

Initial Lab Tests Often Skipped for Febrile Kids

BY JOYCE FRIEDEN

TAMPA — Emergency departments in general and pediatric hospitals did not obtain urine cultures from three-fourths of febrile pediatric patients under 3 years of age, and did not obtain blood cultures from two-thirds of such patients, according to a study of national data.

The study data suggest that “blood and urine cultures are obtained less fre-

quently than we might expect,” Dr. Lara Johnson of Yale University, New Haven, Conn., the study’s sole author, said at a meeting on pediatric hospital medicine. Several audience members at the packed session said they were surprised or shocked by the results.

Emergency department (ED) practices regarding the frequency of obtaining blood and urine cultures are unknown, Dr. Johnson said. Guidelines published in

2003 by the American College of Emergency Physicians state that infants between 1 and 28 days old with a fever should be presumed to have a serious bacterial infection, which Dr. Johnson said would call for a full sepsis work-up—including blood and urine cultures as well as a spinal tap.

Dr. Johnson analyzed data from the 2001-2004 Hospital Ambulatory Medical Care Survey, specifically ED visits among

children less than 3 years of age. The researchers included all patients with fever listed as the reason for the visit as well as those in the ED for other reasons who had a documented temperature of at least 100.4 degrees Fahrenheit.

Dr. Johnson also looked at several patient factors, including age, acuity, race/ethnicity, and sex, and whether the patient was admitted to the hospital or transferred elsewhere. Hospital-specific factors considered in the analysis included location—urban or rural, and geographic region—public or private ownership, and status as a general or children’s hospital.

Of the 37,000 ED visits included in the national survey, 4,358 involved children with either subjective or objective evi-

In patients seen in the ED at less than 3 months of age, blood cultures were obtained in 33.3% of cases and urine cultures, in 24.7%. The numbers for older children ‘were significantly less.’

dence of fever, and Dr. Johnson’s study included those patients. In patients less than 3 months of age, blood cultures were obtained in 33.3% of cases and urine cultures in 24.7% of cases, Dr. Johnson said at the meeting, which was sponsored by the Society of Hospital Medicine, the American Academy of Pediatrics, and the Academic Pediatric Association. The numbers for older children “were significantly less,” she said.

Children who were eventually admitted to the hospital or transferred to another institution were 5.53-fold more likely to have a blood culture done than those who were not, and 2.89-fold more likely to have a urine culture. Also, children with higher temperatures were more likely to have blood cultures done, Dr. Johnson said. General hospitals were less likely than children’s hospitals to do any cultures. Hispanic patients were less likely to have blood cultures done, compared with non-Hispanic patients. There were also regional differences: Hospitals in the Northeast were less likely to obtain blood cultures, as were general hospitals and hospitals in nonmetropolitan areas.

For urine cultures, the patterns were similar, with patients who were younger and who had higher temperatures being more likely to receive urine cultures. In addition, male patients were more likely than females to receive urine cultures, a difference that was not noted with blood cultures, according to Dr. Johnson.

Hospitals in the Northeast were more likely to obtain urine cultures; as with blood cultures, general and nonmetropolitan hospitals were less likely to obtain urine cultures.

Dr. Johnson noted several limitations of her study, such as the fact that it was a cross-sectional survey and provided

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RSV Appears Directly Related to Heart Damage

BY ROBERT FINN

SAN FRANCISCO — Respiratory syncytial virus itself, and not the bronchiolitis associated with the infection, appears to be the cause of the heart damage often seen in young children with the virus, according to a prospective study involving 74 children.

All 74 children were less than 12 months of age and were admitted to the hospital for bronchiolitis, Dr. Susanna Esposito explained in a poster at the Interscience Conference on Antimicrobial Agents and Chemotherapy.

Aside from their bronchiolitis, the children were healthy.

Investigators excluded children from the study if they had a chronic disease (including a chronic disorder of the pulmonary or cardiovascular system, chronic metabolic diseases, neoplasias, kidney or liver dysfunction, hemoglobinopathies, immunosuppression, and genetic or neurologic disorders) that increased the risk of complications of a respiratory infection.

The investigators from the University of Milan collected the specimens with nasopharyngeal swabs to detect respiratory syncytial virus (RSV) types A and B.

As it turned out, 35 patients (47%) tested positive for RSV infection, and the remaining 39 (53%) did not.

Patients with RSV had significantly more cardiac arrhythmias and a significantly greater degree of abnormal heart rate variability than those without RSV.

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“just a snapshot” of the patients who came into the ED.

“It’s impossible to know from this data what happened before the patient came to the ED,” she said. “Did they have a blood culture obtained in their practitioner’s office? It’s [also] impossible to know what happened after they left the ED; did they have blood cultures obtained after admission on the floor?”

“We also don’t know anything about outcomes [or] results of tests,” she added.

The data suggest that “more evidence is needed to guide laboratory evaluation of febrile infants,” she concluded.

In response to a question, Dr. Johnson noted that a preliminary analysis found that the results did not change significantly if only patients with objective evidence of fever were included.

She also was asked whether some patients may not have had urine cultures taken because a urinalysis suggested that a culture was not necessary. Dr. Johnson replied that she did not look at urinalysis data, but she did look at how many patients had complete blood counts taken in lieu of blood cultures, “and the frequencies were not terribly different.”

Dr. Johnson said that she had no conflicts of interest. ■

For example, approximately 25% of the patients with RSV had cardiac arrhythmias, compared with about 5% of those without RSV. Approximately 60% of the patients with RSV exhibited abnormal heart rate variability, compared with approximately 40% of those without RSV.

The investigators found no differences between the two groups in pulse oximetry, chest radiography, respiratory involvement, or cardiac troponin I levels.

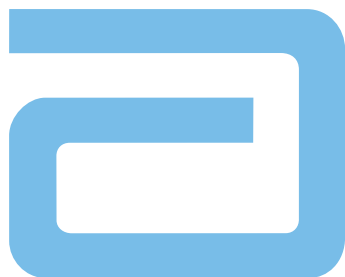
The heart involvement appeared to be related to an RSV viral load of 100,000 copies per milliliter or more, and not to drug use or the disease’s severity.

“This last finding suggests that RSV can be the direct cause of the heart damage and that arrhythmias can be found also in children with very mild RSV bronchiolitis in whom pulmonary hy-

perfusion and lung damage are nonexistent or marginal,” the investigators wrote.

“This means that a careful heart evaluation has to be performed in all the children with RSV bronchiolitis, and that higher viral load is a risk factor for heart damage development,” Dr. Esposito and her associates wrote.

The investigators reported that they had no conflicts of interest. ■



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