

**Lower versus Traditional Treatment Threshold for Neonatal Hypoglycemia**

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**Background & Objectives:** Healthy neonates at Risk (SGA/LGA/Late Preterm/Infant of Diabetic Mother) are generally screened for hypoglycemia. However, there is no consensus on a treatment threshold that is safe but also avoids overtreatment.

**Methods:** It was a multicentric, randomized, noninferiority trial involving 689 healthy neonates born at 35 weeks at risk of hypoglycemia. The study compared two threshold values for treatment of asymptomatic moderate hypoglycemia. Lower threshold (treatment administered at a glucose concentration of <36 mg/dl) versus traditional threshold (treatment at a glucose concentration of <47 mg/dl) with respect to psychomotor development at 18 months, assessed with the Bayley Scales of Infant and Toddler Development (BSID-III). Feeding was ensured, or intravenous glucose was administered was also started in asymptomatic hypoglycemic neonates. The glucose concentration was checked 1 hour after each change and carbohydrate intake was modified accordingly. Blood sugar monitoring was stopped if at least two consecutive glucose concentrations  $\geq 47$  mg/dl without the need for tube feeding or intravenous glucose administration.

# ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



## Neonatal Hypoglycemia: How low is too low & for how long?

**Results:** Overall, 82.5 % of infants enrolled in the low threshold, and 86.5 % enrolled in the traditional threshold were included in the analysis. There was no statistical difference in the mean glucose concentration between the two groups. Bayley Scales of Infant and Toddler Development (BSID-III) at 18 months for cognitive and motor outcome scores were similar in the two groups. However, proportions of infants with hypoglycemia and frequency of hypoglycemia was more common in lower threshold group.

**Conclusions:** In otherwise healthy newborns with asymptomatic moderate hypoglycemia, a lower glucose treatment threshold (36 mg/dl) was non-inferior to a traditional threshold (47 mg /dl) for psychomotor development at 18 months.

**Key message:** A consistent definition for neonatal hypoglycemia in the first 48 h of life continues to elude us. However, 18 months follow up is less likely to detect differences in neurodevelopmental outcomes; therefore, most follow-up studies focus on 24 months of age or higher.

## EXPERT COMMENT



"Lower blood glucose values are not uncommon in the healthy neonate immediately after birth. However, minority of neonates experience a more prolonged and severe hypoglycemia, usually associated with specific risk factors like late Preterm, SGA, LGA & IDM. But the question of **How low is too low and for how long** is still a debatable issue."

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With warm regards,

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### Reference:

van Kempen AAMW, Eskes PF, Nuytemans DHGM, et al. Lower versus Traditional Treatment Threshold for Neonatal Hypoglycemia. N Engl J Med. 2020;382(6):534-544. doi:10.1056/NEJMoa1905593