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EARLY AGGRESSIVE NUTRITION AND NEURODEVELOPMENTAL OUTCOMES IN VERY LOW BIRTH WEIGHT INFANTS

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Objective

Early aggressive nutrition (EAN) has been practiced as the strategy to improve growth outcomes in very low birth weight (VLBW) infants for years in the neonatal care unit (NICU) of Children's Hospital of China Medical University (CHOCMU). The present study is to determine the association between EAN, extrauterine growth restriction (EUGR), and neurodevelopmental outcome in VLBW infants.

Methods

The subjects consisted of infants admitted to our NICU whose gestational age was ≦ 32 weeks and birth weight ≦ 1500g from two period. One is the conventional nutrition (CN) period (the year of 2008-2009), and the other is the EAN period (the year of 2011-2012). EUGR is defined as body weight recorded in the 36–40 week postmenstrual age (PMA) period below the 10th percentile of the standard normal distribution. Neurodevelopmental assessments were performed at 6 and 12 months corrected age. Logistic regression models were constructed to evaluate the independent outcomes of Mental Development Index of <70 and Psychomotor Development Index of <70.

Results

During the two study periods, 155 and 219 subjects was enrolled, respectively. There was no difference in the demographic data, major morbidities in preterm babies, and sequelas related to early parenteral nutrition usage between the two groups. The incidence of EUGR is 62.5 % and 38.8 % in CN and EAN period. Aggressive nutrition is a significant factor for decreasing EUGR incidence in our study. There was significant decreased incidence of motor development delay in the EAN period.

Conclusions

Our data revealed that early aggressive nutrition is helpful in the decreasing of EUGR incidence of VLBW infants. This is a promising strategy to improve neurologic outcome in the very preterm infants.

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CLINICAL PRESENTATIONS AND OUTCOMES OF SMALL FOR GESTATIONAL AGE VERY PRETERM INFANTS MAY DEPEND ON HOW SMALL THEY ARE

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Objective

The outcomes of small for gestational age (SGA) infants especially in very low birth weight (VLBW) neonates are controversial. The severity of SGA may affect clinical presentations and outcomes in this group of patients. The aim of this study was to identify the pregnancy risk factors, clinical presentations and outcomes for a cohort of very preterm infants with SGA in a tertiary neonatal care center in northern Taiwan. The impact of the severity of SGA was also evaluated.

Methods

We performed a retrospective collection of infants with VLBW and gestational age ≦30 weeks who were born in a tertiary referral center from January 1, 2007 to December ,31, 2012. The enrolled SGA infants were distinguished to Group A (birth weight<5th percentile) and Group B (birth weight between 5th-10th percentile). We also selected double numbers of similar demographic VLBW appropriate for gestational age (AGA) infants randomized as control group (Group C). We investigated and compared these 3 groups for the clinical characteristics and outcomes.

Results

A total of 77 SGA patients were enrolled in this study. They were distinguished to Group A (n= 49) and Group B (n=28). We selected 154 AGA patients as control group (Group C). The 3 groups had similar gestational age and gender distinction. Both Group A and B had significant difference with Group C in initial platelet count. But we only found significant difference between Group A and Group C in initial WBC count and absolute neutrophil count. SGA infants had higher prevalence of fetal distress before delivery. However, only Group A had higher prevalence of maternal placenta dysfunction, maternal pre-eclampsia, hypotension, hypoglycemia, meconium obstruction, sepsis and mortality than Group C. In the follow-up evaluation at 2 years of age, both Group A and B had worse growth compared with Group C. Among infants tested by Bayley Scales of Infant Development II, infants in Group A had significant lower Psychomotor Development Index (PDI) score than Group C. And Group B had similar developmental performance with Group C.

Conclusions

Larger SGA infants had similar perinatal characteristics and short-term outcome with AGA infants, while extremely SGA infants had different characteristics and outcomes compared with AGA infants. We should pay more attention to extremely SGA group among very preterm infants.