

Detection of Panton-Valentine Leukocidin-Positive Methicillin-Resistant *Staphylococcus aureus* Nasal Carriage among Egyptian Health Care Workers

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Abstract

Background: Transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) among patients is linked mainly to health care personnel. The Panton-Valentine leukocidin (PVL) is a cytotoxin that causes leukocyte lysis. Virulence of pvl positive-MRSA has been attributed to its ability to express PVL toxin.

Methods: Swabs for detection of nasal carriage of pvl-positive MRSA among health care personnel at Fayoum University Hospital, Fayoum, Egypt, were collected from 223 health care personnel including 70 doctors (31.4%), 95 nurses (42.6%), 21 laboratory technicians (9.4%), and 37 housekeeping staff (16.6%). Detection of MRSA was done using conventional screening methods and confirmed by multiplex polymerase chain reaction (PCR) for *mecA*, or its homologue *mecC*, and pvl genes amplification. Re-swabbing after decolonization therapy was done to evaluate the efficacy of decolonization therapy.

Results: Fifty-one of 223 participants (22.9%) were colonized with *S. aureus*. This included 13.5% (30/223) colonized with MRSA and 2.2% (5/223) colonized with PVL-positive MRSA. Moreover, all MRSA isolates were negative for *mecC* genes. Decolonization therapy was successful in 80% of MRSA carriers including all pvl positive MRSA carriers.

Conclusions: This is the first report on nasal carriage of pvl-positive MRSA among Egyptian health care personnel. High carriage rate of MRSA among health care personnel has been attributed mainly to poor hand hygiene compliance and non-judicious use of antibiotics. Improving compliance, reducing antibiotic overuse, screening for carriers, and decolonization are recommended strategies for reducing the spread of MRSA. Multiplex PCR could be used for confirmation of results obtained by conventional phenotypic methods.