

Kocher Criteria Best Way to ID Septic Arthritis

BY BRUCE JANCIN

EXPERT OPINION FROM A CONFERENCE
ON PEDIATRIC INFECTIOUS DISEASES
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COLORADO

VAIL, COLO. – Four simple criteria are useful in distinguishing septic arthritis from transient synovitis in a child with an inflamed hip.

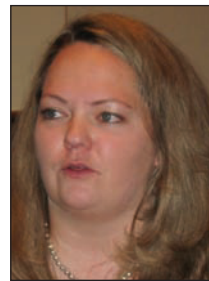
They are known as the Kocher criteria, for Dr. Mininder S. Kocher, associate director of sports medicine at Children's Hospital Boston. He was first author of the study that introduced the criteria and an associated evidence-based, predictive algorithm.

The criteria are inability to tolerate weight bearing, fever greater than 38.5° C (101.3° F), an ESR (erythrocyte sedimentation rate) in excess of 40 mm/hour, and a peripheral WBC count greater than 12,000 cells/mm³.

Dr. Kocher and his coworkers showed in a retrospective study that a child who meets none of these four criteria has a 0.2% chance of having septic arthritis. With one criterion present, there's a 3% chance. With two criteria, it's 40%. With

any three, the probability of septic arthritis jumps to 93%. When all four criteria are present, the probability is 99.6% (J. Bone Joint Surg. Am. 1999;81:1662-70).

"Looking back on our own cases, this has been really helpful," Heather R.



Septic arthritis is an orthopedic emergency. Delayed treatment can lead to irreversible joint damage.

MS. HEIZER

Heizer said at the conference.

The Kocher criteria should be more widely known. Septic arthritis is an orthopedic emergency. Delayed treatment can lead to irreversible joint damage. And septic arthritis occurs more often in childhood, said Ms. Heizer, a physician assistant in the department of pediatrics at the University of Colorado at Denver.

The most common site for septic arthritis is the hip, followed by the knee,

then the ankle. Together these three sites account for 80% of all cases.

In addition to the Kocher criteria, other signs of septic arthritis are limb pain, joint effusion, and a strong tendency for the patient to hold the affected joint in the position of maximal intracapsular volume to minimize discomfort. Neonates and infants may present with pseudoparalysis in response to the joint pain.

The log-roll technique is an effective way to detect hip effusion on clinical examination. With the patient lying supine on the examination table, the examiner places one hand at the ankle and another on the thigh and rolls the leg back and forth. Hip effusion can also be detected by ultrasound or MRI. The presence of hip effusion does not distinguish septic arthritis from transient synovitis.

Diagnosis of septic arthritis is based upon a combination of clinical findings and analysis of synovial fluid obtained via joint aspiration. Septic arthritis is suggested by an opaque, yellow-to-green synovial fluid with an elevated WBC, at least 75% polymorphonuclear leuko-

cytes, and a glucose concentration of only about 30% of that in blood.

Select the initial antibiotic therapy before synovial fluid culture results are available. Consider the child's age, as the causative organisms vary. *Haemophilus influenzae* was the most common pathogen in children younger than 5 years until the vaccine entered wide use. Now *Staphylococcus aureus* is No. 1 in all age groups, and community-acquired MRSA (methicillin-resistant *S. aureus*) is an important consideration.

In neonates, other organisms include group B streptococcus, *Streptococcus viridans*, *Streptococcus pneumoniae*, *Neisseria gonorrhoeae*, gram-negative enteric bacteria including *Escherichia coli* and group A streptococcus.

An important cause of septic arthritis in non-neonates younger than age 5 years is *Kingella kingae*. It is typically culture negative but can be detected by polymerase chain reaction. Also, *Neisseria meningitidis* is a consideration in this age group and through adolescence.

Ms. Heizer said she had no disclosures. ■

Persistent Symptoms Up Coronary Risk in KD

BY BRUCE JANCIN

Persistence of rash or other non-febrile symptoms for 10 days or longer after resolution of fever in children with Kawasaki disease was associated with a 16-fold increased risk of coronary artery abnormalities in a large retrospective Japanese study.

