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Determination of the Absorption of Zn by Preterm Infants, Using ^{70}Zn Enriched Tracer

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Abstract : Absorption of zinc by preterm infants from a synthetic milk labelled extrinsically with ^{70}Zn tracer was determined by faecal monitoring. Six male preterm babies with a mean gestational age of 31 ± 2.9 weeks and a mean birth weight of 1.23 ± 0.24 kg were studied for three balance periods of 72 h with intervals ranging from 6 to 30 days. The babies were fed with the milk containing zinc with added ^{70}Zn tracer. The net (NA) and true (TA) absorption, and endogenous loss (EL) of zinc were determined by the classical (chemical) balance and isotopic approaches. The mean TA, NA and EL were 615 ± 79 , -341 ± 665 and $956 \pm 647 \mu\text{g kg}^{-1} \text{d}^{-1}$ respectively from a mean Zn input of $839 \pm 93 \mu\text{g kg}^{-1} \text{d}^{-1}$. The significant correlation between absorption of zinc and weight gain of the babies during the study period implied that the minimum absorption of Zn to keep weight at birth should be $500 \mu\text{g kg}^{-1} \text{d}^{-1}$. The observed differences between the NA, TA and EL obtained by the two approaches demonstrate that net intestinal loss or secretion of Zn can occur simultaneously with an efficient uptake of the element from the luminal pool, which can only be determined by the use of isotopic tracers.

Key Words: Stable Isotope, Zinc Absorption, Premature Infants

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