

## Evaluation of oxacillin and cefoxitin disk diffusion test for routine detection of methicillin resistant *Staphylococcus aureus*

To the Editor

Momenah et al,<sup>1</sup> investigated 500 clinical *Staphylococcus aureus* (*S. aureus*) isolates from hospitals in Makkah for accuracy of their oxacillin test to detect any methicillin resistant *Staphylococcus aureus* (MRSA) strains. Their recommendations to comply with National Committee for Clinical Laboratory Standards (NCCLS) guidelines are appropriate as facilities for polymerase chain reaction (PCR) for *mecA* gene are not available in routine clinical laboratories. Investigations at 2 Tunisian teaching hospitals employing cefoxitin disks for screening of MRSA<sup>2</sup> are relevant for clinical laboratories. Testing with oxacillin and cefoxitin disks was reported to be percent specific, and 99.1% specific and recommended for routine MRSA screening. Both oxacillin and cefoxitin disks were used to screen *S. aureus* isolates at a private sector tertiary hospital in the Indian capital metropolis. The MRSA isolates were picked up rapidly. Swift transmission of the MRSA status of isolates to clinicians led to a change over from  $\beta$ -lactam to non  $\beta$ -lactam antibiotics. That was accompanied by a successful therapeutic response and recovery in 3 MRSA hospitalized patients.

Located in the northern part of the city, the 140 bed multi-speciality Sant Parmanand Hospital caters to the local population as well as the adjoining townships. Effective August 2004, *S. aureus* isolates are being tested on a single Muller Hinton agar plate employing BBL™ Oxacillin, 1  $\mu$ G (Becton Dickinson, Sparks) and Cefoxitin, 30  $\mu$ G disks (Benex, Clare). After 24 hours incubation, we measured at 37°C the zones of inhibition. The antibiotic sensitivity profiles of MRSA isolate are conversed with the attending clinicians promptly. We discussed the possible failures of  $\beta$ -lactam antibiotic regimen to treat MRSA infection. The effectiveness of the exercise was vindicated during May 2005 in 3 MRSA infected cases in the surgical intensive care units. The first patient was a 70-year-old male who was hospitalized with cerebral infarction, benign prostatic hyperplasia, and urinary tract infection. He developed MRSA pneumonia. A switch from an aminoglycoside and cephalosporins to quinolone, ofloxacin, led to an effectual response with significant clinical

improvement. The second patient was a 50-year-old male admitted with intracerebral hemorrhage left basal ganglion. During his stay, he underwent craniotomy with hematoma evacuation, and developed MRSA septicemia. The aminoglycoside and cephalosporins recipe was changed to vancomycin with a remarkable recovery. The third patient was a 77-year-old male admitted with a fracture of the neck of femur, diabetes mellitus, chronic renal failure, and acute coronary insufficiency. He developed MRSA pneumonia and modification from cephalosporins to a glycopeptide, vancomycin was associated with noteworthy recovery. All the 3 patients recovered from their MRSA infection prior to discharge from the hospital. Even without facilities for a PCR *mecA* gene, the cefoxitin assay<sup>2</sup> has been valuable in guiding the clinicians handling of 3 MRSA infected cases in the surgical intensive care units in the hospital. Apart from the paltry cost of the antibiotics disks, there was no supplementary expenditure or drain off on the fiscal allotment. Laboratory personnel did not labor for extra period for cefoxitin/oxacillin assays. Future MRSA screen employing oxacillin and cefoxitin screen in any clinical microbiology laboratory even with otherwise limited amenities should assist towards the prudent management of MRSA infections in hospitalized cases. The role of private health care providers far goes beyond the respective involvement by governmental and academic institutions. Non-governmental organizations concerned with health care are a dominant entity in most countries. They are available in places that the public sector finds difficult to reach.<sup>3</sup> That would appear to be the state of affairs in Brazil where during 2001; the per capita expenditure on health had been \$573 with the respective government share being \$238 only.<sup>4</sup> Certainly, simplified cefoxitin and oxacillin MRSA screening would be a blessing for numerous clinicians and patients in such regions globally. Moreover, sophisticated assays to establish genomic characters of the local MRSA isolates are unlikely to be available in the private sector in several countries.

Methicillin resistant *Staphylococcus aureus* infections are associated with increased morbidity and prolonged hospital stay all over the world. In Philadelphia, MRSA infections were foremost among the suits filed for malpractice in health care institutions.<sup>5</sup> Relying on cefoxitin and oxacillin screen even without facilities for *mecA* gene would save the clinicians, and administrators from prolonged litigation in courts. Cunha<sup>6</sup> reported daptomycin, linezolid, quinupristin/dalfopristin, minocycline, or vancomycin to be effective in-vivo

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for MRSA infections. In the present series, vancomycin was offered to 2 of the 3 cases while one patient responded remarkably to ofloxacin. Earlier on, 2 local hospitalized patients with MRSA infection had responded favorably to clindamycin.<sup>7</sup> Surely even without facilities for mecA gene PCR, cefoxitin-MRSA-screening based swift change in the antibiotics recipe, to apt non-β-lactam antibiotics should be successful in management of any MRSA infection in hospitalized cases.

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No reply received from the Author.

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