

ORIGINAL ARTICLE

Ligilactobacillus salivarius PS11610 exerts an effect on the microbial and immunological profile of couples suffering unknown infertility

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Abstract

Problem: Unknown or idiopathic infertility has been associated with urogenital tract dysbiosis, reducing pregnancy and delivery ratios during assisted reproductive treatments (ART). The *Ligilactobacillus salivarius* PS11610 strain has shown extraordinary antimicrobial activity in vitro against urogenital pathogens as well as other probiotic characteristics. Therefore, an intervention study was performed to evaluate the effect of *L. salivarius* PS11610 on the microbial composition of urogenital tract in infertile couples with bacterial dysbiosis.

Method of study: Seventeen couples undergoing ART diagnosed with unknown infertility were selected. After confirming urogenital dysbiosis, they started a 6-month treatment with *L. salivarius* PS11610 (1 dose/12 h for female and 1 dose/24 h for male). Vaginal, seminal, glans, uterine and plasma samples were collected for determination of the microbiome and immune profile at the beginning and the end of the treatment.

Results: Supplementation with *L. salivarius* PS11610 significantly modified the urogenital microbiome composition in male and female samples, solving dysbiosis of 67% of the couples. Pathogens disappeared from the vaginal samples whereas Lactobacilli percentage increased after 3 and 6 months of treatment. Moreover, *L. salivarius* PS11610 changed the uterine microbiome that could be associated with a change of the uterine immune profile. Additionally, the probiotic intake could be associated with the observed change in the systemic immunological profile of couples. Finally, the pregnant and delivery ratio were improved.

Conclusions: Probiotic supplementation with *L. salivarius* PS11610 improved the male and female urogenital tract microbiome, modulating the immune system and increasing pregnancy success in couples undergoing ART.

KEYWORDS

dysbiosis, genital tract microbiota, immune profile, *Lactobacillus*, *Ligilactobacillus*, probiotics, unknown infertility