pronounced when both parents were alcoholic. (Nordberg L et al. Acta Paediatr Nov 1994;Suppl 404:14-18).

MANGANESE SUPPLEMENTS AND DYSTONIA

A 7 month old girl who developed dystonic movements of the arms after a 3 month period of parental nutrition for jejunal atresia and bowel resection is reported from Great Ormond Street Hospital, London, UK. Development and head growth stopped at 12 months. Liver function tests showed cholestatic liver disease, a complication of parenteral nutrition. MRI showed basal ganglia changes in T1 weighted images compatible with trace metal deposition. A high blood manganese of 1740 nmol/L (ref. 73-210 nmol/L) was diagnosed at 17 months. She died 1 month later with neurological deterioration. A subsequent investigation of 53 children who had been on parenteral nutrition for more than 6 weeks showed that all those with cholestatic liver disease (35/53), and consequent impairment of biliary excretion of manganese, had whole blood manganese levels of >360 nmol/L. The parenteral supplement in the UK contained 55 times more manganese than that recommended by the American Society for Clinical Nutrition. This product has now been replaced with one containing 1 mcg/kg manganese, in line with the American guidelines. (Reynolds AP, Kiely E, Meadows N. Manganese in long term paediatric parental nutrition. Arch Dis Child Dec 1994;71:527-528). (Respond: Dr Reynolds, Department of Chemical Pathology, Great Ormond Street Hospital, Great Ormond St, London WC1N 3JH, UK).

COMMENT. Blood manganese should be monitored in patients on parenteral nutrition, especially those who develop cholestatic liver disease. MRI is recommended if blood manganese is >360 nmol/L and/or if patient develops dystonia.

Manganese poisoning with dystonia in an 8 year old girl with Alagille's syndrome (hepatic duct hypoplasia, chronic cholestasis, facial dysmorphism, vertebral malformations, retarded development, and cardiac murmur) responded to treatment with ursodeoxycholic acid (see Progress in Pediatric Neurology II, Chicago, PNB Publ, 1994, pp438-9). Toxicity from dietary sources of manganese appears to require a prolonged period of exposure before neurologic symptoms develop.

THALLIUM POISONING

Four young adults poisoned with thallium contained in maliciously contaminated marzipan ball candy are reported from the New York City Poison Center, and East Carolina University School of Medicine, Greenville, NC. Gastrointestinal symptoms, including diarrhea, vomiting, abdominal cramps, and constipation, and pleuritic chest pains developed on the second day, and painful paresthesiae of hands and feet on the third day. Weight bearing caused pain in the soles of the feet, so that walking was avoided. Stroking the back of the hands elicited severe pain. Radiographs of the candies showed metallic densities, and atomic absorption spectroscopy measurement of thallium content was 4 g/100g candy. Radiographs of the abdomen on the third day were negative for radiopaque thallium. Hypertension and tachycardia developed on day 4 to 8, and alopecia onset began on day 8 to 15. Treatment consisted of prussian blue (2 g 3x/d orally) to bind enteric thallium, activated charcoal orally, potassium chloride infusion, and iv morphine for pain. All patients recovered without sequelae within one month. (Meggs WJ et al.