Contents

Part I  The Pathogenesis of Medical Device-Associated Infection

1  Biomaterial-Associated Infection: A Perspective from the Clinic................................................................. 3
   Werner Zimmerli and Andrej Trampuz

2  Staphylococcus epidermidis in Biomaterial-Associated Infections................................................................. 25
   Dietrich Mack, Angharad P. Davies, Llinos G. Harris, Rose Jeeves, Ben Pascoe, Johannes K.-M. Knobloch, Holger Rohde, and Thomas S. Wilkinson

3  Staphylococcal Virulence Factors................................................................. 57
   Christine Heilmann and Friedrich Götz

4  Propionibacterium acnes: An Emerging Pathogen in Biomaterial-Associated Infection................................. 87
   Sheila Patrick and Andrew McDowell

5  Bridging the Gap Between In Vitro and In Vivo Evaluation of Biomaterial-Associated Infections.................... 107
   Guruprakash Subbiahdoss, Joana F. da Silva Domingues, Roel Kuijer, Henny C. van der Mei, and Henk J. Busscher

6  Biomaterial-Dependent Characteristics of the Foreign Body Response and S. epidermidis Biofilm Interactions............... 119
   James M. Anderson and Jasmine D. Patel

7  Dendritic Cell–Biomaterial Interactions: Implications for the Onset and Development of the Foreign Body Response....... 151
   Antonio S. Sechi and Behnaz Shokouhi
8 Tissue Colonization in Biomaterial-Associated Infection .................. 175
Sebastian A.J. Zaat

9 Systemic Treatment Options for Medical Device-Associated Infection ............................................................... 209
Oscar Murillo, Jaime Lora-Tamayo, and Javier Ariza

10 Preventive Measures Against Transcutaneous Device Infections ........................................................................... 229
Paul H.S. Kwakman and Sebastian A.J. Zaat

11 Infections Associated with Implanted Dental Devices...................... 249
Georgios N. Belibasakis, Thomas Thurnheer, and Nagihan Bostanci

12 Animal Models of Orthopedic Implant-Related Infection .............. 273
Lorenzo Calabro, Cameron Lutton, Ahmed Fouad Seif El Din,
R. Geoff Richards, and T. Fintan Moriarty

Part II Biomaterial-Based Strategies to Reduce Medical Device-Associated Infection

13 Antimicrobial Medical Devices in Preclinical Development and Clinical Use ......................................................... 307
Benjamin D. Brooks, Amanda E. Brooks, and David W. Grainger

14 Silver Containing Biomaterials .................................................. 355
Neil Poulter, Krasimir Vasilev, Stefani S. Griesser,
and Hans J. Griesser

15 Quaternary Ammonium Compounds ........................................ 379
J.A. Loontjens

16 Anti-adhesive and Antibacterial Polymer Brushes ......................... 405

Part III Clinical Applications, Case Studies

17 Infection in Fracture Fixation: Device Design and Antibiotic Coatings Reduce Infection Rates ...................... 435
Gerhard Schmidmaier, Abhay D. Gahukamble,
T. Fintan Moriarty, and R. Geoff Richards

18 The Indwelling Bladder Catheter: Attempts to Prevent Infection and the Development of Bacterial Biofilms .............. 455
David Stickler and Roger Feneley

19 Antimicrobial-Modified Vascular Catheters ................................ 485
Rabih O. Darouiche
20 Topical Antimicrobial-Containing Biomaterials for Peri-Implant Infections in the Oral Cavity ........................................ 505
Stefan Renvert and G. Rutger Persson

21 Preventive Strategies in VAP: Focus on Silver-Coated Endotracheal Tubes ......................................................... 531
Marin Kollef

Index ............................................................................................................................................................................. 557
Biomaterials Associated Infection
Immunological Aspects and Antimicrobial Strategies
Moriarty, F.; Zaat, S.A.J.; Busscher, H.J. (Eds.)
2013, XIV, 566 p., Hardcover
ISBN: 978-1-4614-1030-0