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Prevalence and factors associated with neonatal hypoglycemia in Northern Uganda: a community-based cross-sectional study



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Abstract

Background: Neonatal hypoglycemia is the most common endocrine abnormality in children, which is associated with increased morbidity and mortality. The burden and risk factors of neonatal hypoglycemia in rural communities in sub-Saharan Africa are unknown.

Objective: To determine the prevalence and risk factors for neonatal hypoglycemia in Lira District, Northern Uganda.

Methods: This was a community-based cross-sectional study, nested in a cluster randomized controlled trial designed to promote health facility births and newborn care practices in Lira District, Northern Uganda. This study recruited neonates born to mothers in the parent study. Random blood glucose was measured using an On Call[®] Plus glucometer (ACON Laboratories, Inc., 10125 Mesa Road, San Diego, CA, USA). We defined hypoglycemia as a blood glucose of < 47 mg/dl. To determine the factors associated with neonatal hypoglycemia, a multivariable linear regression mixed-effects model was used.

Results: We examined 1416 participants of mean age 3.1 days (standard deviation (SD) 2.1) and mean weight of 3.2 kg (SD 0.5). The mean neonatal blood glucose level was 81.6 mg/dl (SD 16.8). The prevalence of a blood glucose concentration of < 47 mg/dl was 2.2% (31/1416): 95% CI 1.2%, 3.9%. The risk factors for neonatal hypoglycemia were delayed breastfeeding initiation [adjusted mean difference, - 2.6; 95% CI, - 4.4, - 0.79] and child age of 3 days or less [adjusted mean, - 12.2; 95% CI, - 14.0, - 10.4].

Conclusion: The incidence of neonatal hypoglycemia was low in this community and was predicted by delay in initiating breastfeeding and a child age of 3 days or less. We therefore suggest targeted screening and management of neonatal hypoglycemia among neonates before 3 days of age and those who are delayed in the onset of breastfeeding.

Keywords: Hypoglycemia, Newborn care, Breastfeeding, Neonatal care, Endocrinology

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