PHASE 3 RANDOMISED CONTROLLED TRIAL OF VITAMIN D SUPPLEMENTATION IN 8,851 MONGOLIAN SCHOOLCHILDREN

Aims To determine the effects of vitamin D supplementation on diverse health outcomes in vitamin D-deficient schoolchildren.

Methods We performed a phase 3 randomised placebo-controlled clinical trial in Ulaanbaatar, Mongolia, to determine whether weekly oral supplementation with 14,000 IU vitamin D₃, administered for 3 years, reduced acquisition of tuberculosis infection in 8,851 schoolchildren aged 6 to 13 years (primary outcome). Secondary efficacy outcomes evaluated in all study participants included incidence of active tuberculosis, acute respiratory infections, atopic diseases and fractures, and growth and muscle strength. Sub-studies evaluated effects of the intervention on bone mineral density, spirometry and pubertal development (n=1,465), physical fitness (n=615) and examination performance (n=2,097). Safety outcomes included mortality and incidence of serious adverse events. Sub-group analyses were conducted for all efficacy outcomes to determine whether the effect of the intervention varied according to baseline 25-hydroxyvitamin D levels.

Results Of the 8,851 randomized participants, 95.6% had vitamin D deficiency (25(OH)D <20 ng/mL) at baseline, and 91.7% completed the study. Mean end-study 25(OH)D levels were 29.8 vs. 9.7 ng/mL in children randomized to intervention vs. placebo (p<0.001). Vitamin D supplementation did not influence the risk of QuantiFERON-TB Gold conversion (P=0.42), incident active tuberculosis (P=0.63), incident asthma (P=0.32), incident atopic dermatitis (P=0.39), incident allergic rhinitis (P=0.45), proportion of children experiencing one or more fractures (P=0.65), mean height-for-age z-score (0.84), mean grip strength (P=0.77), mean bone mineral density at the radius (P=0.14), mean Tanner scores for pubertal development (P=0.28), mean forced expiratory volume in 1 second (FEV₁, P=0.35), mean forced vital capacity (FVC, P=0.95), mean maximal oxygen consumption during a 20 metre shuttle run (VO₂max, P=0.22) or mean end-of-year mathematics exam scores (P=0.57). Effects of the intervention did not differ according to baseline 25-hydroxyvitamin D levels (<10 ng/mL vs. ≥10 ng/mL) for any efficacy outcome studied. Neither mortality nor incidence of serious adverse events differed between study arms.

Conclusions A weekly oral dose of 14,000 IU vitamin D₃, administered for 3 years, was safe and effective in elevating bone mineral density into the high physiological range in vitamin D-deficient schoolchildren, but it did not impact any efficacy outcome investigated.

AN AUDIT OF THE EMERGENCY MANAGEMENT OF ANAPHYLAXIS IN CHILDREN IN SECONDARY CARE

Aim/Objective There is an increasing incidence in anaphylaxis reported globally and in the UK. Due to this, there is raised anxiety in our local population around the management of anaphylaxis, especially in light of the shortage of adrenaline auto-injector pens last year.

The aim of this audit project is to assess the management of paediatric patients presenting with anaphylaxis to the Paediatrics Emergency Department (PED) and Children’s Assessment Unit (CAU) and whether they are appropriately managed in accordance with current NICE and local guidelines.

Methods We reviewed the notes of patients who present to PED and CAU from June 2018 until January 2019. Patients were identified through search words such as ‘anaphylaxis’ and ‘allergic reaction’ in coding. The notes were reviewed and data collected using the Anaphylaxis Audit Proforma.