



Review – Incontinence

The Urinary Tract Microbiome in Health and Disease

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Abstract

Context: The urinary tract, previously considered a sterile body niche, has emerged as the host of an array of bacteria in healthy individuals, revolutionizing the urology research field.

Objective: To review the literature on microbiome implications in the urinary tract and the usefulness of probiotics/prebiotics and diet as treatment for urologic disorders.

Evidence acquisition: A systematic review was conducted using PubMed and Medline from inception until July 2016. The initial search identified 1419 studies and 89 were included in this systematic review.

Evidence synthesis: Specific bacterial communities have been found in the healthy urinary tract. Changes in this microbiome have been observed in certain urologic disorders such as urinary incontinence, urologic cancers, interstitial cystitis, neurogenic bladder dysfunction, sexually transmitted infections, and chronic prostatitis/chronic pelvic pain syndrome. The role of probiotics, prebiotics, and diet as treatment or preventive agents for urologic disorders requires further investigation.

Conclusions: There is a microbiome associated with the healthy urinary tract that can change in urologic disorders. This represents a propitious context to identify new diagnostic, prognostic, and predictive microbiome-based biomarkers that could be used in clinical urology practice. In addition, probiotics, prebiotics, and diet modifications appear to represent an opportunity to regulate the urinary microbiome.

Patient summary: We review the urinary microbiome of healthy individuals and its changes in relation to urinary disorders. The question to resolve is how we can modulate the microbiome to improve urinary tract health.

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1. Introduction

It is well known that even in a healthy state the body hosts a variety of microorganisms such as bacteria, fungi, viruses, and protozoa. In fact, the body houses approximately ten

times more microbial cells than human cells. However, although microorganism residents in the human body have evolved with man, the relationship is not always perfect [1]. The term microbiota refers to microbes living inside and on an individual, while the term microbiome denotes the