Invasive GAS Contacts May Not Need Prophylaxis

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CHICAGO — Offering prophylaxis to all household contacts of patients with invasive group A streptococcal disease may not be cost effective, according to findings from an epidemiologic study presented at the Interscience Conference on Antimicrobial Agents and Chemotherapy.

The Centers for Disease Control and Prevention recommends that chemoprophylaxis be given only to household contacts at increased risk of group A streptococcus (GAS) disease. In the United Kingdom, chemoprophylaxis is routinely given to maternal or neonatal index cases, Dr. Stephanie W. Smith explained.

In Canada, however, where the study was conducted, guidelines recommend that if a household member has more than 4 hours of contact with the index case in the 7 days prior to onset of illness, then that person should be offered chemoprophylaxis.

In a study aimed at describing the epidemiology of household clusters of invasive GAS, Dr. Smith and her colleagues analyzed data on 12 million people in Ontario.

"In looking at the issue of prophylaxis, over the period from 1992 to 2001 we had over 2,000 cases of invasive GAS, and we had another 982 cases from 2001 to 2004, of which 610 were from the population base of 4 million people in the Toronto area," said Dr. Smith of the division of infectious diseases at the University of Alberta in Edmonton.

The incidence of invasive GAS ranged from 1.5 to 3.4 per 100,000 people; data regarding prophylaxis of household contacts were available for 968 cases, Dr. Smith said.

Results from previous population-based studies suggest that the worldwide annual incidence of invasive GAS is between 1.25 and 6 per 100,000, she explained.

The researchers identified eight household clusters, each consisting of two cases of GAS disease, including four husband-wife pairs, one brother-brother pair, two mother-son pairs, and one father-daughter pair, she said, adding that the average age of secondary cases was 54 years (range 29-83 years).

Risk factors for sporadic disease include residence in a nursing home, extremes of age, recent varicella infection, HIV, diabetes, heart disease, cancer, use of high-dose steroids, and intravenous drug use.

In this study, only two of the secondary cases had risk factors for sporadic GAS disease, Dr. Smith said at the meeting, which was sponsored by the American Society for Microbiology.

All cases had bacteremia, including one pair with necrotizing fasciitis, one pair with prepatellar bursitis, three pairs with soft tissue infection, and one pair with soft tissue infection and peritonitis.

None of the secondary cases received chemoprophylaxis, and all primary and secondary cases within these eight households survived, Dr. Smith said, adding that of the 968 cases with documentation regarding chemoprophylaxis, only 28% of household contacts received it, suggesting a low adherence to Canadian guidelines.

Prophylaxis may have prevented several secondary cases, "but we still think our data are reasonably robust and represent the largest series of household clusters," Dr. Smith said in an interview.

"If we assume 100% efficacy of prophylaxis, based on our secondary infection rate in Ontario, we would have to treat 806 household contacts to prevent one case of invasive disease at an estimated cost of $33,000 per case prevented," she said, adding that a formal cost-effectiveness analysis was not completed.

Invasive group A streptococcus can cause a variety of invasive syndromes, including necrotizing fasciitis, toxic shock syndrome, pneumonia, and bacteremia. The overall mortality rate of between 10% and 20% is highest among the elderly, the very young, and those who have had a recent varicella infection or who have other comorbidities.

"We think the secondary attack rate is a bit higher than the sporadic rate, but [it] is definitely lower than what we found in the initial Ontario data, and the most common risk factor does seem to be advanced age," Dr. Smith said, adding that offering all household contacts chemoprophylaxis may not be cost-effective given the combined public health and antibiotic costs.

"However, offering prophylaxis to those at increased risk for sporadic disease or for severe disease … may be the most cost-effective approach," she said. ■

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