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Letters to the Editor

Exploring a new trend in the use of antibiotics in dermatologic procedures

To the Editor:

Antibiotics are among the most widely prescribed medications across numerous medical specialties. From alleviating sore throats to treating urinary tract infections, antibiotics play a critical role in combating bacterial infections. However, these pathogens often evolve to develop resistance against various antibiotics, rendering them futile and ineffective for certain patients. Today, antibiotic resistance continues to pose a major threat in the clinic. In 2013, the Centers for Disease Control and Prevention reported at least 2 million people with antibiotic-resistant infections and at least 23,000 fatalities associated with such infections.[1]

Although dermatology has recently seen a drop in antibiotic prescriptions, a recent study suggests that antibiotic use in dermatologic procedures is currently increasing.[2] The findings from this study provide us with insight into how unnecessary antibiotic prescriptions could be further limited. The study focuses on antibiotics prescribed in the context of 4 popular dermatologic procedures: malignant destructions, benign excisions, malignant excisions, and Mohs surgery. For these surgical procedures, some of the commonly prescribed antibiotics included cephalexin (61%), doxycycline (14.2%), sulfamethoxazole/trimethoprim (6.1%), and azithromycin (5.3%).

This cross-sectional analysis explores various trends associated with antibiotic prescriptions, such as the use of flaps versus grafts in Mohs surgery, gender differences, and temporal trends; however, the most remarkable and surprising factor analyzed was geographic variations in antibiotic prescriptions. The researchers observed that, for Mohs surgery, patients in the West North Central states were prescribed antibiotics on 7.6% of the visits; however, patients in the West South Central states received antibiotics on 16.9% of the visits. Patterns of geographical variation in medical practices have been previously studied in the context of conditions such as bacterial pneumonia, acute nasopharyngitis, and upper respiratory infections.[3] Interestingly, such discrepancies in antibiotic prescriptions among different regions is prevalent even outside dermatology. Remarkably, over 50% reduction in antibiotics use could be achieved across 3 of the surgical procedures if the highest utilizing regions matched oral antibiotic prescription rates similar to the lowest utilizing region.[2]

This recent study underscores the possibility and necessity of optimizing antibiotic prescriptions in dermatologic procedures. The existence of such strong geographical variation suggests a need for greater targeting of antibiotic prescriptions, perhaps through quality assurance programs in areas considered to be high utilizing regions. This article serves as a reminder that clinicians must prescribe antibiotics judiciously and that there are dermatologic procedures for which a reduction in antibiotic use should be further explored.

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The challenges of antimicrobial resistance surveillance in China

To the Editor:

Antimicrobial resistance (AMR) is a global health threat that leads to increasing health care cost, treatment failures, and even deaths.[1-3] The People's Republic of China faces similar health care problems toward emerging AMR as its neighboring countries.[1] International surveillance systems, such as the Global Antimicrobial Resistance Surveillance System and the European Antimicrobial Resistance Surveillance Network (EARS-Net), play an important role to present the updated information of the current status and the changing trends of AMR epidemic.[4,5] In China, there are 2 AMR surveillance networks: China Antimicrobial Resistance Surveillance System and China Antimicrobial Surveillance Network.[6,7] The main problem of Chinese AMR surveillance networks is that they focus on the AMR surveillance data from tertiary-care teaching hospitals, which are mostly geographically located in the southeastern region.[7] The findings cannot be considered as generalization for entire country. Furthermore, most international peer-review publications on the AMR topic in China are interesting in molecular characterization analysis, and the outcomes

unfortunately are less beneficial for the epidemiology profile and population-based research on AMR.

Recently, Hu et al[8] summarized epidemiologic trends of AMR in China between 2005 and 2017. The bacterial resistance of gram-negative bacilli is still a major issue. *Klebsiella pneumonia*, *Pseudomonas aeruginosa*, and *Acinetobacter baumannii* resistance to carbapenems is emerging; strikingly, the proportion of imipenem resistance *A baumannii* increased from 31% in 2005 to 71% in 2017. Meanwhile, the proportion of cefotaxime- (third generation cephalosporins) resistant *Escherichia coli* was still stabilized in a high level, ranging from 59%-63%. Furthermore, Zhang et al[9] assessed the population burden of carbapenem-resistant *Enterobacteriaceae* infection. To our best knowledge, this is the first study to show the incidence density of bloodstream infections due to carbapenem-resistant *Enterobacteriaceae* of 0.3 infections per 100,000 patient-days in China. This result is higher than the carbapenem-resistant *E coli* incidence density of 0.1 infections per 100,000 patient-days and carbapenem-resistant *K pneumonia* incidence density of 0.2 infections per 100,000 patient-days in a 2015 Swiss National surveillance study. The results from these Chinese studies have shown the alarming situation and the necessity of conducting nationwide AMR surveillance.[10]

In 2018, brief guidance for infection control of carbapenem-resistance *Enterobacteriaceae* was published by the National Health and Family Planning Commission of People's Republic of China.[11] This document highlighted the prospective surveillance as a key component to prevent AMR. However, compared to EARS-Net protocol,[12] methodologies (ie, data collection, data analysis, and data reporting) in the document were not specific enough to allow delivering information regarding AMR surveillance on the national level. Furthermore, compared to EARS-Net annual surveillance report,[4] the results of main targeted bacterial resistances presented by China Antimicrobial Surveillance Network report[7] were not in detail and to some degree cannot provide useful guidance for infection control practitioners. Based on recommendations of EARS-Net protocol and other studies,[4,12] health care–associated infections, or community-associated infections caused by multidrug-resistant organisms should be clearly distinguished. The first date of sample collection and isolated source from the same patient should be applied. Second, subgroups analyses of infections due to multidrug-resistant organisms are needed, in particular the infection burdens in different population groups (ie, adults, children, and neonates) and in different departments (ie, intensive care unit, surgery, and internal medicine). Finally, conducting the data analysis of bacteria resistance to 2 or more than 2 group-combinations (ie, *E coli* resistance to aminopenicillins + fluoroquinolones/+ third-generation cephalosporins) are recommended. In clinical perspective, it provides reference data for treating high-risk populations.

On the national level, to standardize the AMR surveillance still has a long way to go. Now we should convince hospital managers, policy makers, and other stakeholders to take action. More resources should be allocated and directed toward national AMR surveillance projects, and more hospitals (including primary-care and secondary-care hospitals) should be convinced to participate in the nationwide AMR surveillance project.

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