

Watch for Symptoms of Infection

C. difficile from page 1

Any patient who has been prescribed antibiotics is potentially at risk for *C. difficile* infection, long recognized as an unintended consequence of disrupting the normal flora within the colon. Historically, clindamycin has been recognized as a culprit; the condition was once referred to as "clindamycin-induced colitis," said L. Clifford McDonald, M.D., a medical epidemiologist in the Division of Healthcare Quality Promotion of the Centers for Disease Control and Prevention.

But other antibiotics have been implicated, too. "Right now we're concerned about fluoroquinolones, since a number of recent outbreaks have involved fluoroquinolone use," he said in an interview following the annual meeting of the Society for Healthcare Epidemiology of America.

"Does that mean fluoroquinolones are the only antibiotics driving this thing? We don't know," Dr. McDonald said.

At the University of Pittsburgh Medical Center, the first indication of a virulent *C. difficile* outbreak came when surgeons realized they had performed 16 colectomies in a year. "It was only because of our col-

laboration with our surgeons that we realized colectomies had sort of hit the roof. We wouldn't know that, as infection control specialists," Carlene A. Muto, M.D., said during a question-and-answer session at the meeting.

A concerted surveillance and infection control system has had a significant impact on the *C. difficile* outbreak at the University of Pittsburgh and at least one other hospital. (See story below.)

Dr. McDonald urged physicians to be alert to symptoms of *C. difficile* infection in patients with a recent history of antibiotic use and that hospitals begin tracking any potential cases, especially severe ones.

Patients with an unexplained fever and leukocytosis may have *C. difficile*, particularly if they have diarrhea, but even in the absence of that classic symptom. A tender abdomen may also be present.

Additionally, physicians may want to

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reconsider their choices of antibiotics in the face of outbreaks, Dr. Mermel said.

Reports from the meeting offer new insights into the spread of cases, and the new aggressive strain.

► A report from the Veterans Administration Healthcare System detailed a sharp increase in *C. difficile* infection starting in 2002, following 11 years of stable *C. difficile*

diagnoses. "It appears as though something happened to increase the rates nationwide at the VA," said Stephen M. Kralovic, M.D., of the Department of Veterans Affairs in Cincinnati and the University of Cincinnati.

In 1994, slightly more than 6 patients per 1,000 were discharged with a diagnosis of *C. difficile* infection, compared with more than 13 patients per 1,000 in 2004. Most affected were patients over age 65, whose rates of *C. difficile* infection were nearly 20 per 1,000 in 2004. The sharpest rate of increase was in the last 4 years.

Toxin tests conducted at some sites suggest that ICD-9 codes may underreport *C. difficile* infections by half, Dr. Kralovic said.

Regional variation in *C. difficile* rates has diminished over time, although the outbreak was originally concentrated in the Northeast.

Dr. Kralovic's findings, which follow, parallel those of a CDC study of non-government hospitals released at last year's SHEA meeting (see INTERNAL MEDICINE NEWS, July 1, 2004, p. 74):

► Increases in the incidence and apparent severity of *C. difficile* infection were reported by 38% and 40%, respectively, of 523 specialists surveyed by the Infectious Disease Society of America Emerging Infections Network in surveys conducted during 2004. The 210 specialists who noted increased disease severity had encountered 435 patients with toxic megacolon (including 181 requiring colectomy), 94 patients with colonic perforations, and 198 associated patient deaths.

► The epidemic strain of *C. difficile* involved in outbreaks in Quebec was found to have toxin levels 20 times higher than those found in nonepidemic strains of the infection. The epidemic has been very severe in Quebec, with 3,262 cases and a 12% mortality rate in 2000, rising to 7,004 cases and a mortality rate of 18% in 2003, said Michel Warny, M.D., of Acambis Inc. ■

C. difficile Management Team Cuts Hospital Infection Rates

LOS ANGELES — Several hospitals faced with outbreaks of a virulent strain of *Clostridium difficile* brought the spread of disease under control with stepped-up infection control measures and altered antibiotic prescribing practices.

Early identification of cases, isolation precautions, cleaning of rooms with a bleach solution, replacement of alcohol-based hand rubs with soap and water, and targeted antibiotic restrictions all were cited in institutional success stories described at the annual meeting of the Society for Healthcare Epidemiology of America.

Mary K. Blank described a multipronged strategy used at the University of Pittsburgh Medical Center that brought the incidence of hospital-acquired *C. difficile* infection down from a high of 7.2 per 1,000 discharges in 2000 to 4.6 per 1,000 in 2004.

