901/A/Poster

Body composition of exclusively breast-fed, 4-6 months old infants by ^{18}O isotope dilution

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Body composition refers to the percentages of water, fat, bone and muscle in the human body. Body composition in early life impacts a wide array of health outcomes later in life. Knowing the body composition in infants is considered valuable in pediatric care. This study was designed to measure the body composition of 4-6 month old, exclusively breast-fed Sri Lankan infants.

Twenty five healthy, exclusively breast-fed infants (aged 4-6 months) were randomly recruited for the cross-sectional study at well-baby clinics. Body composition was measured by isotope dilution of ^{18}O. Infants' weights and lengths were measured using a standard scale and an infantometer respectively. A pre-dose urine sample (2 mL) was collected from each infant. A dose of ^{18}O water (10% ^{18}O enrichment) at 10 mg/kg body weight was administered orally to each infant. Post dose urine samples were collected after 5 hours and on day 3. Urine samples were analyzed by isotope ratio mass spectrometry. Isotope dilution space was calculated using the back extrapolation method. Body composition was calculated using standard equations. Data analysis was done by SPSS and $p<0.05$ was considered significant.

Mean (±SD) age of the infants was 4.5 months (0.8). Mean body weight and length of the infants were 6.5 kg (0.9) and 64.7 cm (2.8), respectively. Mean total body water (TBW), fat free mass (FFM), fat mass, and % fat mass were 3.86 kg (0.65), 4.6 kg (0.8), 1.9 kg (0.5) and 29.5% (6.1) respectively. % TBW and FFM were higher in boys when compared to girls [TBW: 61.3 % (5.9) *vs*. 56.7 % (2.9), p=0.02; FFM: 5.0 kg (0.8) *vs*. 4.3 kg (0.6), p=0.01, respectively].

Reference data on infants' body composition in developing countries are limited. Body composition of Sri Lankan infants was found to be comparable to the normative data available from industrialized countries. However, the requirement for longitudinal body composition data on infants in developing countries is emphasized.
Keywords: Fat mass, fat free mass, isotope ratio mass spectrometry, ^{18}O dilution, total body water

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