

# Prosthetic joint infections missed in patients with rheumatic diseases

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Standard diagnostic methods are not adequate to identify prosthetic joint infections (PJIs) in patients with rheumatic diseases, according to findings from a new study by researchers from Hospital for Special Surgery (HSS) in New York City. The study was presented at the American College of Rheumatology/Association of Rheumatology Professionals annual meeting in Atlanta on November 12.

Lead study author Susan M. Goodman, MD, a rheumatologist at HSS, said that while patients with rheumatic diseases are more prone to developing PJIs, it is also harder to make a PJI diagnosis in this population because many of the typical inflammation features of PJIs are similar to those seen in inflammatory arthritis flares. "If a patient with osteoarthritis comes in with a swollen and inflamed prosthetic joint, it is an [infection](#) until proven otherwise, but for patients with rheumatoid arthritis, it can be very hard to sort out whether this is part of an overall flare of [disease](#) or if it is a true infection," she said. "None of the available tests are that helpful."

The researchers launched the new study to examine the clinical and microbiological features of total hip and total knee arthroplasty PJIs in patients with rheumatic diseases and osteoarthritis. The researchers used the HSS institutional PJI registry to create a retrospective cohort of total hip/total knee replacement PJIs from 2009 to 2016. They identified 807 PJI cases, including 36 in patients with rheumatic disease and 771 in patients with osteoarthritis. Culture-negative cases were defined as PJIs with no evidence of microbial growth in intraoperative cultures; culture-

positive PJIs were defined by positive microbial growth.

Among the findings, the researchers discovered that patients with rheumatic diseases had a higher proportion of culture-negative PJIs (27% vs 14%;  $P=0.02$ ). "Patients with rheumatic diseases who were culture negative were less likely to meet the pathology criteria for infections than the ones who were culture positive, and they did a little worse," said Dr. Goodman. One-year survivorship of culture-negative osteoarthritis and culture-negative rheumatic disease were 87% and 66%, respectively, and 47% for culture-positive rheumatic disease.

"The main message is that patients with rheumatic disease seem to have more culture-negative prosthetic joint infections than patients with [osteoarthritis](#), but what we don't know is what that means in terms of long-term management," said Dr. Goodman. "We had the feeling that we were missing something with our rheumatic disease patients who were coming in with prosthetic joint infections, so I wasn't surprised by our findings, but it pointed out how much more we need to do to really understand this."

Dr. Goodman said the next step is to do a prospective study in patients with [rheumatic disease](#), which will provide the standard diagnostic tests for PJIs but also use Next Generation Sequencing including cell-free DNA methods to better identify bacteria present in tissue.

Provided by Hospital for Special Surgery

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