The University of Pittsburgh was one of the first hospitals to report the emergence of a highly toxic strain of *C. difficile* associated with increased colectomies and patient deaths. A crackdown on *C. difficile* began in 2000 with active surveillance. At-risk patients were identified on the basis of prolonged length of stay, antibiotic use, high or low white blood cell count, and/or bandemia.

Patients with symptoms suggesting *C. difficile* infection were isolated and all charts were electronically flagged when the diagnosis was made. Clinicians and other staff members were informed of

heightened infection-control requirements maintained throughout the patient's stay. Rooms were cleaned with a 1:10 bleach solution, and alcohol-based hand cleaners were replaced with soap and water.

A *C. difficile* management team treated each patient, prescribing oral or intravenous metronidazole for most of them, often in conjunction with oral vancomycin for 14 days.

A case-control study linked the use of levofloxacin, clindamycin, and ceftriaxone to the hospital's outbreak, so physicians were required to get prior approval for using those drugs.

At Northwestern University, similar precautions were implemented following the *C. difficile*-related deaths of two patients in 3 days who had been housed in adjacent rooms in an oncology unit.

An investigation identified 8 patients in the oncology and medical intensive care units colonized with the outbreak strain and 17 patients in those and other units colonized or infected with another toxigenic strain of *C. difficile*.

Staff alerts, enhanced case identification, intensified infection control and isolation practices, and terminal bleaching of rooms when patients were transferred or discharged brought the outbreak under control, reported Shilpa M. Patel, M.D., a fellow in the department of infectious disease.

—Betsy Bates

A multipronged strategy reduced the incidence of hospital-acquired infections from 7.2 to 4.6 cases per 1,000 people discharged.

Alcohol-Based Hand Gels Not Enough to Block *C. difficile*

BY BETSY BATES

Los Angeles Bureau

LOS ANGELES — The use of alcohol-based hand-cleaning gels has burgeoned in hospitals, where physicians, nurses, and other medical staff members have embraced them as a convenient alternative to soap and water hand washing.

But because such gels do not have activity against spores, reliance on their use faces further scrutiny in light of nationwide outbreaks of a new resistant strain of *Clostridium difficile*, according to John M. Boyce, M.D., chief of the infectious diseases section at the Hospital of St. Raphael in New Haven.

Dr. Boyce presented a study at the annual meeting of the Society for Healthcare Epidemiology of America that showed no increase in *C. difficile*-associated disease at his 500-bed community teaching hospital during the 3 years in which the use of alcohol-based hand rubs increased 10-fold.

Another study discussed at the meeting showed that rates of vancomycin-resistant *Enterococcus* (VRE) species and methicillin-resistant *Staphylococcus aureus* (MRSA) decreased in the 27 months following the introduction of alcohol-based hand gels and a hand-washing campaign at Loyola University Medical Center in Maywood, Ill. The reduction in VRE was statistically significant, but the drop in MRSA was not.

Rates of *C. difficile* were unchanged in the Loyola study, presented by Julie Leischner, M.D., of the department of infectious disease at the university.

Both investigators concluded that the use of alcohol-based hand cleaners did not influence rates of *C. difficile* infection.

But recent hand-hygiene guidelines written by the Centers for Disease Control and Prevention and a multisociety task force suggest "prudent" precautions during *C. difficile* outbreaks; the guidelines call for wearing gloves and washing hands with soap and water after removing gloves, because none of the antiseptic hand rubs are "reliably sporicidal" against *Clostridium* species (MMWR 2002;51(RR16):1-45).

The matter hit close to home for Dr. Boyce when a virulent *C. difficile* outbreak struck his hospital, months after completion of his study on alcohol-based hand rubs.

Two patients died and three underwent colectomies during a 2-week period—"something I haven't seen in 25 years and hadn't seen in [the] 3½ years" of the study of alcohol-based hand rubs, he said during a scientific session at the meeting.

Cultures revealed isolates closely related to the highly toxic epidemic strains found in hospitals across the United States and Canada.

Despite his confidence that alcohol-based hand cleaners do not encourage *C. difficile* outbreaks, he said he believes that soap and water hand washing after diligent use of gloves should be the rule during outbreaks.

"I think it's fair to say a lot of health care workers have gotten used to alcohol-based hand rubs, and now it's hard to get them to go back to using soap and water," he said.

Dr. Boyce disclosed that he has received funding from Gojo Industries Inc. and has served as a consultant to Mycrocept Corp. and Woodward Laboratories Inc., makers of hand sanitizers and soaps. ■