Clinical TB

S75 RISK FACTORS AND THERAPEUTIC IMPLICATIONS OF VITAMIN D DEFICIENCY IN MALAWIAN ADULTS WITH PULMONARY TUBERCULOSIS

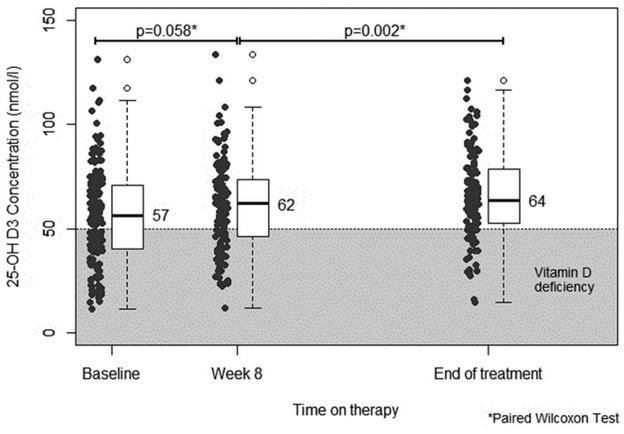
[1]DJ Sloan, [2]C Guwende, [2]G Banda, [3]D Shani, [3]M Kamdolozi, [2]B Chisale, [4]J Dutton, [2]RS Heyderman, [3]AE Butterworth, [2]EL Corbett, [5]HC Mwandumba, [4]SH Khoo, [3]TJ Allain, [4]GR Davies. *[1]Liverpool Heart and Chest Hospital, Liverpool, UK; [2]Malawi Liverpool Wellcome Trust Clinical Research Programme, Blantyre, Malawi; [3]College of Medicine, Blantyre, Malawi; [4]University of Liverpool, Liverpool, UK; [5]Liverpool School of Tropical Medicine, Liverpool, UK*

10.1136/thoraxjnl-2014-206260.81

Introduction and objectives Pre-treatment Vitamin D deficiency (VDD) is well described amongst adult TB patients in Malawi and has been associated with impaired mycobacterial immunity. Anti-TB drugs and antiretroviral therapy (ART) for HIV may induce hepatic Vitamin D metabolism, further reducing the serum concentration of active metabolites including 25-OH D3. This study identified risk factors for baseline VDD, assessed the effect of therapy on 25-OH D3 concentrations, and evaluated whether VDD deficiency has prognostic implications for treatment response.

Methods Adults with pulmonary TB were treated with standard 6 month therapy. Serum 25-OH D3 concentrations were measured at baseline, 8 weeks and end of treatment. Serial sputum samples were used to model the rate of bacterial elimination for each patient. Patients were followed until 1 year post-treatment and final outcomes were defined as favourable (stable cure) or unfavourable (failure/relapse). Linear and logistic regression analyses were used to identify risk factors for VDD and assess relationships between VDD and treatment response.

Results 133 patients were studied. 75 (56%) were HIV-infected and 24 (18%) were on ART. 118 (89%) had favourable and 15 (11%) had unfavourable outcomes. The median baseline 25-OH D3 concentration was 57.3 nmol/l. 47 (28%) patients had concentrations <50 nmol/l, representing VDD. On multivariate analysis, neither HIV status nor ART influenced baseline 25-OH D3 levels, but lower concentrations were reported in patients who were recruited during the cold months of July/August (p = 0.001), suffered food insecurity (p = 0.035) or had a lower baseline Body Mass Index (p = 0.047). Without specific supplementation, 25-OH D3 levels improved during TB therapy (see figure). There were no associations between 25-OH D3 levels at any time-point and the sputum bacillary elimination rate or final clinical outcome.



Abstract S75 Figure 1 Time on therapy

Conclusions

1. The presence and extent of VDD in Malawian TB patients was determined by environmental factors (sunlight exposure and dietary intake) rather than HIV status or ART.
2. 25 OH D3 levels improved during therapy, suggesting that induction of Vitamin D metabolites by anti-TB drugs or ART is adequately compensated by improved Vitamin D uptake during disease recovery.
3. VDD did not have prognostic implications for treatment response.

S76 TB INFECTION IN THE NEPALI POPULATION IN SOUTH-EAST LONDON DISPLAYS DIFFERENT CHARACTERISTICS COMPARED TO THE TB POPULATION IN NEPAL

[1]N Dearnley, [2]R Eyres, [1]T Simpson, [1]E Stephenson, [1]M Belton, [1]P Palchaudhuri. *[1]Queen Elizabeth Hospital, Woolwich, London, UK; [2]Princess Royal University Hospital, Orpington, Kent, UK*

10.1136/thoraxjnl-2014-206260.82

Introduction The World Health Organisation classifies Nepal as having high Tuberculosis (TB) burden (Estimated incidence 163/100,000). TB within the Nepali population in the UK has not been formally characterised but a recent study indicates unique characteristics compared to overall UK data.[1] These include higher rates of multi-drug resistant (MDR) TB (4.7% vs 1.6%), and lower rates of TB/HIV co-infection (1.1% vs 8%). We sought to investigate if these differences were also found in the TB population in Nepal or were unique to the immigrant population in SE London.

Methods Retrospective cohort analysis was performed of all Nepali TB patients in Greenwich between 2007–2012. Data collected included site, drug resistance, HIV co-infection and completion rates. Results were compared to Nepal National Tuberculosis Programme (NTP) data from 2012. Data analysis was conducted as part of an Internship with the Britain Nepal Medical Trust.

Results 86 UK patient records were analysed and compared to NTP 2012 data (n = 34,245). TB patients in Greenwich were younger than patients in Nepal; 91.8% age <55 yrs compared with 72.5% of patients in Nepal.

Of the patients diagnosed with pulmonary TB in Greenwich, only 19.7% had sputum smear positive disease, compared to 68% in Nepal. UK patients had higher rates of extrapulmonary disease compared to Nepal (41% vs. 23.8%).

The rate of MDR TB in new diagnoses shows a marked difference; Greenwich having rates of 4.7% compared to 2.2% in Nepal. Despite the higher rates, risk factors for MDR TB were low in UK immigrants (HIV 1.1%, previous TB treatment 0% and MDR TB contact 0%).

Treatment completion in Greenwich was 98% compared with 91% in Nepal, who run a national DOTS programme.

Conclusion Nepali expatriate TB patients display different characteristics to both UK and Nepal TB populations, and have high rates of MDR TB which cannot be accounted for by increased risk factors. Further studies are required to identify if this reflect differences in TB diagnostics or relate to the migration status of the Nepali patients.

REFERENCES

1 T Simpson, E Stephenson, P Palchaudhuri. A study of tuberculosis in an expatriate Nepalese community in South-East London. poster presentation. *European Respiratory Society*