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LETTER TO THE EDITOR

Risk of methicillin-resistant *Staphylococcus aureus* prosthetic joint infection in elective total hip and knee arthroplasty following eradication therapy

Jayaweera Arachchige Asela Sampath Jayaweera

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Jayaweera Arachchige Asela Sampath Jayaweera, Department of Microbiology, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka, Saliyapura 50008, Sri Lanka

Corresponding author: Jayaweera Arachchige Asela Sampath Jayaweera, MBBS, MD, MPhil, MSc, Senior Lecturer, Department of Microbiology, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka, Saliyapura 50008, Sri Lanka. jaas071@gmail.com

Abstract

Re-screening following methicillin-resistant *Staphylococcus aureus* (MRSA) decolonization will be helpful to minimize the development of prosthetic joint infection among MRSA colonizers.

Key Words: Methicillin-resistant *Staphylococcus aureus* colonization; MRSA decolonization; Prosthetic joint implantation; Prosthetic joint infections

Core Tip: Patients with methicillin-resistant *Staphylococcus aureus* (MRSA) colonization have a high risk of contracting prosthetic joint infections, and MRSA screening and decolonization are essential to minimize the development of prosthetic joint infection. However, studies showed that re-screening following MRSA decolonization is important before planned prosthetic joint surgery to minimize infections.

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TO THE EDITOR

I read the important retrospective study by Kapur *et al*[1] on the risk of methicillin-resistant *Staphylococcus aureus* (MRSA) prosthetic joint infection in elective total hip and knee arthroplasty following eradication therapy. MRSA is a virulent pathogen that causes infections among healthy and immunocompromised individuals. The spectrum of MRSA infection varies from cellulitis, necrotizing fasciitis, bone and joint infections, bacteremia, and infective endocarditis to pneumonia[2].

That article provides a crucial insight into the importance of screening and re-screening following eradication of MRSA prior to prosthetic joint implant in orthopedic surgery. The authors have compared the incidence of prosthetic joint infection (PJI) among MRSA colonizers and non-colonizers, and following follow-up, found that PJI risk is high among MRSA colonizers. As we know, the associated financial burden following PJI is substantial.

The authors have mentioned the method of MRSA decolonization and some practice instead of prontoderm nasal spray and octenisan for 4% chlorhexidine and mupirocin ointment. The IDSA guidelines explain the importance of the latter regime, but different formulae have similar decolonization ability and differ in cost as the latter is cheaper[3]. Use of povidone-iodine and rifampin has shown efficient and low cost MRSA decolonization. Simor *et al*[4] showed that the use of topical germicide and antibiotic plus oral agents and rifampin achieved a 92% eradication rate for MRSA. Moreover, the duration of decolonization was given as 5-10 d of mupirocin and 5-14 d of 4% chlorhexidine body wash. Here the authors have discussed the mupirocin use.

The authors mentioned the use of teicoplanin prophylaxis among MRSA positive patients. In emergency surgery, the advice is to provide vancomycin or teicoplanin prophylactically while replacing cefuroxime. However, routine use of anti-MRSA antibiotic prophylaxis for MRSA positives following decolonization is questionable. The expectation would be to minimize the occurrence of MRSA bacteremia. Most studies have discussed the failure of the MRSA decolonization procedure. Almost all prosthetic joint implantation is done as a planned procedure; this would signify the importance of employing the re-screening strategy following decolonization prior to the surgery[5].

A study conducted by Garvey *et al*[6] showed the possibility of having MRSA colonization following decolonization. Following repeated decolonization, the MRSA colonization has been reduced from 7.2% to 4.7%. Several methods were employed by different research groups for MRSA screening. In addition to molecular methods, the use of chromogenic agar is also costly, but the use of mannitol salt agar and swabs into 7.5% NaCl in brain-heart infusion broth and phenotypic detection including tube and slide coagulase testing is cost effective to isolate MRSA[2]. Over the period, I have seen many patients with repeated MRSA colonization following MRSA decolonization. However, almost all isolates were mupirocin susceptible. Therefore, it may be associated with a lack of compliance and a lack of highlighting the importance of decolonization to the patient or the family. Since most patients are morbid and probably have mobility problems, adherence to a 5-d regular body wash and nasal spraying is questionable[7].

The authors have highlighted the importance of re-screening while relating the financial and social burden following PJI. Another thing is that, if possible, re-screening following MRSA eradication would minimize the prophylactic use of teicoplanin.

Re-screening following MRSA decolonization will be helpful to minimize the development of PJI among MRSA colonizers.

FOOTNOTES

Author contributions: Sampath Jayaweera JAA designed the study, analyzed the data, and wrote the manuscript.

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Country/Territory of origin: Sri Lanka

ORCID number: Jayaweera Arachchige Asela Sampath Jayaweera 0000-0001-5051-530X.

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