

The Influence of Ethnicity on Exclusively Breast-Fed Infants' Anthropometry in a Multiethnic Asian Population

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Abstract

Introduction: We studied the effects of ethnicity on early infant growth patterns in exclusively breast-fed (EBF) infants from a Singaporean multiethnic population. This was a prospective cohort study conducted in National University Hospital, Singapore. **Materials and Methods:** Healthy, EBF infants born at-term completing 37 weeks and above, and whose birthweight was appropriate for gestational age (>10th centile, <90th centile) were recruited. Infants were required to be EBF at least until the minimum age of weaning. All infants who were preterm and premature, formula-fed, required Intensive/High Dependency care, or born with major congenital anomalies were excluded. A multivariable linear regression analysis was conducted at 5 predetermined time-points (birth; 4-8 weeks; 3-4, 5-8, 12 months) to study the effects of antenatal/parental factors on infant growth. **Results:** A total of 213 infants were recruited. Maternal age, height and body mass index positively influenced birthweights while maternal hypertension and paternal smoking negatively influenced birthweights. Mean duration of breastfeeding was 8.9 months. Chinese ethnicity did not influence birth anthropometry, but was the single consistent factor that significantly increased weight and length Z-scores from 4-8 weeks until 8 months of life. Chinese ethnicity did not influence head growth throughout the first year of life. **Conclusion:** EBF Chinese infants have increased weights and lengths compared to non-Chinese infants until 8 months' age, despite similar birth anthropometry. This period of discrepant growth coincides with the average duration of breastfeeding. We hypothesise that ethnic variations in breast milk macronutrient composition influence early somatic growth in infants.

Ann Acad Med Singapore 2018;47:208-15

Key words: Antenatal, Infant growth, Parental

Introduction

Exclusive breastfeeding for 6 months is a recommendation of the World Health Organization (WHO), for its benefits in reducing gastrointestinal tract infections and atopic outcomes in infants.¹ In line with this recommendation, the WHO has advocated the use of new growth curves based on anthropometric data pooled from approximately 8500 children with a wide range of ethnic backgrounds in the WHO Multicentre Growth Reference Study.² The new WHO growth curves aim to establish the breastfed infant as the new normative reference standard for early infant

growth. Indeed, there have already been numerous prior studies focusing on the discrepancy in growth profiles between breast-fed and formula-fed infants,^{3,4} with breast-fed infants generally having a lower weight-for-length than formula-fed infants between 6 to 12 months.⁴ The new WHO growth curves also demonstrate that linear growth is similar across breast-fed children less than 2 years of age from 6 different study sites,⁵ indicating all breast-fed children can potentially grow similarly regardless of ethnicity. However, a growing pool of literature demonstrates discrepancies between the new WHO growth curves and national growth

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