Asymptomatic hypoglycemia among preterm newborns: A cross-sectional analysis

Shani S. Salum[1,2,3,4], Florence S. Kalabamu[1], Maulidi R. Fataki[1], Salha A. Omary[1,3,4,5], Ummulkheir H. Mohammed[1,3,4,6], Hillary A. Kizwi[7], Kelvin M. Leshabari[3,4,8]

[1]Deptment of Pediatrics/Child Health, Hubert Kairuki Memorial University, Dar es Salaam, Tanzania,

[2]Dept of Pediatrics/Child Health, Muhimbili National Hospital (Mloganzila), Dar es Salaam, Tanzania,

[3]Ageing Initiative in Sub-Saharan Africa (AISA) Research Group, Registered Trustees of Ultimate Family Healthcare, Dar es Salaam, Tanzania,

[4]Neonatal Network (NeoN), Registered Trustees of Ultimate Family Healthcare, Dar es Salaam, Tanzania

[5]Depatment of Pediatrics/Child health, Temeke Reginal Referral hospital, Dar Es Salaam, Tanzania

[6]Department of Pediatrics/Child health, Msambweni County Referral Hospital, Msambweni-Kwale, Kenya

[7]Depatment of Obstetrics/Gynaecology, Muhimbili National Hospital (Mloganzila), Dar Es Salaam, Tanzania

[8]H$_3$ Clinical Research Unit, I-Katch Technology Ltd, Dar Es Salaam, Tanzania

*Corresponding author: celsius_lx@yahoo.co.uk, kelvin.leshabari@ufht.or.tz

Abstract
Background

Hypoglycemia is the commonest metabolic abnormality encountered in newborns. Besides, there is a growing body of evidence that links the causes of early neonatal mortality to neonatal hypoglycemia in Tanzania. However exact factors associated with asymptomatic hypoglycemia in preterm newborns are not known.

Objective

To assess factors associated with asymptomatic hypoglycemia among preterm newborns.

Materials and methods

A cross sectional, analytical hospital- based study was carried out at Dar es salaam public regional referral hospitals. Preterm newborns with asymptomatic hypoglycemia were the target population. Data on demographic and clinical characteristics of preterm newborns and their mothers were collected and analyzed using Epi-Info™ software version 7.4. Main data analysis was done by applying a multivariable binary logistic regression model with neonatal random glycaemia coded in a binary fashion at a cut-off point of 2.6 mmol/L. An α-level of 5% was used as a limit of type I error.

Results

We recruited and analyzed 217 preterm newborns within 6–24 hours post-delivery. Male: Female = 1.1:1 (females n = 105, 48.4%). Median glycemic level was 2.6 (IQR; 2.1–3.9) mmol/L. Median gestational age at delivery was 33 (IQR: 30–35) weeks. Breastfeeding within 1st hour post-delivery was a statistically significant factor against glycemic levels associated with hypoglycemia (OR; 0.123, 95%-CI; 0.052–0.287) in a fitted multivariable logistic regression model.

Conclusion

About half of all preterm newborns studied had glycemic values in a statistical range associated with hypoglycemia. Exclusive breast feeding within 1st hour post-delivery was associated with glycemic levels protective from risk of asymptomatic neonatal hypoglycemia.

Recommendations

Exclusive breastfeeding practices within 1st hour post-delivery may need to be emphasized to all expectant mothers in order to avoid potential risk of asymptomatic hypoglycemia in preterm newborns.