Prosthetic Joint Infection of the Hip

Cause and Effect

av

Peter Wildeman

Akademisk avhandling

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Fakultetsopponent: Professor Nils Hailer, Institutionen för kirurgiska vetenskaper, Uppsala universitet.

Örebro universitet
Institutionen för medicinska vetenskaper
Örebro

Abstract

Every year, 18 000 patients in Sweden and more than 1 million worldwide undergo total hip arthroplasty (THA). The operation is of great benefit to patients, but is associated with several complications. Prosthetic joint infections (PJIs) are among the most common complications, and can be devastating in terms of suffering for the patient and cost for the healthcare provider. The aim of this thesis was to investigate different aspects of PJIs in order to gain a better understanding of the causes and effects of infection.

Four studies were conducted covering genomic analysis of the causative organism, identification of risk factors for failure of treatment, evaluation of a national infection control program aimed at reducing the burden of infections (PRISS: Prosthesis-related infections shall be stopped), and examination of the long-term impact of a PJI on the patient's health through patient-reported measurement questionnaires.
The main findings were as follows. Commensal bacteria such as *Cutibacterium avidum* have the potential to cause PJIs, and should be specially accounted for when performing hip surgery with an anterior approach. *S. aureus* is both a commensal and a pathogen with invasive capacity, and the commensal strains do not differ from the PJI strains regarding prevalence of virulence genes and clonal complexes. The genomic traits of pathogens had no impact on treatment success or eradication of infection *in S. aureus* PJIs The long-term effects of a PJI in the hip include increased mortality, lower quality of life, and decreased hip function. The incidence of PJIs was higher following the PRISS project. Increasing risk factors contributing to PJI explain the increasing incidence of PJI after primary THA.

In conclusion, PJIs of the hip have multifactorial causes which are difficult to reduce, and long-term effects are severe.

Keyword: Prosthetic joint infection, infection, arthroplasty, hip, *Staphylococcus aureus*, *Cutibacterium avidum*, hip, outcome, PROM