Nature Reviews Urology | Published online 1 Mar 2017; doi:10.1038/nrurol.2017.32

PAIN

Changes in urinary microbiota correlate with IC/BPS

The role of the microbiota in health and disease is an area of considerable interest, and the roles of specific types of bacteria in the gastro-intestinal tract and vagina are beginning to be established. Now, researchers have demonstrated that women with interstitial cystitis/bladder pain syndrome (IC/BPS) without an underlying UTI have a less diverse urinary microbiota, notably with fewer lactobacilli strains, than those without.

Researchers analysed transurethral catheterized urine samples obtained from 20 women with IC/BPS and 20 women without IC/BPS, who had otherwise similar demographic characteristics. Bacterial DNA was isolated using ultracentrifugation, followed by amplification of bacterial ribosomal RNA (rRNA) libraries. Amplified bacterial rRNA sequences identified within the pellet were then compared with a standard database of bacterial DNA sequences using bioinformatics software.

Analysis of urine samples revealed the presence of considerable interindividual diversity in the urinary microbiota, both in women with, and in those without IC/BPS: a total of 54 distinct taxonomic units, and 37 different bacterial genera were detected. However, women with IC/BPS had significantly fewer operational taxonomic units in their urine compared with samples from those without IC/BPS. No notable increases in the prevalence of specific species were detected among patients with IC/BPS in this study, although bacteria of the genus *Lactobacillus* were more commonly observed in the urine of women without IC/BPS, in particular *lactobacillus acidophilus* was observed in urine samples from seven of 18 women without IC/BPS, but only in one woman with IC/BPS. When investigated further, women without detectable lactobacilli of any species in their urine samples had a significantly increased risk of pain symptoms, as indicated by significant increases in female genitourinary pain scores and interstitial cystitis symptom index scores, compared with women with lactobaccilus species detected in their urine.

In conclusion, women with IC/BPS have a less diverse urinary microbiota than those without, with a significant association between the absence of lactobacilli and a lack of IC/BPS symptoms; however, this study was not designed to assess the causality of this relationship.

These findings demonstrate the diversity of the urinary microbiota, and support the previously held theory regarding the health benefits of a more diverse microbiota, although a full characterization of the diversity of the human urinary microbiota is required in order to confirm this suggestion.

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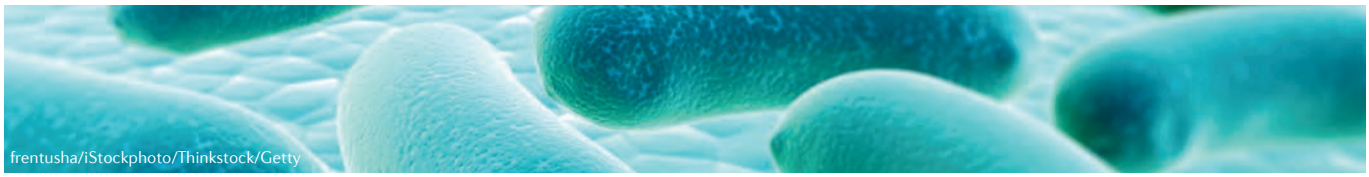
ORIGINAL ARTICLE Abernethy, M. G. *et al.* Urinary microbiome and cytokine levels in women with interstitial cystitis. *Obstet. Gynecol.* http://dx.doi.org/10.1097/AOG.0000000000001892 (2017)



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