Bacterial vaginosis can be associated with the presence of Candida species in reproductive age women with vulvovaginitis

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Introduction and Purpose: Numerous studies have confirmed that low acidity and a healthy appearing lactobacillary flora is typical for *Candida* vulvovaginitis, while bacterial vaginosis (BV) is associated with decreased lactobacilli and increased vaginal pH levels, environment that protects against *Candida* growth. Thus, it is suggested that the growth requirements of Candida and BV are completely opposite to each other. However, it has been reported that 6% of women with symptomatic Candida vaginitis had simultaneously BV and that a different proteolytic activity in the vaginas of women with BV is responsible for the concomitant infection with Candida. Also, women with BV were more likely to have a genetic polymorphism of the innate immune response. Ureaplasma urealyticum (Uu) enhances the virulence commonly associated with BV and was detected more often in women with BV than in those without BV. For the diagnosis of BV usually a Gram stain is used. Since genital mycoplasmas lack a cell wall and are thus resistant to Gram stain, their presence in studies that rely only on Gram stain criteria can easily be missed. We aimed to assess the potential association of BV (with or without the presence of Uu) and Candida species in a group of symptomatic reproductive age women.

Methods: We examined 5852 vaginal and cervical specimens from an equal number of reproductive age women presenting to our hospital with signs and symptoms of vulvovaginitis during April 2009 to December 2013. Only 728 symptomatic women with BV were tested simultaneously for genital mycoplasmas and this population was included in the present study. Gram stain preparations were examined from all specimens and Nugent criteria were applied for the diagnosis of BV. Vaginal and cervical cultures were performed under standard conditions. For the isolation of mycoplasmas the Mycoplasma IST2 (BioMèrieux, France) was used.

Results: In the 728 women diagnosed with BV, Uu was also present in 227 (31.2%) cases. Furthermore, 136 (18.7%) of those women had vaginal candidiasis, too.

Conclusions: Our data adds to the evidence that Candida and BV do coexist in lower genital tract infections since in the symptomatic population studied BV was associated with Candida species in 20% of the cases. It is possible that the simultaneous presence of these different pathogens and/or their metabolites create an environment suitable to promote clinically measurable symptoms. However, further studies are warranted to understand the role these pathogens play in causing disease given the complexity of the vaginal flora and our relatively limited understanding of lower genital tract infections.

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