Necrotizing Pneumonia Incidence Is Increasing

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FORT LAUDERDALE, FLA. — More children with pneumonia are developing necrotizing pneumonia from a growing variety of infectious agents, including methicillin-resistant *Staphylococcus aureus*, according to a retrospective, 15-year study.

"Necrotizing pneumonia is real," Dr. Andrew Colin said.

If a child has a persistent fever that does not respond to treatment for 3 or more weeks, along with pleural effusions suggesting community-acquired pneumonia, consider coexisting necrotizing pneumonia, he said.

Multiple organisms are playing a role, "including a lot of necrotizing pneumonias where we do not know the organism. These could be mycoplasma," said Dr. Colin, director of the division of pediatric pulmonology, Holtz Children's Hospital at the University of Miami/Jackson Memorial Medical Center in Florida.

Of 80 patients, 38 (48%) had positive cultures. *Streptococcus pneumoniae* was the predominant organism, although in the more recent years there was a variety of organisms responsible, most notably methicillin-resistant *Staphylococcus aureus* (MRSA), Dr. Colin said at a pediatric pulmonology meeting sponsored by the American College of Chest Physicians.

Dr. Colin, along with Dr. Gregory Sawicki (the study's lead author) and associates, found an increasing incidence of necrotizing pneumonia from January 1990 to February 2005 at Children's Hospital Boston (Eur. Respir. J. 2008 Jan. 23 [Epub ahead of print]). Of 80 cases identified, there was 1 case during 1993-1994; 11 each during 1995-1996 and 1997-1998; 17 cases during 1999-2000; and 12 cases during 2001-2002.

"By the end of the study, years 2003-2004, we had 28 cases in one hospital, which is quite significant," Dr. Colin commented.

A meeting attendee asked if children at greater risk for necrotizing pneumonia can be identified.

"We don't have large enough numbers to predict who will develop necrotizing pneumonia," responded Dr. Colin, who is also professor of pediatrics at the University of Miami.

Necrotizing pneumonia presents with coexisting effusion in a majority of patients. In the study, 69 children (86%) had pleural effusion with a low pH (mean 7.08).

It is clinically challenging to differentiate the signs and symptoms of necrotizing pneumonia from the effusion, Dr. Colin said.

Computed tomography with contrast is the best way to diagnosis necrotizing pneumonia, Dr. Colin said. The imaging detects the characteristic features, the liquefaction and cavitation of lung tissue. Look for demarcation between lung and liquid lung, he suggested.

How to differentiate a lung abscess from liquid in the lung on the imaging was another meeting attendee question.

"The differential diagnosis is absolutely critical," Dr. Colin said. On the CT scan, abscesses appear with thick walls, whereas necrotizing lungs have thin walls and will collapse in a couple of days, he replied. Also, "if you tap the two, the abscess will be positive in culture, the necrotizing lung will be negative."

Although the lungs are often sterile with necrotizing pneumonia, "there are some bad bugs, so everyone gives antibiotics just in case."

Dr. Colin advocated a conservative approach to prolonged chest tube drainage in patients who develop necrotizing pneumonia. In another of his studies, five of nine children with the condition developed bronchopleural fistulae after chest tube placement (Pediatr. Radiol. 1999;29:87-91). Three of these children had a surgical chest tube placed for an average of 7 weeks to treat persistent pneumothorax.

The longer drainage continues, the greater the risk of puncturing a lung. A bronchopleural fistula is a serious complication that can substantially lengthen a hospital stay and recovery time, he added.

"Despite the serious morbidity, massive parenchymal damage, and prolonged hospitalizations, long-term outcome following necrotizing pneumonia is excellent," Dr. Colin and his coauthors wrote. In fact, all patients in the study had a complete clinical resolution within 2 months, he added.

"The good news is you do not have to resect damaged lungs—these young patients have a remarkable ability to recover." ■