

Symposium: 2013 Musculoskeletal Infection Society

Editorial Comment: 2013 Musculoskeletal Infection Society Meeting

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Musculoskeletal infections are challenging complications associated with substantial morbidity. These infections require a thoughtful, collaborative approach involving experts from different disciplines; even with good treatment approaches, they represent a burden for patients, healthcare providers, and society.

The Musculoskeletal Infection Society aims to promote this collaboration through its annual meeting,

which provides a scientific forum for presentations of research, discussions, and exchanges of ideas. Continuous research in the field of musculoskeletal infection has been improving our understanding of the pathogenesis, diagnosis, and treatment of this complication. This Symposium consists of research papers presented at the 23rd meeting of the Musculoskeletal Infection Society that took place in Philadelphia, PA on August 2–3, 2013.

Diagnosis of periprosthetic joint infection (PJI) is often difficult, as these infections are associated with biofilm development and sometimes with indolent microorganisms. These factors may result in infections that fail to elicit an inflammatory response or growth in culture. All current diagnostic methods such as peripheral blood inflammatory markers, synovial fluid analysis, histopathology, and cultures have limitations, and no single gold-standard test exists. Current research focuses on improving the diagnostic process. The use of synovial fluid biomarkers is a promising new development and may enhance our ability to accurately diagnose PJI even in patients with prior antibiotic treatment.

Until a single test can provide the currently elusive answer to the



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question whether an infection exists, we need to make best use of the available methods. This can be accomplished by developing diagnostic strategies that incorporate more than one diagnostic tool and methods that take into account not only the accuracy, but the safety and cost of each element of the approach.

In terms of treatment, periprosthetic joint infection is commonly managed with two-stage reimplantation. Despite surgical débridement and use of local and systemic antibiotics, reinfection after two-stage reimplantation occurs. When these reinfections happen, a difficult decision has to be made: Should another attempt be made at two-stage reimplantation, should the

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infection be chronically suppressed, or should a different approach – such as amputation or arthrodesis – be considered, even knowing that these approaches may not result in good function? Research on these management options will assist with decision-making.

Prevention of PJI therefore is of paramount importance. Potential interventions include minimizing the microbial burden, delivering antimicrobials, optimizing the status of the patient and the local soft tissue envelope, and interrupting the process of biofilm development in order to win the “race for the surface.” Research on these areas will enhance our

understanding of the pathogenetic processes involved in biofilm formation and targeted interventions may lead to reduced infection rates. Biofilm formation in vitro demonstrates a dose response to glucose concentration and emphasizes the importance of controlling perioperative hyperglycemia. Surface modification of biomaterials may prevent biofilm formation by reducing the ability of microorganisms to attach to the surface or by having antimicrobial properties. Coating of implants with a layer containing antimicrobials that could be released gradually upon implantation, or even later on demand, is a promising concept.

The papers in this Symposium demonstrate the exciting and important scientific information that was presented and discussed at the 2013 Musculoskeletal Infection Society meeting. Despite these advances, many questions remain unanswered, and serious challenges await our responses. The continuous work and dedication of basic science researchers, infectious disease specialists, and orthopaedic surgeons continue to advance the field. It is our hope that the annual Musculoskeletal Infection Society meeting will continue to enhance this process by promoting scientific dialogue and multidisciplinary collaboration.