BOSTON — There is increasing evidence that suggest methicillin-resistant *Staphylococcus aureus* is a cause of antibiotic-associated diarrhea, according to a presenter here.

“The paucity of reports in the literature suggest that [methicillin-resistant *S. aureus* (MRSA)] goes unrecognized in many facilities, partly due to policies recommending against culturing stool specimens of patients who have been hospitalized for more than 3 days, and because MRSA is not widely recognized as a cause of diarrhea by clinical microbiology laboratory personnel,” **John M. Boyce, MD**, of the Hospital of St. Raphael, told *Infectious Disease News*. “As a result, clinical labs do not report the presence of heavy growth of MRSA in stool specimens submitted for enteric pathogen cultures.”

For the study, researchers investigated the frequency of *C. difficile*-associated diarrhea, MRSA-associated antibiotic-associated diarrhea and enterocolitis at a university-affiliated hospital between 2005 and 2010. Stool samples of 13,477 patients were tested for *C. difficile* toxin, and examined for growth of aerobic gram-negative rods and other gram-positive flora.

Growth on colistin-naladixic acid agar consistent with *S. aureus* was confirmed as MRSA; specimens positive for *C. difficile* toxin A/B were classified as *C. difficile*-associated diarrhea; specimens negative for *C. difficile* toxin and with heavy, pure growth of MRSA and more than three loose stools per day for more than 2 days were classified as MRSA-associated antibiotic-associated diarrhea, according to the researchers.

Results indicated 2,064 patients had *C. difficile*-associated diarrhea (2.6 cases/1,000 patient-days) and 1,597 had MRSA recovered from the stool. Of which, 786 patients had heavy growth of MRSA in stool and 33 were classified as MRSA-associated antibiotic-associated diarrhea.

“In most patients who have stool specimens positive for MRSA, this represents colonization of the gastrointestinal tract, and therapy is not warranted,” Boyce said. “However, in patients with antibiotic-associated diarrhea, negative stool assays for *C. difficile*, no other identified enteric pathogen and no evidence that diarrhea is related to medications, MRSA should be considered a possible cause of the diarrhea. In such
circumstances, a gram stain of stool showing many gram-positive cocci with morphology consistent with *S. aureus* and little or no normal flora, and heavy (nearly pure) growth of MRSA in stool specimens are suggestive of antibiotic-associated diarrhea due to MRSA. Oral vancomycin is generally considered the drug of choice for such infections.” – by Ashley DeNyse

**For more information:**


**Disclosure:** The researchers report no relevant financial disclosures.

**PERSPECTIVE** Boyce and colleagues previously provided evidence that enterotoxigenic methicillin-resistant *Staphylococcus aureus* (MRSA) strains could be implicated in a small percentage of patients with health care-associated antibiotic associated diarrhea. The present study shows us the relative importance of MRSA as a cause of antibiotic associated diarrhea in one hospital setting. Before the identification of *Clostridium difficile* as a cause of antibiotic associated diarrhea, *S. aureus* strains were implicated in serious forms of antibiotic associated diarrhea. This study suggests that *S. aureus* may have been a cause of antibiotic-associated colitis in these early cases rather than being caused by *C. difficile* strains that were undetected.

– Herbert DuPont, MD

*Infectious Disease News* Editorial Board member

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