Dirk Lange
Ben Chew *Editors*

The Role of Bacteria in Urology

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Contents

1 Bacteria in the Genitourinary Tract: The Microbiota and Probiotics 1
Gregor Reid

2 Overview of Urinary Tract Infections 7
Joey Lo, Way Ho Choi, Justin Y.H. Chan, and Dirk Lange

3 Pathogenic Mechanisms of Uropathogens 21
Ryan Chanyi, Jeremy P. Burton, and Peter A. Cadieux

4 Urosepsis-Pathogenesis and Treatment 33
Samir Bidnur and Ryan K. Flannigan

5 Struvite Stone Formation by Ureolytic Biofilm Infections 41
Logan N. Schultz, James Connolly, Ellen Lauchnor, Trace A. Hobbs, and Robin Gerlach

6 The Management of Infection Stones 51
Manoj Monga and Sarah Tarplin

7 The Use of Probiotic Bacteria to Treat Recurrent Calcium Oxalate Kidney Stone Disease 63
Brian R. Kullin, Sharon J. Reid, and Valerie R. Abratt

8 Role of *Oxalobacter formigenes* Colonization in Calcium Oxalate Kidney Stone Disease 77
John Knight and Ross P. Holmes

9 BCG for the Treatment of Non-muscle Invasive Bladder Cancer 85
Roland Seiler and Peter C. Black

Index 99

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Chapter 1
Bacteria in the Genitourinary Tract: The Microbiota and Probiotics

Gregor Reid

Abstract The identification of an array of bacterial species in the urinary tract, detected by DNA sequencing, has the potential to change many aspects of urological practice. If they are associated with health or disease, should all urines be sampled as part of patient management, and what is the consequence of antibiotic therapy? Can an aberrant microbiota be manipulated by probiotics, drugs or diet resulting in less risk or better control of disease? To answer these questions, more microbiome studies are needed along with methods that interpret the data in a clinically relevant manner. Cause and effect remains to be established in most cases, but this area has the potential to invigorate urological research and improve patient care in the not so distant future.

Introduction

It was not long ago that bacteria were regarded in Urology as being pathogenic agents causing infection or organisms used for treatment of superficial bladder cancer. However, the recent discovery of an array of bacteria in the urinary tract of apparently healthy subjects is changing how we view these microbes.

The term microbiota refers to the microorganisms of a particular site, habitat, or geological period, and in the case of urology, those recovered from urine or a tissue site. The term microbiome has a wider context referring to the ecological community of all microorganisms and their genes and genomes that literally share our body space. The urinary microbiome therefore refers to all the organisms (microbiota) and their genomic activities. It is rather semantic given that microbiota without genes would not exist! In this chapter, microbiota will be used.

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