The vaginal microbiome fertility and successful pregnancy

FX Medicine

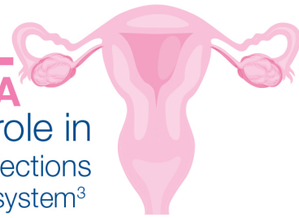
1 in 8 COUPLES
experience difficulty getting pregnant or sustaining a pregnancy[1]

INFERTILITY:

⅓ attributed to the **FEMALE**
⅓ attributed to the **MALE**
⅓ attributed to combination of **BOTH** partners, or **UNEXPLAINED**[2]

INFECTIONS of the reproductive system can have serious pregnancy-related outcomes[3]

VAGINAL MICROBIOTA play a pivotal role in defense against infections of the reproductive system[3]



VAGINAL MICROBIOME[3,4]

The vaginal microbiome is dynamic and changes throughout a woman's lifetime and is commonly dominated by lactobacillus species.

Infections within any organ system can be detrimental to fertility and pregnancy; reproductive system infections are an obvious threat. The vaginal microbial community plays an important role in vaginal innate immunity and the inhibition of bacterial, viral and yeast infections.

An abnormal vaginal microbiota is characterised by an increased diversity of microbial species leading to a condition known as bacterial vaginosis. However, the lack of lactobacillus-dominated microbiota does not necessarily imply disease or dysbiosis.

Nevertheless, lactobacillus-dominated microbiota demonstrate significant benefits to vaginal health, conception, pregnancy and parturition.

IMPORTANCE OF *LACTOBACILLUS SPP.*[3-7]

PRODUCTION OF LACTIC ACID

Production of lactic acid is a hallmark of beneficial activity of the vaginal microbiota.

Lactic acid is able to inactivate a wide range of reproductive tract pathogens, including *E.coli, N. gonorhoeae*, *C. trachomatis*, syphilis, HSV and HIV-1.

PREVENTION OF PATHOGEN ADHESION

Vaginal lactobacilli have been shown to prevent colonisation of pathogenic microorganisms via displacement and competition.

STIMULATION OF HOST DEFENSE MECHANISMS

Although this role is still poorly understood, lactobacilli display various immunomodulatory properties such as modulation of the inflammatory response and instigation of the innate immune system.

PRODUCTION OF ANTIMICROBIAL COMPOUNDS

Target-specific bacteriocins play a role in defending against the growth of non-indigenous or pathogenic organisms.

Production of hydrogen peroxide protect against the acquisition of bacterial vaginosis.

SUPPORTIVE ENVIRONMENT FOR EMBRYO

Lactobacilli have been shown to play a role in shifting the balance of the reproductive tract in favour of successful implantation and pregnancy.

OUTCOMES OF DISRUPTED VAGINAL MICROBIOME: CONCEPTION TO BIRTH[3-7]