Lactobacillus iners; a marker of changes in the vaginal flora?

*Lactobacillus iners* seems to be a species of *Lactobacilli* occurring in the human vagina that deserves a close scrutiny as it was not found in earlier studies due to its peculiar culture requirements but it is now discussed as one of the normal vaginal bacteria (1, 2). Following up on the interesting paper by Ferris et al on changes in vaginal flora after treatment of Bacterial Vaginosis with metronidazole and especially their finding of *Lactobacillus iners* DNA-clones post-treatment we would like to add to the picture our investigations on vaginal flora changes during oestrogen treatment for the purpose of in vitro fertilization (IVF) (3).

Observations in studies on healthy women of childbearing age using Nugent and Amsel criteria indicate that in a healthy vagina the *Lactobacillus* species that are the strongest candidates for being the normal vaginal *Lactobacillus* flora are *L. crispatus*, *L. iners*, *L. gasseri* and *L. jensenii* (1). These studies were however not set up to illuminate any possible changes in the flora over time e.g. a normal menstruation cycle. Earlier studies, mostly using phenotypic characteristics to type cultured vaginal *Lactobacilli*, were not powerful enough to guide in designing experiments investigating the influence of treatment, time course, and physiological parameters such as oestrogen levels on the natural flora. The interplay between physiological parameters and floral changes might be subtle and we thus resorted to the study of possible *Lactobacillus* flora changes in artificially high oestrogen levels that occur during IVF in women seeking help to conceive using *Lactobacillus* genotyping methods described in an earlier study from our group(4).

34 Swedish women, age 23 - 39, were enrolled from the normal IVF program of Linköping University Hospital. According to the IVF protocol used at the time of the study the women
were treated with doxycyclin and metronidazole. At intervals after the antimicrobial treatment vaginal cultures were taken, slides with vaginal fluid to be gramstained and Nugent scored obtained from the upper third of the vagina and Amsel scoring done (1). Plasma oestradiol levels were determined at each visit. Normal vaginal status (Nugent and Amsel scores) was found in 22 women during the study period with sufficient culture data collected. 16S rRNA DNA sequence analysis identified one or two dominant Lactobacillus species in each woman, most frequently L. iners, L. gasseri and L. jensenii that did not change over the study period among these women (4).

Three women had an abnormal vaginal flora, evident from high Nugent scores, high vaginal pH and occurrence of Mobiluncus or flora with high numbers of grampositive cocci before the antibiotics treatment. Two had L. iners in cultures after metronidazole treatment and one changed to L. iners when at higher oestradiol level in plasma. Among the patients with abnormal flora two had L. iners even before antibiotics treatment. This group of 5 patients retained L. iners from the start of the study period (up to 6 weeks).

Our findings not only support those of Ferris et al but also suggests that L. iners is a dominant part of the vaginal flora when the flora is in a transitional stage between abnormal and normal, either caused by treatment or through physiological changes such as oestrogen levels. Additional studies are thus warranted using molecular tools such as the one used by Ferris et al to elucidate the finer details of vaginal Lactobacillus colonization, especially L. iners, in relation to the long overdue description of the interplay between normal physiology and vaginal bacteria.

References


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