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# The relationship of breast milk intake as assessed with deuterium dilution on haemoglobin levels of infants in urban Jamaica

Introduction
The WHO recommended exclusive breastfeeding for the first six months of life and continued breastfeeding with complementary foods for up to 2 years, to achieve optimal growth, and development. Despite this recommendation however, the prevalence of exclusive breast feeding for the first 6 months in Jamaica remains low. The concentration of iron in breast milk is low (0.2–0.4 mg/L); but it is highly bioavailable, compensating for its low concentrations. Iron is required for the synthesis of tissues and growth. Notwithstanding, in Jamaica, the prevalence of iron deficiency anaemia, IDA, in children <5years is estimated at ~ 30 %. It is unclear how this relative low proportion of exclusive breast feeding in Jamaica will impact on nutrient (particularly iron) intake of infants, in the first year of life. This study aims to relate breast milk consumption on haemoglobin levels in Jamaican infants during the first year of life.
Method
A longitudinal and observational study was designed using 29 child-mother pairs recruited from the postnatal ward of the University Hospital of the West Indies. Breast milk intake was measured at 6 weeks using dose to mother deuterium dilution technique. Haemoglobin levels were measured (using the Cell-Dyn Ruby System Abbott core Diagnostics) at 6 weeks, 6 months and 12 months postnatal age. Summary statistics was used to summarise the data and repeated measures anova and pairwise comparison were conducted to determine the variation of haemoglobin concentrations at all time points.
Results
Ten or 30% of the infants were found to be exclusively breastfed with mean intake of breast milk to be 1001.6 ± 278.5 g/ day contrasting with 19 infants who were not exclusively breastfed consuming 697.9 ± 374.2 g/day of breastmilk. Haemoglobin levels in the exclusively breastfed group were 10.1 ± 0.9 g/dL, 10.8± 0.9g/dL and 11.1± 1.2g/dL while the mixed fed group values were 9.8± 1g/dL, 10.6± 0.8g/dL and 11.5±0.8 g/dL at 6 weeks, 6 months and 12 months respectively. The mean haemoglobin level in the breastfed group was not different to that of the mixed fed group at all time points (see Figure 1).
Conclusion
We were able to demonstrate quantitative measurement; the most reliable assessment of breast milk intake, for the first time in Jamaica. The data suggest that there is no difference in haemoglobin levels between the feeding groups. Infants are born with ample stores of iron that is sufficient to sustain metabolic activities for up to 6 months of age. Therefore, the type of feed may not have an effect on the existing levels at 6 weeks of age. At 6 and 12 months; the period beyond exclusivity, the lack of significant difference in the haemoglobin levels, could be related to a similar feeding pattern between the feeding groups. Furthermore, the sample size may not be sufficient to produce a statistical significant difference between the groups.

## Country

Jamaica

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