A PILOT RANDOMISED CONTROLLED TRIAL OF HIGH-DOSE VITAMIN D SUPPLEMENTATION TO PREVENT RECURRENCE OF BACTERIAL VAGINOSIS


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Background Bacterial vaginosis (BV) is the most common cause of vaginal infection worldwide and is associated with myriad negative reproductive health outcomes. Several cross-sectional studies indicate that women with low vitamin D levels have increased BV prevalence.

Methods This randomised, double-blinded, placebo-controlled trial started enrollment in September 2011 and concluded follow-up in January 2013. Women (n=126) with symptomatic BV were enrolled from an urban STD clinic in the midwestern United States. All participants received standard metronidazole therapy. Intervention participants (n=63) also received nine doses of 50,000 international units of cholecalciferol (vitamin D3) over 6 months; control arm women (n=63) received matching placebo. BV status was assessed via Nugent scoring at three follow-up visits over six months. The primary analysis will be intention-to-treat using Cox proportional hazard models.

Results Participants’ median age was 26. Three-quarters (75%) of women were black and 25% were white. All reported a lifetime history of sex with men, and 29% also had a lifetime history of sex with women. At baseline, median serum vitamin D levels (measured as 25-hydroxy vitamin D) were the same for intervention and control women at 15.85 ng/mL (interquartile range (IQR): 12.1 – 21.4 ng/mL; levels < control women at 15.85 ng/mL (IQR: 12.1–21.4 ng/mL)). Vitamin D levels were the same for intervention and control women at 15.85 ng/mL (IQR: 12.1–21.4 ng/mL). Levels of vitamin D were assessed as 25-hydroxy vitamin D blood levels.

Methods Between January 2011 and September 2012, 207 urogenital MG-positive clinical specimens were collected from 185 patients. For the detection of macrolide resistance-associated mutations, we designed a real-time PCR based on fluorescence resonance energy transfer (FRET) coupled with melting curve analysis. The assay was first validated on macrolide-resistant MG isolates with characterised A2058G/C and A2059G mutations (Escherichia coli numbering), then optimised to be applied directly on clinical specimens. Resistant genotypes were confirmed by 25S rRNA gene sequencing.

Results Among 207 MG-positive clinical specimens, 136 from 119 patients were amplified with our assay, showing a sensitivity of 65.7% (156/207). A substitution in the 25S rRNA gene was found in 14.2% (17/119) of the patients, with a rate of 14.3% in 2011 and 14% in 2012. Nine and eight clinical specimens harboured the A2059G and A2058G mutations, respectively. In four cases, a mixed population of wild-type and mutated MG was observed.

Conclusion Macrolide resistance prevalence of MG is 14.2% in France. Our FRET PCR assay is able to discriminate wild-type from resistant genotype in one reaction directly in clinical specimen. It will allow clinicians to shorten the time to initiate effective treatment and contribute to reduce transmission of resistant strains.