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From Medscape Medical News

New Definition Issued for Periprosthetic Joint Infection

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 Authors and Disclosures

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November 8, 2011 — A new evidence-based definition and diagnostic criteria for periprosthetic joint infection (PJI) should improve uniformity of diagnosis, treatment, and surveillance, according to a [symposium paper](#) published in the November issue of *Clinical Orthopaedics and Related Research*. The new criteria will also be published in the December issue of the *Journal of Arthroplasty*.

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"Our aim was to develop a 'gold standard' definition to serve as a roadmap for diagnosing patients with suspected PJI that could be universally adopted by the industry," lead author Javad Parvizi, MD, director of research at the Rothman Institute at Thomas Jefferson University in Philadelphia, Pennsylvania, said in a news release. Dr. Parvizi led the Musculoskeletal Infection Society working group that wrote the new definition.

Increasing prevalence of PJI was a major impetus behind the new definition, as deep PJI is now the leading indication for revision of total knee arthroplasty and the third most common indication for revision of total hip arthroplasty. Physicians have also become increasingly concerned about a rise of PJI attributed to antibiotic-resistant *Staphylococcus aureus* and other drug-resistant bacteria.

"It's important to get to the root of the cause of PJI so that we can begin to get ahead of it at Jefferson and across the industry and turn the tide," Dr. Parvizi said. "Using this definition, we will now be more confident in our diagnosis and be able to provide appropriate treatment for patients."

Definition of PJI

"Patients with PJI could suffer unintended consequences if their infection is not identified and treated hastily," Dr. Parvizi noted in the release. "Without an industry-wide definition, research, diagnosis and treatment cannot be uniform."

Criteria for definite PJI are as follows:

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1. a sinus tract is present communicating with the prosthesis; or
2. two or more separate tissue or fluid samples obtained from the affected prosthetic joint are culture-positive for a pathogen; or
3. four of the following 6 criteria are present:
 1. elevated erythrocyte sedimentation rate and serum C-reactive protein concentration,
 2. elevated synovial leukocyte count,
 3. elevated synovial percentage of neutrophils,
 4. purulence in the affected joint,
 5. one culture of periprosthetic tissue or fluid is positive for a microorganism, or
 6. histologic analysis of periprosthetic tissue at x400 magnification reveals more than 5 neutrophils per high-power field in 5 high-power fields.

Management of Atrial Fibrillation of the European Society of Cardiology (ESC)

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If fewer than 4 of these criteria are met, PJI may still be present.

To date, the Knee Society, the Hip Society, the Infectious Diseases Society of North America, the American Academy of Orthopaedic Surgeons, and the US Centers for Disease Control and Prevention have reviewed and endorsed the new definition.

"We recognize there are numerous other tests currently being evaluated, including measurement of [C-reactive protein] from the synovial fluid, synovial leukocyte esterase, sonication of explanted prosthetics, and molecular techniques such as [polymerase chain reaction] and other molecular markers such as [interleukin 6]," the symposium paper authors conclude. "As these or other techniques become validated and widely available, the currently proposed definition may require modification."

The authors of the symposium paper report no financial disclosures.

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