



Infertile women undergoing *in vitro* fertilization display increased prevalence of bacterial vaginosis

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Background: During the last decades, assisted reproductive techniques such as *in vitro* fertilization (IVF) are increasingly being used worldwide. Sexually transmitted infections represent a significant burden for health care and some of them have been associated with infertility. Thus, screening before undergoing fertility treatments is recommended for different sexually transmitted pathogens since their presence can affect the success rates of an IVF programme. We aimed to study the prevalence of sexually transmitted pathogens in a group of infertile women with at least one previous failed IVF attempt and a group of reproductive age fertile women which served as controls.

Results: Both groups were comparable in age although more infertile women were over 30 years old ($p=0.0064$), had a higher education level ($p=0.0001$) and were smokers ($p=0.0066$). A total of 29 (27.9%) fertile women and 37 (33.3%) infertile women were symptomatic ($p=NS$). The two groups did not differ in the prevalence of the different pathogens studied, with the exception of the ones associated with bacterial vaginosis that was significantly increased in the infertile group ($p=0.0013$).

Materials/methods: We included 111 infertile women enrolled in the IVF programme and 104 fertile women (mothers to at least one child), presenting for microbiological screening of their vaginal and cervical samples. All samples were cultured for aerobic pathogens and examined through wet mount and Gram staining, to identify *Trichomonas vaginalis*, fungi and clue cells as well as to further diagnose bacterial vaginosis using Amsel and Nugent criteria. The identification of pathogens was accomplished with the automated system VITEK 2 (BioMerieux, Marcy l'Etoile, France). Furthermore, *Ureaplasma urealyticum* and *Mycoplasma hominis* were identified with the Mycoplasma IST2 (BioMerieux, Marcy l'Etoile, France), *Chlamydia trachomatis* with the COBAS AMPLICOR *Chlamydia trachomatis* test (Roche Diagnostics, Indianapolis, USA) and *Human Papilloma Virus (HPV)* with the LINEAR ARRAY HPV Genotyping test (Roche Diagnostics, Indianapolis, USA).

Conclusion: This study found an increased prevalence of bacterial vaginosis in infertile women. This finding might suggest that bacterial vaginosis negatively affects the delicate environment required for successful embryo implantation, possibly by altering vaginal pH or even through the production of phospholipase A2 and subsequent increased local prostaglandin production. Further studies are warranted to confirm the adverse effects, if any, of bacterial vaginosis on fertility and if implantation rates will improve by treating women positive for bacterial vaginosis before enrolling in an IVF programme.

