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The Efficacy of High Dose Cholecalciferol in Treating Transfusion Dependent Thalassaemia in Adolescents with Vitamin D Deficiency

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INTRODUCTION
The survival of patients with transfusion dependent thalassaemia has progressively improved with advances in therapy; however, vitamin D deficiency has been frequently reported in patients with thalassaemia in many countries. Adequate circulating level of vitamin D is therefore essential for optimal skeletal health and reducing fracture risk. Objectives: 1. To assess serum 25-OH vitamin D levels in transfusion-dependent thalassaemia patients and the prevalence of bone disease among them. 2. To assess the improvement of vitamin D status by supervised administration of high dose oral vitamin D as part of our current routine management of adolescent patients with thalassaemia in Penang General Hospital.

METHODOLOGY
We reviewed a total of 29 transfusion-dependent thalassaemia patients (aged 9.2 years to 20.6 years, mean age 15.49±3.36) treated in paediatric haematology unit Penang General Hospital. Measurement of serum 25-OH vitamin D and DEXA scan data which was done annually were obtained. Patients with vitamin D deficiency/insufficiency were supplemented with high dose (150000 IU) oral vitamin D (cholecalciferol) under supervision every 3-4 weeks during their transfusion visits over 6 months as part of the standard treatment.

RESULTS
25-OH vitamin D were deficient in 51.7% (n=15) of the patients and insufficient in 31% (n=9) of the patients. The T-score value was <-2.5 at the spine and at the hip in 58.6% and 13.8% of the patients respectively. Supervised administration of high dose oral vitamin D increased the mean value of 25-OH vitamin D from 46.7 nmol/L to 111.7 nmol/L ($p<0.001$).

CONCLUSION
Thalassaemia is associated with increased prevalence of 25 hydroxy vitamin D deficiency which may be responsible for poor growth in these children. Supervised high dose oral vitamin D supplementation is a safe, cheap, non-invasive and easy method for predictable improvement of vitamin D status in thalassaemia.