



# Bacterial vaginosis is more frequently diagnosed in women with inflammatory changes on routinely performed Papanicolaou smear

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**Background:** Usually, most laboratories reporting the results of cervical Papanicolaou (Pap) smears tests comment on the possible presence of infection based on cytological criteria. The clinical importance of these findings is unknown especially in asymptomatic women. This study was conducted to assess the possible association between inflammatory changes reported on Pap smears with the isolation of pathogens in the genital tract of asymptomatic women.

**Conclusion:** The results of our study suggest that a report of inflammatory changes on the cervical Pap smear cannot be used to reliably predict the presence of a genital tract infection, especially in asymptomatic women. However, bacterial vaginosis was diagnosed more often in women with inflammation on the Pap smear.

**Materials/methods:** Asymptomatic nonpregnant women with or without inflammatory changes on routinely performed Pap smear and recalled for cultures in the last four years were included in the study. Genital tract samples (vaginal and cervical) were available for analysis. Clinical specimens collected from patients were inoculated onto appropriate plates for standard aerobic and anaerobic cultures and incubated at 37°C for 24h and 48h, respectively. A wet mount as well as a gram-stained smear were examined under microscope to obtain valuable information about the microorganisms present and to apply Nugent criteria for the diagnosis of bacterial vaginosis. The isolated pathogens were identified using the automated system VITEK 2 (BioMerieux, Marcy l'Etoile, France). Furthermore, the presence of *Chlamydia trachomatis* as well as *Ureaplasma urealyticum* and *Mycoplasma hominis*, in the specimens studied, was determined using the COBAS AMPLICOR *Chlamydia trachomatis* test (Roche Diagnostics, USA) and *Mycoplasma* IST2 (BioMerieux, Marcy l'Etoile, France), respectively. Statistical analysis was performed using chi square test and values  $\leq 0.05$  were considered as significant.

**Results:** A total of 1372 women (774 with and 598 without inflammation on the Pap smear) with smear tests and vaginal as well as cervical cultures participated in the study. Out of the 774 women with inflammation on Pap test, 294 (38%) had negative cultures (normal flora present), while 480 (62%) women had positive cultures with different pathogens. In contrast, the group of women without inflammation on Pap test displayed increased percentage of negative cultures (63%,  $p < 0.0001$ ) and decreased percentage of positive cultures (37%,  $p < 0.0001$ ). Among the women with genital tract pathogens detected, bacterial vaginosis was diagnosed more frequently in both groups. Interestingly, in the group with inflammation on Pap smear, the women diagnosed with bacterial vaginosis were significantly more compared to the group without inflammation ( $p < 0.0001$ ). The isolation of other pathogens such as *Candida* species, *Chlamydia trachomatis*, *T. vaginalis* and the cases diagnosed as aerobic vaginitis did not differ between the two groups.

