

NEURODEVELOPMENT

Early growth and neurodevelopmental outcome in very preterm infants: impact of gender.

Background

Nutrition in the neonatal unit is impacting the neurological outcome of very preterm infants. Male preterms are known to be more likely to suffer neonatal morbidity and adverse neurological outcomes. Anne Frondas-Chauty and colleagues from Nantes, FR hypothesized, that growth during hospitalisation would impact neurological outcome differently, depending on infant gender.

Summary of results

Infants < 33 weeks born 2003 and 31 December 2009 qualified for the study. Growth during neonatal hospitalisation was assessed by the change in weight z-score between birth and discharge, and infants were ranked into 5 classes, depending on their change in z-score. The main outcome criterion was neurodevelopmental outcome at 2 years of corrected age. OR for non-optimal outcome was calculated for each gender, and compared between genders.

Gender and early growth interacted, ($p=0.02$). Moreover when change in weight z-score varied from <-2 to $(-0.50$ to $-0.01)$, adjusted OR for non-optimal outcome varied from 3.2 (1.5–6.8) to 2.2 (1.2–4.1) in boys versus 1.8 (0.7–4.2) to 0.95 (0.4–1.9) in girls. For each class, the OR was significantly higher in boys.

Strength

The study was population based in a large cohort of very preterm infants, with the same neurological assessment for boys and girls. The gender-specific sensitivity of early growth therefore is a robust finding, consistent with gender-specific differences already described for other neonatal events.

Limitations

Limitations of this study include its observational character, the drop-out rate of 29% and defining a non-optimal neurological assessment with neuromotor and psychomotor evaluation at 2 years of corrected age, an age at which neither language nor fine motor disability and praxis ability can be examined.

Practical conclusion

In very preterm infants, male neurodevelopment appears to be much more sensitive than female to poor postnatal growth. The findings suggest that when conducting randomised studies in neonatology, it may be necessary to stratify randomisation according to infant gender. In clinical practice, growth in the neonatal intensive care unit needs to be followed with intense scrutiny, particularly in male infants.

A Frondas-Chauty et al., "Early Growth and Neurodevelopmental Outcome in Very Preterm Infants: Impact of Gender.," *Arch Dis Child Fetal Neonatal Ed* 99, no. 5 (September 2014): F366–72, doi:10.1136/archdischild-2013-305464.

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