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Does dextrose gel prevent treatment failure in infants with neonatal hypoglycaemia?

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Neonatal hypoglycaemia is common and often under-recognised, as found with use of continuous glucose monitoring by Harris et al. (1), where 81% of 265 episodes of low interstitial glucose concentrations detected with continuous monitoring were not detected by routine clinical practice of intermittent blood glucose measurements. Recommendations for screening and treatment have been put forth by both the American Academy of Pediatrics and the Pediatric Endocrine Society (2,3). Treatment of neonatal hypoglycaemia that does not respond to feeding alone has typically included admission to the neonatal intensive care unit (NICU) and administration of intravenous dextrose via bolus and/or continuous dextrose infusion. This practice often results in separation of the baby from its parents and likely impacts the establishment of breastfeeding. Therefore, the potential for treatment of neonatal hypoglycaemia with oral dextrose gel to prevent NICU admissions is promising.

This clinical trials identification of infants with low glucose concentrations included screening patients with several clinical risk factors within the first hour after birth, prefeed every three to four hours for the first 24 hours and then every six to eight hours for the subsequent 24 hours. These data were combined with continuous glucose monitoring to identify episodes of rebound or recurrent hypoglycaemia, which were not significantly different between groups. The results show that administration of buccal 40% dextrose gel along with encouraging feeding in infants with neonatal hypoglycaemia resulted in decreased treatment failure compared to the placebo controlled who were also encouraged to feed (4). The secondary outcomes evaluated include provider-centred outcomes, resource-centred outcomes as well as proximal feeding outcomes at two weeks, with fewer babies in the dextrose gel group receiving formula, 5 (4%), compared to those in the placebo group, 15 (13%), 95%CI (0.13–0.90), $p = 0.03$. In addition, although not specifically powered to detect this difference, fewer infants were admitted to the NICU for the diagnosis of hypoglycaemia, 16 (14%) vs. 30 (25%), 95%CI (0.31–0.93), $p = 0.03$ with a NNT equal to 9.

The benefits of oral dextrose gel include ease and rapidity of administration, good tolerance, low cost of administration and no increased risk of recurrence or rebound hypoglycaemia.

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<https://ebneo.org/2017/02/does-dextrose-gel-prevent-treatment-failure-in-infants-with-neonatal-hypoglycemia>

CONFLICT OF INTEREST

None.

One limitation to consider is that the study subjects were recruited from a single centre. In addition, other outcomes of interest not mentioned include degree of failure of infants who became hypoglycaemic as well as duration of stay for infants ultimately admitted to the NICU. Their population included extremely high rates of breastfeeding, which may not be translatable to other populations and did not mention inclusion of infants receiving of donor breastmilk, which is becoming increasingly more common (5). The two-year follow-up data published separately show similar rates of neurosensory impairment and processing difficulty between the treatment and placebo groups with a 78% follow-up rate (6). Overall, this study provides support for the implementation of oral dextrose gel for infants ages 35–42 weeks gestation who are at risk for neonatal hypoglycaemia, to prevent NICU admissions for hypoglycaemia and potentially increase breastfeeding rates.

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