

The effect of mindfulness-based stress reduction on the urinary microbiome in interstitial cystitis

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Abstract

Introduction and hypothesis

The objective was to investigate the impact of mindfulness-based stress reduction therapy on the urinary microbiome of patients with interstitial cystitis/bladder pain syndrome.

Methods

In this Institutional Review Board-approved prospective cohort study, patients with interstitial cystitis/bladder pain syndrome were recruited to attend an 8-week mindfulness-based stress reduction course involving yoga and meditation. Eligible participants were English-speaking women aged 18 or older with interstitial cystitis/bladder pain syndrome. All participants had a negative urinalysis within 2 months of enrolment and were currently undergoing first- or second-line treatment at the time of recruitment. The mindfulness-based stress reduction course met weekly for 1h. A straight-catheter urine sample was obtained prior to and following the mindfulness-based stress reduction series. DNA from urine samples underwent bacterial 16S ribosomal gene sequencing at Johns Hopkins University Laboratories followed by taxonomic abundance and diversity analysis by Resphera Biosciences Laboratory. Participants completed validated symptom questionnaires pre- and post-intervention.

Results

A total of 12 participants completed the 8-week course and were included in the analysis. The average age was 59 and the majority identified as white. Patient symptoms, measured by the Urogenital Distress Inventory Short Form and Interstitial Cystitis Symptom and Pain Indices, improved significantly (all $p < 0.05$). Overall composition of the urinary microbiome changed significantly ($p < 0.01$) and demonstrated an increase in diversity following the intervention.

Conclusions

Mindfulness-based stress reduction therapy improves patient symptoms and was associated with significant changes in the urinary microbiome in patients with interstitial cystitis/bladder pain syndrome.

Areas for reflection

- Are there other ways in which mindfulness can be helpful to urology patients? What other evidence supports this?
- How can this be translated into useful patient advice?

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