The study involved 217 children who were hospitalized with Kawasaki disease and treated with intravenous immunoglobulin at the National Center for Child Health and Development in Tokyo from 2008 through the first half of 2010.

Conjunctivitis, body rash, strawberry tongue or lip erythema, and swelling or redness of the extremities were each present in 92%-98% of the children. Cervical lymph node swelling was present in three-quarters of them.

These nonfebrile symptoms per-

sisted for a median of 3 days after resolution of fever. All nonfever symptoms resolved within less than 10 days after fever resolution in 95% of subjects, Dr. Sayaka Fukuda said at the annual meeting of the Pediatric Academic Societies.

Of the 11 children with any nonfebrile symptom persisting for at least 10 days after resolution of fever, 7 (64%) developed coronary artery abnormalities, compared with just 8 of 206 (3.9%) of those whose nonfebrile symptoms all resolved less than 10 days after fever ended, said Dr. Fukuda of the Tokyo center.

She and her coinvestigators next plan to study how best to manage Kawasaki disease patients who are treated with IVIG and then discharged with persistent nonfebrile symptoms.

Dr. Fukuda declared having no financial conflicts. ■

Longer Tocilizumab Is More Efficacious in systemic JIA

BY MITCHEL L. ZOLER

FROM THE ANNUAL EUROPEAN CONGRESS
OF RHEUMATOLOGY

LONDON – Children with systemic juvenile idiopathic arthritis continued to improve on treatment with the interleukin-6 inhibitor tocilizumab, as their time on the drug extended to 1 year in follow-up of the open-label phase of a pivotal trial for this disease.

During continued treatment, the percent of sJIA patients with an ACR 90 response and no fever rose from 37% of the treated group at the end of the 12-week randomized trial, to about 55% after 40 more weeks of open-label treatment.

There was no active joint disease in 49 of the 99 patients (49%) treated for 52 weeks; the children appeared to be in full remission, Dr. Fabrizio De Benedetti said. In addition, 52 of the patients treated for 52 weeks fully withdrew from treatment with oral corticosteroids.

At their entry onto tocilizumab treatment, their average corticosteroid dosage was 0.30 mg/kg per day.

Tocilizumab also had an "acceptable" safety profile.

Thirteen patients had a serious adverse event, and six had an adverse event leading to withdrawal from treatment.

"There was no increase in the rate of serious adverse events between weeks 12 and 52.

"It is reassuring that there was no accumulation of safety issues with time. But it's still only 1 year, so we still need more time" to fully assess safety, said Dr. De

Benedetti, director of the division of rheumatology at Ospedale Pediatrico Bambino Gesù in Rome and lead investigator for the TENDER trial and extension.

Based on results from the 12-week randomized phase III trial, Roche – which developed and markets tocilizumab (Actemra) – in April received approval



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from the Food and Drug Administration for an expanded indication for tocilizumab to treat sJIA. It received FDA approval last year for treatment of rheumatoid arthritis.

Dr. De Benedetti sees tocilizumab as a reasonable first-line agent.

However, another new treatment approach that warrants investigation for treating sJIA are the IL-1 inhibitors, such as anakinra (Kineret) and canakinumab (Ilaris), he added.

The TENDER trial was sponsored by Roche, the company that markets tocilizumab.

Dr. De Benedetti said he has been a consultant to Bristol-Myers Squibb, Hoffmann-La Roche, and Pfizer, and he has received research support from Hoffmann-La Roche. ■

Additional Resources

Guidelines from the National Institutes of Health:
www.nlm.nih.gov/medlineplus/ency/article/000989.htm

EULAR recommendations for vaccination in paediatric patients with rheumatic diseases:
Ann. Rheum. Dis. 2011 Aug. 3
(doi:10.1136/ard.2011.150193)
American Heart Association Sci-

entific Statement: Diagnosis, Treatment, and Long-Term Management of Kawasaki Disease: A Statement for Health Professionals From the Committee on Rheumatic Fever, Endocarditis and Kawasaki Disease, Council on Cardiovascular Disease in the Young;
<http://circ.ahajournals.org/content/110/17/2747.full>.