctor¹, Miss Francesca Brewer¹, Dr Arthi Lakshmanan¹

¹University Hospital Coventry and Warwickshire, Coventry, United Kingdom

Introduction

Preterm nutritional care makes up several components of the Perinatal Excellence to Reduce Injury in Premature Birth (PERIPrem) bundle of care, improving mortality and brain injury in preterm babies. British Association of Perinatal Medicine (BAPM) recommends that all preterm babies should ideally receive buccal colostrum/expressed breast milk (EBM) within 6 hours of birth, alongside receiving parenteral nutrition (PN) within 8 hours of birth and to have their first dose of probiotics with their first non-nutritive feed as soon as possible after birth.

Methods

XPRES is a team-based QI project comprising key stakeholders from both neonatal and maternity teams – including medical, nursing, advance nurse practitioners and infant feeding leads. We have involved parents at several stages of our QI PDSA cycles to guide successful implementation.

Using QI methodology, the XPRES team has now gone through 7 PDSA cycles. Initially focusing on improving time of preterm babies receiving 1st buccal colostrum/EBM, the XPRES group has now got 5 nutritional arms to our QI group: buccal colostrum, donor human milk (DHM), enteral feeds, probiotics, parenteral nutrition (PN).

With each advancing PDSA cycle, we gradually added different interventions including educational tools, guidelines, training packages, as well as parental surveys to help improve outcomes across the five arms. At each cycle, both quantitative and qualitative data was collected from parental surveys, BadgerNet data, prospective and retrospective ward based data collection.

Results

Table 1 below highlights what was achieved during each PDSA cycle. It is evident there is vast improvement in most areas of the various arms of the nutritional care bundle.

Discussion

Our QI group highlights the experience of a tertiary neonatal care centre to achieving a successful nutritional care bundle optimising preterm nutrition. The XPRES QI group took a stepwise approach, engaging key stakeholders at each stage, allowing the unit to personalise interventions, and set targeted goals thereby maximising success at each cycle – this is in an effort to work towards achieving an ideal nutritional care bundle. The next stage would be to measure overall success of the five arms of the nutritional care bundle including NNAP measures like NEC rates .



PDSA cycle	Outcome measured	Interventions	Results
PDSA 1	Improving time of receiving 1 st buccal colostrum	Staff education, Patient & staff questionnaires	<ul style="list-style-type: none"> Overall improvement in time of 1st buccal colostrum to baby by 7.6 hours across all gestation by end of 3rd PDSA cycle. 16.8 hour overall reduction in <28 weeker group.
PDSA 2	Improving time of receiving 1 st buccal colostrum	XPRES packs	
PDSA 3	Improving time of receiving 1 st buccal colostrum	XPRES trolley & Maternity boxes	
PDSA 4	Improving time of receiving 1 st buccal colostrum	Education and raising awareness Involvement of maternity teams and parents as stakeholders Presentation in MatNeoSip, maternity QIPS, Maternity safety champions meeting	<ul style="list-style-type: none"> Time of administration of first buccal colostrum halved from 18 hours to 9.9 hours across all age groups.
	Nutritional guidelines Introduced Probiotics	Hypoglycaemia, Enteral feeding, Probiotics guidelines and implementation	
PDSA 5	Introduced DHM	Education, Parental surveys, Road shows PN & Enteral feeding guideline	<ul style="list-style-type: none"> 35% of babies <32 weeks received 1st buccal colostrum within 6 hours. 35% of babies whose parents consented to DHM received it. 63% on EBM at discharge.
	Holistic nutritional care	EBM, TPN, DHM, probiotics, enteral feed at discharge	
PDSA 6	Review of current practice	Evidence based recommendations at maternity and neonatal roadshows to raise awareness and optimise preterm nutrition	<ul style="list-style-type: none"> 80% of babies <32weeks received 1st buccal colostrum within 6hours of birth. 78% received DHM following consent. 57% on regular EBM by day2, and 80% by day 14. 85% on EBM/breastfeeding at discharge.
PDSA 7	Improving PN delivery	PN toolkit and staff training	Current PDSA cycle in progress.
	Enteral feeding	Guidelines aligned to ESPHAGN recommendations	
	Nutritional care	Continue educational roadshows to maintain standards and awareness	

Table 1 – highlights the stages of the PDSA cycles, as well as the interventions and outcomes achieved at each stage

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None declared