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Joint association of magnesium and iron intake with anemia among Chinese adults

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Background – Inflammation and iron deficiency are two important causes of anemia. Magnesium intake is inversely associated with inflammation. However, little is known about how magnesium intake modifies the association between iron intake and anemia.

Objective – To investigate the joint association of magnesium and iron intake with anemia among Chinese adults.

Design: A cross-sectional household survey of 2849 men and women aged 20 years or older was conducted in 2002. Nutrient intakes were assessed by three day weighed food records. Serum ferritin, and hemoglobin were measured.

Results – The prevalence of anemia was 18.3% in men (mean age=47.2; SD=14.6) and 31.5% in women (mean age=46.8; SD=14.4). Both magnesium and iron intakes were positively associated with hemoglobin levels and inversely related to the prevalence of anemia. The risks of anemia were reduced by 26% (P for trend=0.03) and by 52% (P<0.01) respectively for iron and magnesium intake comparing the fourth quartile to the first with adjustment for potential confounders. The lowest risk of anemia was observed among participants with the highest intakes of magnesium and iron (OR=0.46, 95% CI: 0.31-0.68). The inverse association of iron intake and anemia but not the association of magnesium intake and anemia was modified by serum ferritin levels. The observed relations were not appreciably modified by gender.

Conclusion – This study suggests that magnesium and iron intakes are jointly associated with lower risk of anemia. Magnesium, along with iron may play an important role in the prevention and/or treatment of anemia.

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Provision of manganese and other trace elements for parenteral nutrition

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Background – Micronutrient requirements for parenteral nutrition (PN) patients are not well understood and the AuSPEN Guidelines for Intravenous Trace Elements & Vitamins (1999) are outdated. As Home PN becomes more routinely employed, commercial supplements of multiple trace elements (TE) in fixed formulations may not be suitable for long term use. Excessive doses of TE such as manganese (Mn) can lead to Parkinson-like symptoms in certain individuals.

Objective – To ascertain the mode of use and monitoring frequency of TE in Australasian PN centres.

Design: A survey of nutrition support personnel in 70 hospitals who are members of AuSPEN, and/or the Australasian PN Pharmacists group plus a systematic review of the literature between 1986 and 2006. Data are reported as mean %

Outcomes – A 60% response rate indicated that 49% of respondents are members of an adult nutrition support team (NST) while 22% provide a paediatric PN service. There are approximately 120 HPN patients in Australasia. Almost all centres (97%) buy ready-made PN bags containing fixed concentrations of multiple trace elements (TE). Some individual TE are aseptically added: zinc (45%), selenium (30%) but Mn is never separately supplemented. Most NST begin PN supplementation within 2 weeks but, despite the fact that 32% have observed zinc deficiencies (58%) which many monitor weekly (16%), the majority monitor other TE levels only once a month (Paediatric) or 3 monthly (Adult). Mn toxicity was identified as a potential problem with long term HPN patients by 11% of respondents and 75% were concerned that current TE formulations restrict prescribing options.

Conclusions – These data highlight the variability in Australasian PN practices and the need for updated micronutrient guidelines and reformulated products for long-term therapy.