

Marked Reduction of Vancomycin Utilization in a Veterans Hospital

To the Editor

Methicillin-resistant *Staphylococcus aureus* (MRSA) is the most common nosocomial infection worldwide. Infection preventionists play an integral role in reducing hospital acquired infections via several methods that include observing hand hygiene, following standard isolation precautions, assessing environmental factors, and educating nurses and doctors. Another method to reduce hospital acquired infection is the use of molecular typing tests (polymerase chain reaction [PCR]) of nares swabs upon admission, to identify carriers and potentially prevent hospital transmission of MRSA. Indeed, a large Veterans Affairs study demonstrated a 55% reduction of MRSA infections thanks to a multifaceted screening and prevention program.¹ An additional benefit of MRSA nasal screening is that it can serve as a valuable guidance tool in antimicrobial stewardship programs (ASP). The antibiotic stewards can curtail unnecessary empiric MRSA therapy for pneumonia by using negative PCR results.² Parente et al³ performed a meta-analysis of 22 published studies and found that nares screening for MRSA has a high specificity and negative predictive value for ruling out MRSA pneumonia. Reducing overuse of vancomycin has become an important focus of ASP; MRSA nasal screening can become a powerful tool for deescalating anti-MRSA therapy. Since the initiation of ASP in our institution in 2016, we demonstrated a decrease in vancomycin usage.

We compared the vancomycin use by days of therapy/1000 patient days from 2011–2015 to 2016–2019. Screening for MRSA is by DNA PCR (Cepheid GeneXpert Infinity, Cepheid Sunnyvale, CA). Our ASP reviewed all restricted antibiotic requests (including vancomycin) via electronic consults and rendered approval or disapproval. In addition, ASP requested empiric vancomycin to be discontinued for patients hospitalized for pneumonia if PCR was negative for MRSA. This result was available within 24 hours of admission.

There were 21,330 admissions to our medical and surgical units (including intensive care units) from March 1, 2011, to February 28, 2019. Since initiation of ASP in 2016, 4021 total antibiotic approvals were requested and 483 were denied. Four hundred eighty-four intravenous (IV) vancomycin were requested and 43 were denied. A statistically significant decrease in IV vancomycin use from 2011 to 2015 versus 2016 to 2019 has been observed, median by quarter (year divided in 4 quarters) 250 versus 233 P 0.012; See Figure 1. Of 21,330 admissions, 2565 nares swabs were positive for MRSA, with an overall rate of 12%. Inpatient infectious diseases consultations increased by 30% since ASP was initiated. This increase of infectious diseases consultations likely led to a decrease of prolonged or inappropriately prescribed antibiotics. Our institution is affiliated with a university medical center, and many young physicians in training are rotating in our wards throughout the year. Interaction of our ASP team and residents led to important review of ASP concepts. This allowed time for questions and better understanding of the goals of ASP, thus, aiding in a lifetime style of proper antibiotic prescribing practice. One of the most common denials of antibiotic therapy from our ASP was for asymptomatic bacteriuria or pyuria. Equally instrumental, the utilization of the negative rapid molecular typing PCR tests led to our residents to confidently remove vancomycin from empiric use in pneumonia cases, which overall led to a marked decrease in vancomycin in our institution.

ACKNOWLEDGMENT

Part of these data were presented in poster format at IDweek, Washington, DC, October 2–6, 2019.

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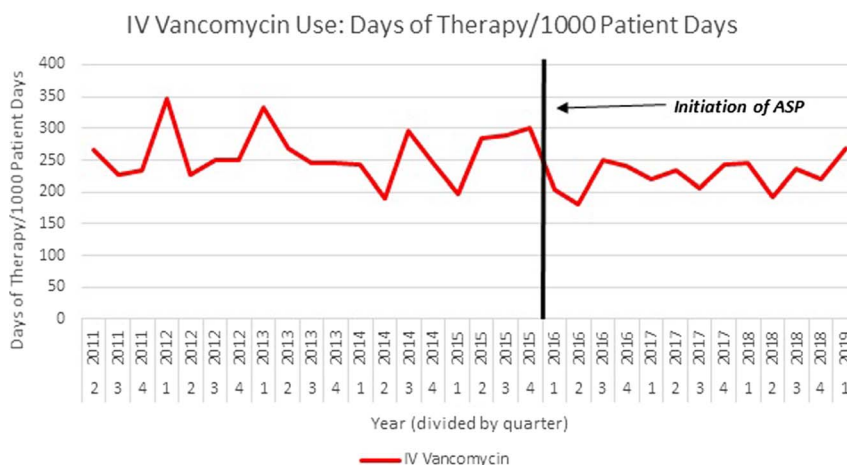


FIGURE 1. IV vancomycin use: days of therapy/1000 days 2011 to 2019.

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