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ORIGINAL ARTICLE

Very early feeding in stable small for gestational age preterm infants: a randomized clinical trial☆

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Abstract
Objective: To examine the effect of initiating very early feeding on time-to-reach full feeding in stable, small for gestational age (SGA) preterm infants.
Method: Preterm infants with gestational age below 37 weeks and birth weight below the 10th percentile were randomly allocated to a very early (within 24 hours of birth) feeding regimen or delayed (after 24 hours of birth) feeding. All infants had *in utero* evidence of absent or reverse diastolic flow. Infants unable to start early feeding were excluded. Time-to-reach full feeding, feeding progression, and related morbidity were compared. Electrogastrography (EGG) was used to measure pre- and postprandial gastric motility on the second and seventh day after feeding initiation.
Results: Sixty infants were included in the study, 30 in each group. Infants included in the very early feeding regimen achieved full enteral feeding sooner than controls (98 ± 80-157 *vs.* 172 ± 123-261 hours of age, respectively; p = 0.004) and were discharged home earlier (p = 0.04). No necrotizing enterocolitis (NEC) was documented in both study groups. Gastric motility was improved at day seven after feeding initiation in both study groups, with no difference between groups.
Conclusions: Stable SGA preterm infants on a very early feeding regimen achieved full enteral feeding and were discharged home significantly earlier than those on a delayed regimen, with no excess morbidity.

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PALAVRAS-CHAVE
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Nutrição;
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Neonatos com muito baixo peso ao nascer

Nutrição precoce de neonatos prematuros estáveis e pequenos para a idade gestacional: um ensaio clínico randomizado

Resumo

Objetivo: Examinar o efeito da nutrição precoce sobre o tempo para atingir a nutrição completa em neonatos prematuros (PIG) estáveis pequenos para a idade gestacional.

Método: Os neonatos prematuros com idade gestacional inferior a 37 semanas e peso ao nascer inferior a 10% foram alocados aleatoriamente para um regime de nutrição precoce (nas primeiras 24 horas de vida) ou tardia (após as primeiras 24 horas de vida). Todos os neonatos apresentaram uma evidência intrauterina de fluxo diastólico reverso ou ausente. Os neonatos incapazes de iniciar uma nutrição precoce foram excluídos. O tempo para a alimentação completa, a progressão da nutrição e morbidez correspondente foram comparados. A eletrogastrografia (EGG) foi utilizada para mensurar a motilidade gástrica pré e pós-prandial no segundo e no sétimo dias após o início da nutrição.

Resultados: Foram incluídos 60 neonatos no estudo, sendo 30 em cada grupo. Os neonatos incluídos no regime de nutrição precoce atingiram a nutrição enteral completa antes dos neonatos do grupo de controle (98 ± 80-157 em comparação a 172 ± 1 23-261 horas de idade, respectivamente; p = 0,004) e recebiam alta hospitalar antes (p = 0,04). Nenhuma enterocolite necrosante (ECN) foi comprovada em ambos os grupos de estudo. A motilidade gástrica melhorou no sétimo dia após o início da nutrição em ambos os grupos de estudo, sem diferença entre eles.

Conclusões: Os neonatos prematuros PIG estáveis em regime de nutrição precoce atingiram alimentação enteral completa e receberam alta hospitalar significativamente antes que aqueles em regime de nutrição tardio, sem morbidez excedente.

Introduction

Early enteral feeding in very low birth weight (VLBW) infants is associated with reduced incidence of sepsis, improved milk tolerance, postnatal growth, and shorter hospital stay.[1,2] However, based on available data, a word of caution about early initiation and advancement of enteral feeding in VLBW infants was issued, especially for small for gestational age (SGA) infants, arguing that it may predispose them to feeding intolerance and greater risk of necrotizing enterocolitis (NEC).[3] The incidence of NEC was found to be increased in SGA infants[4,5] who exhibited abnormal fetal umbilical artery Doppler velocities.[6] These abnormalities of the splanchnic blood flow during fetal life persist postnatally and only partial recovery is achieved in the first week after birth.[7] For these reasons, the 1999 survey of feeding practices for SGA infants suggested the possibility of delaying feeding from one to seven days after birth (unpublished data: Dorling JS, McClure RJ. Survey of feeding practices for infants with AREDFV in the Eastern Region. Eastern Region Neonatal Conference, October, 1999).

Several authors have investigated early and delayed feeding of SGA infants, born after absent or reverse diastolic flow velocity in the umbilical artery based on intra-uterine Doppler. They found no differences in the incidence of NEC or feeding intolerance.[8,9] No advantage in withholding feeding in SGA preterm infants was shown in the 2011 updated Cochrane review (n = 600).[10] The effect of early (day two) versus delayed (day six) feeding on time-to-full enteral feeding and NEC incidence was examined in another recent multicenter trial of SGA preterm infants with abnormal Doppler fetal umbilical flow. The data showed that infants who were fed from postnatal day two achieved full feeding faster than those who were fed on day six (median age 18 *vs.* 21 days, respectively). This effect was significant only in stable preterm infants with a gestational age of 29 weeks or more. No difference was observed in the incidence of NEC.[11] The effect of earlier full feeding was also associated with shorter need for parenteral nutrition and lower incidence of cholestatic jaundice; no advantage of weight gain or earlier discharge was reported.

The present study aimed to evaluate very early feeding, starting less than 24 hours after birth, in stable SGA preterm infants, and to determine whether this regimen of feeding, as opposed to delayed feeding, is associated with earlier full enteral feeding and no excess morbidity. Electrogastrography (EGG) was used to further understand the effect of very early feeding regimen on the gastric motility of stable SGA preterm infants.

Methods

Study population

A total of 313 preterm infants admitted to the neonatal intensive care unit (NICU) between February 1, 2009 and November 26, 2011 were screened for this randomized, prospective study. Inclusion criteria were clinically and hemodynamically stable conditions, a birth weight less than the 10th percentile of median birth weight standards, as defined by the Israel National Data Registry,[12] and