ABSTRACTS

VITAMIN D AS AN ADD-ON TO TB TREATMENT

In the days before antibiotics, sunlight was considered an essential part of any tuberculosis (TB) cure, because heat and ultraviolet light kill mycobacteria. Even today, TB wards are designed with large windows to let in light. Now, British researchers reinforce that idea, having found that the effects of sunlight on the body are likely to be beneficial for TB and for people at risk of TB.

The team conducted a randomised controlled trial among 202 contacts of people diagnosed with TB in the east end of London. These contacts were assigned either to receive a single dose of vitamin D (2.5 mg) or a placebo. This dose is considerably higher than the daily recommended dose, but no patients suffered side-effects.

Blood levels of 25-hydroxy-vitamin D were measured at baseline, on day 7 and on day 49. The study also assessed anti-mycobacterial immunity using an assay that measured mycobacteria levels. Anti-mycobacterial immunity was 20% stronger in vitamin D recipients after 6 weeks. Among those who were vitamin D deficient at the start of the study, the difference was even greater. Vitamin D recipients in this subset had mycobacterial levels 49% below those of the vitamin D-deficient placebo recipients.

Vitamin D has no direct anti-mycobacterial effects, but it does modulate the immune response by inducing secretion of interleukin-10, even though it reduces the secretion of gamma interferon, TNF-alpha and IL-12, all types of cytokines that are down-regulated in TB and HIV infection.

Both rifampicin and isoniazid have been shown to reduce vitamin D levels, and the ability of some HIV protease inhibitors to impair vitamin D metabolism has been suggested as one of the causes of the reduced bone mineral density seen in some people on antiretroviral treatment. It is worth noting that black pigmentation reduces vitamin D synthesis in sunlight.

Martineau AR, *et al. Int J Tuberculosis Lung Dis* 2005; **9:** S173.

CO-TRIMOXAZOLE PROPHYLAXIS EFFECTIVE AGAINST MALARIA

A recent paper in the *Journal of Infectious Diseases* shows that a short course of co-trimoxazole prophylaxis provides almost 100% protection against malaria and does not cause resistance to the anti-malarial sulfadoxine-pyrimethamine. Co-trimoxazole is already used as a prophylactic in HIV-positive patients with a CD4 cell count below 500 and in all infants born to HIV-positive mothers. However, there were concerns that, because co-trimoxazole and sulfadoxine-pyrimethamine work in similar ways, the widespread use of co-trimoxazole would promote malarial parasite resistance to sulfadoxine-pyrimethamine. A recent study added to these fears by finding reduced sensitivity to co-trimoxazole among patients with malaria in Malawi.

However, this study may put paid to these fears. The research team designed a randomised, open-label study in which they recruited 240 children aged between 5 and 15 in Mali. They were testing whether prophylaxis with co-trimoxazole reduced the efficacy of sulfadoxine-pyrimethamine treatment for malaria. They also wanted to know if this treatment promoted sulfadoxine-pyrimethamine resistance among malaria parasites.

Children in the treatment arm received prophylactic co-trimoxazole on 3 successive days for 12 weeks. All the children were monitored for clinical symptoms of malaria and blood samples were examined for asymptomatic malaria. At baseline, blood samples showed that 20% of the children in the treatment arm and 16% of those in the control group were infected with malaria. Only 1 case of clinical malaria occurred in the treatment arm, compared with 72 cases of malaria in the control arm. Asymptomatic malaria was found in 3 out of 466 blood samples taken from children in the treatment arm and in 43 out of 231 blood samples taken from children in the control arm. This showed that co-trimoxazole has a 87% efficacy against asymptomatic malaria and a 99.5% efficacy against uncomplicated malaria. Parasite resistance was similar in both arms.

Thera MA, *et al. J Dis* 2005; **192:** 1823-1829.

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