

more frequently in men with mosaic Klinefelter's syndrome,¹ whereas mediastinal GCTs exclusively have been reported in men with a 47,XXY karyotype.² The Klinefelter's syndrome data thus strongly argue against the hypothesis of a gonadal origin of all mediastinal GCTs.

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Zinc and duration of treatment of severe malnutrition

SIR—In their report of the treatment of severe malnutrition, Khanum and colleagues (Dec 24/31, p 1728) consider providing "additional micronutrients in the future" and in their response, Brewster and Manary (Feb 18, p 453) are convinced of the importance of zinc supplements in malnutrition but say that they found it "very arduous to actually obtain any zinc for human use". We have used zinc supplementation in severely malnourished children at the Materno-Infantil German Urquid Hospital (Cochabamba, Bolivia) and at the Centro de Rehabilitación Inmuno-Nutricional (CRIN).

Parents consented to a 2 months' inpatient follow-up study. Most children were between 6 and 24 months of age (mean 16). All were weaned early. They lived in Cochabamba suburban areas, and were from low income families with crowded living conditions and little sanitation. The diagnoses of kwashiorkor, marasmus, and combined protein-energy malnutrition (PEM) were based on anthropometrical (weight-for-height) and clinical findings (presence of oedema, loss of subcutaneous tissue, and reduced muscle mass). A previous study¹ provided direct evidence of a nutritional thymic involution and of a high number of immature lymphocytes (CD1a) on admission. Anthropometrical (weight-for-height $\geq 90\%$) and clinical criteria for discharge were reached 5 weeks after admission. Nevertheless, the children were still immunodepressed and another month was needed for complete immunological recovery.² This gap between anthropometrical and immunological recoveries could explain the failure of nutrition rehabilitation centres and high mortality rates in children.

We have also shown that severely malnourished children receiving a daily zinc supplement from admission reached immunological recovery in 1 month. This supplement did not hasten the anthropometrical recovery but significantly reduced the time for immunological recovery. Zinc supplementation acted as an immunostimulating factor so that immune and anthropometric recoveries coincided and the time in hospital was shortened. Bolivia, like Malawi and other developing countries, does not produce pharmaceutical zinc salts, and we obtained these from foreign countries. The supply of zinc for daily supplementation represented an additional cost of US\$1 per month and per child. This cost could be reduced if larger quantities of zinc were bought by the national health authorities. This zinc supplement allowed the discharge of anthropometrically and immunologically healthy children

after only 1 month of treatment and the cost of hospital treatment could be reduced by half. Zinc supplements could be given in each of the three approaches described by Khanum et al and in any place where maize is the staple food, as Brewster and Manary say.

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- 1 Parent G, Chevalier PH, Zalles L, et al. In vitro lympho-differentiating effects of thymulin (Zn-FTS) on lymphocyte subpopulations of severely malnourished children. *Am J Clin Nutr* 1994; 60: 274-78.
- 2 Chevalier PH, Sevilla R, Zalles L, Sejas E, Belmonte G, Parent G. Study of thymus and thymocytes in Bolivian preschool children during recovery from severe protein energy malnutrition. *J Nutr Immunol* 1994; 30: 27-39.

Posture, blood flow, and prophylaxis of venous thromboembolism

SIR—Ashby and colleagues (Feb 18, p 419) report adverse effects of posture on femoral venous blood flow. They noted a moderate reduction velocity when a patient was sitting propped up at 35° in a hospital bed posture and a further pronounced reduction when the patient was sitting with legs dependent. Patients recovering from operations are often asked to sit in a chair with their feet elevated on a footrest. The footrests used in most hospitals, while raising the feet, compress the posterior aspect of the calf. Such compression may be important in the aetiology of venous thromboembolism. We investigated the effect of a footrest on blood flow in the deep veins of the calf by dynamic radionuclide venography.

Calf venous blood flow was measured in fifteen young (18-31 years) healthy male volunteers. 88 MBq technetium-99m-labelled pertechnetate in 1 mL saline was injected into the lateral dorsal vein of each foot, with ankle tourniquets inflated to 40 mm Hg, and the time the bolus took to reach the lower border of the patella was measured (Sophy DSX Rectangular Gamma Camera). Each subject had one foot

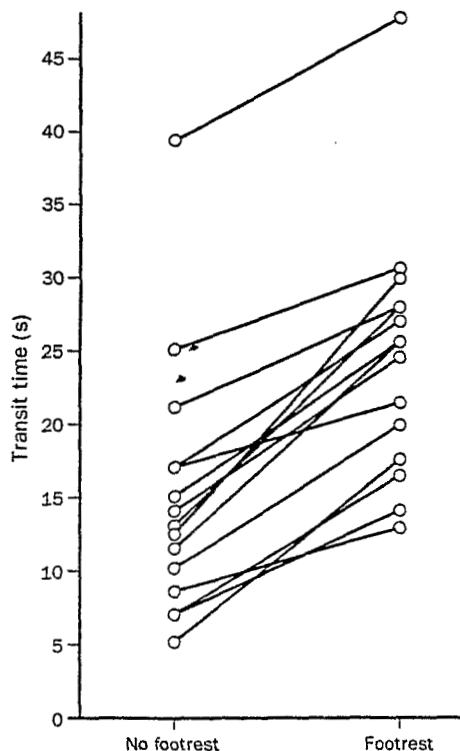


Figure: Time for ^{99m}Tc bolus to travel from foot to knee

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