***CORR Insights®: Staphylococcus aureus* Colonization among Arthroplasty Patients Previously Treated by Decolonization Protocol: A Pilot Study**

Javad Parvizi MD

Received: 10 July 2013 / Accepted: 16 July 2013 / Published online: 25 July 2013
© The Association of Bone and Joint Surgeons® 2013

Where Are We Now?

The study by Economedes et al. highlights some of the major issues we face with methicillin resistant *Staphylococcus aureus* (MRSA) screening and decolonization.

The efficacy of MRSA screening and decolonization is a controversial topic. While some institutions and surgeons, like the senior author of the article by Economedes et al., have implemented universal screening and decolonization on their patients undergoing elective arthroplasty, others remain unconvinced about the efficacy of this process. Organizations such as the Association of Perioperative Registered Nurses endorse MRSA screening and decolonization [2], while a recent comprehensive report by Agency for Healthcare

Research and Quality [1] raised questions about the efficacy of universal MRSA screening and decolonization. The workgroup updating the surgical site infection prevention guidelines at the Centers for Disease Control and Prevention recently tabled the issue due to inadequate evidence to support a conclusive recommendation.

Where Do We Need to Go?

Periprosthetic infection continues to be a major unsolved problem. Efforts to reduce the incidence of this dreaded complication are critically important. Many believe implementing strategies such as chlorhexidine skin cleansing, decolonization of the nares, administration of appropriate antibiotics, and isolation during the postoperative period, will likely reduce postoperative surgical site infections and improve outcomes. However, there remain a number of logistical issues. The only available decolonization strategy currently available, namely administration of nasal mupirocin for 5 to 14 days, is believed to meet with low patient compliance. Despite the efforts of the senior surgeon and the arthroplasty nurse to confirm compliance, I am convinced that some, and perhaps many, of the patients in the study by Economedes and colleagues did not comply with the regimen of applying the mupirocin ointment to the nares. As the authors did not test these patients prior to surgery, one does not know if the 33% of so-called “persistent colonization patients” were ever decolonized at all. Another emerging issue is the rise in the incidence of *S aureus* resistance to mupirocin. The current study could not make a distinction between persistence of colonization and recolonization of the patients, nor did it test for resistance to mupirocin. Researchers did not test the bacteria to determine the colony

This CORR Insights® is a commentary on the article “Staphylococcus aureus Colonization among Arthroplasty Patients Previously Treated by Decolonization Protocol: A Pilot Study” by Economedes and colleagues available at: DOI: [10.1007/s11999-013-2856-3](https://doi.org/10.1007/s11999-013-2856-3).

The author certifies that he, or a member of his immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc) that might pose a conflict of interest in connection with the submitted article.

All ICMJE Conflict of Interest Forms for authors and *Clinical Orthopaedics and Related Research®* editors and board members are on file with the publication and can be viewed on request. The opinions expressed are those of the writers, and do not reflect the opinion or policy of *CORR®* or the Association of Bone and Joint Surgeons®.

This *CORR Insights®* comment refers to the article available at DOI: [10.1007/s11999-013-2856-3](https://doi.org/10.1007/s11999-013-2856-3).

J. Parvizi (✉)

Department of Orthopaedics, The Rothman Institute at Thomas Jefferson University, 925 Chestnut St., Philadelphia, PA 19107, USA
e-mail: parvj@aol.com

it came from, known as a coloniality test. The study, nonetheless, confirms previous findings that up to one-half of patients who may still be positive for *S aureus* carriage. We have a long journey ahead of us.

How Do We Get There?

There is a dire need for high-level and well-designed studies that can evaluate the efficacy of screening and decolonization in patients undergoing elective arthroplasty. Because of the low incidence of infection following arthroplasty, and the marked differences between arthroplasty and nonarthroplasty procedures, earlier findings from studies in nonarthroplasty patients—even though many of these were well designed—may not apply to joint replacement patients. The current strategies for screening and decolonization are also in desperate need of improvement. Hand-held devices relying on isothermal amplification are in development; they may allow us to determine if a patient is or is not a carrier of MRSA with ease, and within minutes. Other decolonization products also are becoming available. An iodine based product that needs to be applied only once to the nares within 1 hour of surgery holds promise in eradicating 99% of *S aureus* for a prolonged

period of time. A pharmaceutical company is in the process of obtaining approval for an oral decolonization agent.

Finally, and as is pertinent to the current study by Economides, we need to design a study that can determine the incidence of persistent colonization and recolonization following a multimodal approach for decolonization. These two entities pose different issues. In the case of persistent colonization, we need strategies with better efficacy and patient compliance. Recolonization of patients, on the other hand, requires efforts to reduce the reservoir of bacteria in the tegument of the patients or of their living environment. I congratulate Dr. Economides and his colleagues for investigating an issue that is pertinent to orthopaedic surgeons and their patients.

References

1. Agency for Healthcare Research and Quality (AHRQ). Screening for Methicillin-resistant *Staphylococcus aureus* (MRSA). Comparative Effectiveness Review. Available at: <http://www.effectivehealthcare.ahrq.gov/ehc/products/228/1550/MRSA-screening-report-130617.pdf>. Accessed: July 9, 2013.
2. Association of periOperative Registered Nurses. Clinical practice. Available at: http://www.aorn.org/Clinical_Practice/Clinical_Practice.aspx. Accessed: July 9, 2013.