The effects of hydrogen peroxide (H_2O_2) and lactic acid as treatment for bacterial vaginosis- short review

Bacterial vaginosis (BV) is a common vaginal infection that is characterized by a dysbiosis of natural microbiome of the reproductive tract. In a healthy vaginal environment, the naturally occurring *Lactobacilli,* produce hydrogen peroxide and lactic acid which regulates the microbiological balance. In BV, the natural defenses are disturbed, and *lactobacilli* decreases while opportunistic pathogenic bacteria start to colonize.

Current treatments for BV include antibiotics, extended antibiotic treatment with supplemented human *Lactobacilli*. Non-antibiotic treatments include lactic acid, locally applied gels, and probiotic *Lactobacilli.* Unfortunately, the cure rates are poor, and many women suffers from reoccurring BV within months of treatment. Vernivia vaginal mousse takes a novel approach by using the two regulating factors, hydrogen peroxide and Lactic acid and binding them in the crystalline mousse. Inside the vaginal cavity the mousse adapts to the body temperature and melts, covering all vaginal folds and releases the hydrogen peroxide. A clinical study of Vernivia single and triple dose effects on BV is described in Breding et al (2018). Results show improvement of symptoms after a single dose and with the triple dose of Verniva the effects were equivalent to that of a five-day treatment with antibiotic Metronidazole. Further data supporting the microbial effects of combining hydrogenperoxide and Lactic acid is presented by Atassi and Severin (2010) that demonstrate that the dose dependent bactericidal effect of Hydrogen peroxide shows enhanced effect when in the presence of Lactic acid.

References:

Karin Breding, Ake Lindal, David Sagna and Per-Göran Larsson. Novel non antibiotic treatment of bacterianl infections of the vagina, a proof of concept study using single dose and triple dose regimen. 2018, Genecology and womens health research, 1:1

Fabrice Atassi and alain L. Severin. Individual and co-operative roles of lactic acid and hydrogen peroxide in the killing activity of eneteric stain Lactobacillus johnsonii NCC933 and vaginal strain Lactobacillus gasseri KS120.1 against enteric, uropathogenic ang vaginosis-associated pathogens. 2010. Microbiology letters, 302: 29-38.