Lab Values May Prove Useful in Appendicitis Dx

BY ROBERT FINN
San Francisco Bureau

The diagnosis of appendicitis is notoriously difficult in chil-
dren, with estimates of misdiagnoses ranging from 28% to 75% for children over the age of 12 and up to 100% for children under 6 years of age.

But the diagnosis may be made with high specificity using a combination of C-reactive protein and white blood cell levels, suggest the findings of a poster presented by Dr. Karen Y. Kwan and Dr. Alan L. Nager at the annual meeting of the Pediatric Academic Societies. In particular, a C-reactive protein (CRP) level of 1.0 mg/dL or greater combined with a WBC count of 15,000 cells/mm³ or greater yields a specificity of 90%, a sen-
sitivity of 86%, and a positive predictive value of 59% for confirmed appendicitis.

The study conducted at the University of Southern California, Los Angeles, involved 209 patients aged 1-18 years presenting at a tertiary urban children’s hospital with abdomi-
nal pain suspicious for acute appendicitis. In addition to history, physical exam, x-ray studies, and histopathology, the investigators conducted blood tests for CRP, WBC, D-lactate, and procalcitonin.

Two to six days following discharge from the emergency department, investi-
gators followed up with the patients to de-
termine the ultimate diagnosis.

Of the 209 patients, 115 (55%) had con-

firmed appendicitis and 94 (45%) were negative. Among the diagnoses for chil-
dren negative for appendicitis were cont-
gration, gastroenteritis, pylonephritis, ovar-
ian torsion, and neoplasm.

The mean D-lactate values did not dif-
fer between patients who were positive for appendicitis and those who were negative.

Two of the other three lab markers did differ significantly; in each case patients with ap-
pendicitis had a significantly higher level in patients without.

Using a cutoff value of 1.0 mg/dL of CRP alone would yield a sensitivity of 84% and a specificity of 70%. A combina-
tion of that CRP cutoff with a WBC cutoff greater than 15,000 cells/mm³ results in a somewhat lower specificity, a speci-
ficity of 90%, and the positive predictive value of 86%.

The investigators are interpreting their findings with caution as 85% of the patients were Hispanic and largely indi-

gnant, and acute or chronic diseases may skew the findings.

The meeting was sponsored by the American Pediatric Society, the Society for Pediatric Research, the Ambulatory Pa-

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