Evaluation on Nutrient Intakes of Infants and toddlers from 8 Cities in China

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Maternal Infant Nutrition Growth

Objectives

The knowledge on dietary status in young children in China is scarce. The objective of the study was to evaluate the nutrient intakes of infants and toddlers from urban areas in China.

Material and methods

- A cross-sectional study of Maternal Infant Nutrition Growth (MING) was conducted to investigate the nutrient intakes and nutrition status of pregnant and lactating women and young children from 8 cities in China. Subjects of present report were a total of 1409 infants and toddlers from MING study in three age groups as 6-11, 12-23 and 24-35 months.
- Dietary information was collected by using one-single 24-hour dietary recall via a face to face interview referencing a standard picture book of common food to estimate the amount consumed. Nutrient intakes from food and beverage were analysed based on China Food Composition 2004 (China CDC).
- Recommended dietary intakes 2013 from Chinese Nutrition Society were used to assess the total nutrient intakes from food, beverage and supplements.
- The proportion of children with intakes below the estimated average requirement (EAR) provides an estimate of the proportion of the group with intakes not meeting the nutrient requirement, i.e. the prevalence of inadequate intake.
- For nutrients with established tolerable upper intake levels (UL), the proportions of infants and toddlers with intakes exceeding the UL was also assessed.
- For nutrients with only an adequate intake (AI), mean intakes of these nutrients for each subgroup at or above the AI can be assumed to have nutritionally adequate diets.

Results

- A significant proportion of the infants and toddlers did not reach recommended levels of energy and some were not consuming enough protein and carbohydrate. Although there is no EAR, mean intakes of fat fell below the AI.
- There appear to be shortfalls in the intakes of several vitamins and minerals such as vitamin C, B vitamins, calcium, iron, zinc and selenium in the older infants and toddlers (Tables 1 and 2).
- Excessive intakes were also observed for some vitamins and minerals such as vitamin A and zinc (Table 3).
- Mean sodium intakes (SD) were 564 (1005) mg/d, 2398 (1757) mg/d and 2271 (2351) mg/d in infants 6-11 months, toddlers 12-23 months and toddlers 24-35 months respectively. While there is no UL for sodium in China, over 50% of toddlers have intakes above the UL (1500 mg/d) set by the Institute of medicine in the US.

Table 1. Proportion of infants with nutrient intake < EAR*

	EAR	6-11 m (n444) % < EAR
Protein (g/d)	15	32
Iron (mg/d)	7	48
Zinc (mg/d)	2.8	28

* Estimated average requirement

Table 2. Proportion of toddlers with nutrient intake < EAR*

	EAR	12-23 m (n476) % < EAR	24-35 m (n489) % < EAR
Protein (g/d)	20	17	11
Carbohydrate (g/d)	120	48	38
Vitamin C (mg/d)	35	30	35
Thiamin (mg/d)	0.5	57	60
Riboflavin (mg/d)	0.5	24	17
Niacin (mg/d)	5	37	27
Vitamin B6 (mg/d)	0.5	53	53
Calcium (mg/d)	500	45	48
Magnesium (mg/d)	110	38	32
Vitamin A (µgRAE/d)	220	15	20
Iron (mg/d)	6	17	13
Zinc (mg/d)	3	12	8
Selenium (µg/d)	20	43	30

* Estimated average requirement

Table 3. Proportion of young children with nutrient intake > ULs*

	6-11 m (n444) % > UL	12-23 m (n476) % > UL	24-35 m (n489) % > UL
Niacin (mg/d)	–	21	31
Calcium (mg/d)	–	14	6
Vitamin A (µgRAE/d)	49	39	22
Iron (mg/d)	–	11	12
Zinc (mg/d)	–	33	38

* Upper intake level

Key findings

MING study has been the first large scale survey done in young children in China. The study identified a number of potential concerns for the diet of infants and toddlers from urban areas of China. Further work is warranted to identify the factors associated with the inadequate and excessive nutrient intakes and to evaluate the best strategies for ensuring the diet of young children balanced.