

Clostridium difficile Infections May Be Increasing

BY SHARON WORCESTER

Pediatric hospitalizations associated with *Clostridium difficile* infections increased dramatically from 1997 through 2006, according to data from the Health Care Cost and Utilization Project and the National Hospital Discharge Survey.

The overall rate of such hospitalizations increased from 7.24 to 12.80 per 10,000 hospitalizations, with the highest rates occurring in children aged 1-4 years (rate of 44.87/10,000), 5-9 years (35.27/10,000), and less than 1 year, except newborns (32.01/10,000). The lowest rates were seen in newborns, defined as infants whose related hospitalizations originated at their birth (0.5/10,000), Dr. Marya D. Zilberberg of the University of Massachusetts, Amherst, and her colleagues reported.

Most of the increase in *C. difficile* infection (CDI)-related hospitalizations identified in this study occurred between 2000 and 2006, and this may reflect the spread of a new hypervirulent bacterial strain of *C. difficile* known as BI/NAP1/027. An increase in detection of the strain has coincided with reports of increasing CDI-related hospitalizations, the investigators noted (Emerg. Infect. Dis. 2010;16:604-9).

Evidence suggests that CDI is an increasingly prevalent diarrheal pathogen in children, and that a large proportion of pediatric CDI cases are community acquired. Many cases appear to be occurring without the exposure to antimicrobial drugs that has typically been a risk factor for CDI, they said, noting that the BI/NAP1/027 strain likely is related to these changes in pediatric CDI epidemiology; at least two reports show it has a prevalence of up to 38% in pediatric CDI populations, and it is associated with a fourfold increase in complication rates, compared with other strains.

To better characterize the epidemiology, the investigators performed a time-series analysis using information from the Kids' Inpatient Database (KID) of the Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project, which includes data from more than 3,700 hospitals in 38 states, and from the Centers for Disease Control and Prevention's National Hospital Discharge Survey, which includes information from about 500 noninstitutional, nonfederal, short-stay hospitals in the United States. The latter analysis allowed for cross-sectional characterization of all CDI hospitalizations, including separate analysis of newborn data not available from the KID.

In addition to the finding of an increasing rate of CDI-related hospitalizations in children, the investigators also found a similar increase in rotavirus-related hospitalizations.

Additional study is urgently needed to help better define the epidemiology of CDI, the investigators said, noting a particular need for more information about

its role in the pathogenesis of disease in those under age 1 year who are not newborns. Laboratory testing for CDI is not routinely performed in those under age 1 year, because of their typically low rate of clinical disease and high rate of *C. difficile* carriage, and it remains unclear whether the relatively high rate of CDI-related hospitalizations in this group is a reflection of true disease or colonization, as a pathogenic role of *C. difficile* could not be definitively determined in this study, Dr. Zilberberg and her associates said. ■

VITALS

Major Finding: The overall rate of pediatric hospitalizations due to *C. difficile* infections increased from 7.24 to 12.80 per 10,000 hospitalizations, with the highest rates occurring in children aged 1-4 years (rate of 44.87/10,000), 5-9 years (35.27/10,000), and less than 1 year, except newborns (32.01/10,000).

Data Source: Data from 3,739 hospitals from the Health Care Cost and Utilization Project and the National Hospital Discharge Survey.

Disclosures: Dr. Zilberberg reported receiving grant support for this study from ViroPharma.

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March 2010

