

The Role of Genital Tract Microbiome in Fertility: A Systematic Review.

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Rivista: International journal of molecular sciences

DOI: 10.3390/ijms23010180

PMID: 35008605

ABSTRACT

The human microbiome plays a crucial role in determining the health status of every human being, and the microbiome of the genital tract can affect the fertility potential before and during assisted reproductive treatments (ARTs). This review aims to identify and appraise studies investigating the correlation of genital microbiome to infertility. Publications up to February 2021 were identified by searching the electronic databases PubMed/MEDLINE, Scopus and Embase and bibliographies. Only full-text original research articles written in English were considered eligible for analysis, whereas reviews, editorials, opinions or letters, case studies, conference papers, and abstracts were excluded. Twenty-six articles were identified. The oldest studies adopted the exclusive culture-based technique, while in recent years PCR and RNA sequencing based on 16S rRNA were the most used technique. Regardless of the anatomical site under investigation, the Lactobacillus-dominated flora seems to play a pivotal role in determining fertility, and in particular Lactobacillus crispatus showed a central role. Nonetheless, the presence of pathogens in the genital tract, such as Chlamydia trachomatis, Gardnerella vaginalis, Ureaplasma species, and Gram-negative stains microorganism, affected fertility also in case of asymptomatic bacterial vaginosis (BV). We failed to identify descriptive or comparative studies regarding tubal microbiome. The microbiome of the genital tract plays a pivotal role in fertility, also in case of ARTs. The standardization of the sampling methods and investigations approaches is warranted to stratify the fertility potential and its subsequent treatment. Prospective tubal microbiome studies are warranted.