

European Respiratory Society Annual Congress 2012

Abstract Number: 3452

Publication Number: P2576

Abstract Group: 10.2. Tuberculosis

Keyword 1: Tuberculosis - management **Keyword 2:** Pharmacology **Keyword 3:** Infections

Title: Factors influencing change in baseline vitamin D level in mycobacterial infection

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Body: Background Vitamin D may be an agent, of broad relevance in the treatment of infectious disease because of its immunomodulatory properties. Methods In an ongoing open label observational trial, baseline bloods, vitamin D levels, sputum smear and culture results, radiological changes and TB score were recorded in patients with mycobacterial infection. Each patient was supplemented with 100,000 units of cholecalciferol at 0, 8 and 16 weeks. Results The mean age of patients recruited (n=42) was 36 years (M:F 27:15), with pulmonary disease (n=29) or extrapulmonary disease (n=13). There was a non-significant difference in vitamin D levels between the groups. Pre supplementation median vitamin D levels were 11.9 nmol/l (mean 16.96 nmol/l, 92.9% with 25(OH)D₃ levels <50nmol/l. At week 8 post supplementation levels had risen to median 44nmol/l (mean 43.9 nmol/l). There was a significant difference in vitamin D levels pre and post supplementation (p=0.00), with a significantly higher percentage rise in vitamin D levels in patients who were severely deficient (<20nmol/l) (p=0.01). There was no correlation between vitamin D and DBP, antimicrobial product (LL37) levels or TB score at baseline measurement. Conclusions Supplementation with 100 000 units of cholecalciferol does not result in sufficient levels (>50nmol/l) at 8 weeks in all patients with just 65% attaining levels >50nmol/l. However, there is a statistically significant rise in levels of vitamin D in those supplemented between week 0 and week 8. Patients with mycobacterial infection with vitamin D deficiency may benefit from higher initial doses to obtain sufficiency.