posure vs superficial cuts with an apparently clean sharp) and the presence of appropriate personal protective equipment help in optimizing management and reducing infection risks.[1,3,4] Knowledge about this condition and education of healthcare workers about the "dos and don'ts" is essential.

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REFERENCES

1. Updated US Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for post-exposure prophylaxis. *MMWR Recomm Rep* 2005;54:RR-9.
2. Perry J, Parker G, Jagger J. EPINET report: 2003: percutaneous injury rates. *Adv Exposure Prev* 2005;7:2–45.
3. Ahmed R, Bhattacharya S. Universal screening versus universal precautions in the context of preoperative screening for HIV, HBV, HCV in India. *Indian J Med Microbiol* 2013;31:219–225.
4. Mehta A, Rodrigues C, Singhal T, et al. Interventions to reduce needle stick injuries at a tertiary care centre. *Indian J Med Microbiol* 2010;28:17–20.

Multidrug-Resistant Gram-Negative Bacteria in Hematology and Oncology

To the Editor—Reports on the current spectrum of infections among patients with cancer with chemotherapy-related neutropenia provide information of major importance for clinicians.[1] However, in sections of such articles regarding gram-negative bacteria (GN), authors deal with many pathogens (eg, extended spectrum β-lactamase [ESBL] producers, carbapenem-resistant Enterobacteriaceae, carbapenemase-producing GN, and nonfermentative GN). Therapy for such infections is becoming ever more difficult because of increasing rates of antibiotic resistance. Over the past several years, the prevalence of multidrug-resistant gram-negative bacteria (MRGN) has increased steadily.[2] In 2012, in Germany, the terms 3MRGN and 4MRGN were introduced to describe gram-negative aerobic rods with in vitro resistance to 3 and 4 groups, respectively, of bactericidal antibiotics.[3] Screening for carriage and the classification of GN as MRGN or non-MRGN are important tools for infection control measures aimed at reducing pathogen transmission among hospitalized patients,[2,3] both because of the major ongoing problem of antibiotic resistance per se and because of the lack of new antibiotics today and in future.[4]

Thus far, epidemiological data on 3/4MRGN in hematology and oncology are lacking. Therefore, we have retrospectively analyzed all consecutive inpatients admitted to our hematology and oncology 26-bed ward from July 1, 2012, through December 31, 2013. Altogether, 493 different patients were admitted (16,525 inpatient-days). Among these, 118 patients (3,411 patient-days; mean age, 61.8 years; male sex, 52.5%; acute leukemia, 32.2%) with colonization or infection due to GN were identified. The 3/4MRGN prevalence among all inpatients seems to be as low as 3.7% (18 of 493 different patients). However, in light of other "bad bugs," such as ESBL producers, vancomycin-resistant *Enterococcus faecium* (VRE), and methicillin-resistant *Staphylococcus aureus* (MRSA)—which had a prevalence of 2.0%, 0.6%, and 1.6%, respectively, in the same time period—the 3/4MRGN prevalence should not be neglected. Among all first isolates of GN ($n = 173$), 12.7% were 3/4MRGN; these were mostly *Escherichia coli* (36.4%), *Pseudomonas aeruginosa* (31.8%), and *Klebsiella pneumoniae* (9.1%), which were mainly associated with urinary tract infections. This high frequency, the high 3/4MRGN incidence of 6.4 cases per 1,000 inpatient-days (among all first isolates of GN), and the limited therapeutic options reflect the importance of hygiene and infection control measures, such as contact precautions or isolation and antibiotic stewardship programs.

Many patients with 3/4MRGN colonization or infection will be readmitted to the hospital for additional chemotherapy courses or complications, and therefore, the prevalence and incidence of 3/4MRGN will increase in the future. Especially among hematology patients, the overall 3/4MRGN incidence seems to be much higher (eg, 1.09 cases per 1,000 inpatient-days found in our department) compared with the overall inpatient population of a university hospital (0.43 cases per 1,000 inpatient-days).[5]

In our experience, the MRGN term is well established in our institution and is used by both clinicians and microbiologists to describe infectious high-risk patients. Because of the major, challenging problem regarding consumption of resources associated with MRGN (eg, contact precautions, cohorting patients or providing single rooms, and administration of antibiotics), we emphasize the use of an "MRGN

alert," similar to an "ESBL alert," "VRE alert," or "MRSA alert," to deal with antibiotic resistance, antibiotic stewardship, and hygiene measures, rather than describing single strains of resistant GN.[1]

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REFERENCES

1. Nesher L, Rolston KV. The current spectrum of infection in cancer patients with chemotherapy related neutropenia. *Infection* 2014;42:5–13.
2. Tacconelli E, Cataldo MA, Dancer SJ, et al. ESCMID guidelines for the management of the infection control measures to reduce transmission of multidrug-resistant gram-negative bacteria in hospitalized patients. *Clin Microbiol Infect* 2014;20(suppl 1):1–55.
3. Hygiene measures for infection or colonization with multidrug-resistant gram-negative bacilli. Commission recommendation for hospital hygiene and infection prevention (KRINKO) at the Robert Koch Institute (RKI). *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz* 2012;55:1311–1354.
4. Bassetti M, Merelli M, Temperoni C, et al. New antibiotics for bad bugs: where are we? *Ann Clin Microbiol Antimicrob* 2013;12:22.
5. Vonberg RP, Wolter A, Chaberny IF, Astilean A. Epidemiology of multi-drug-resistant gram-negative bacteria: data from an university hospital over a 36-month period. *Int J Hyg Environ Health* 2008;211:251–257.

Port-Related *Aeromonas* Bacteremia

To the Editor—Aeromonas species are gram-negative, rod-shaped bacteria that are prevalent in the aquatic environment, including in fresh or brackish water, sewage, soil, and tap water, in temperate or subtropical countries.[1,2] Although the gastrointestinal tract is the most common site of infection caused by *Aeromonas* species,[1,2] extraintestinal *Aeromonas*-associated diseases, such as empyema, urinary tract infections, biliary tract infections, peritonitis, and skin and soft-tissue infections, have also been reported.[3-7] Herein, we report a study undertaken to find cases with unusual presentation of *Aeromonas* infection associated with subcutaneously implanted port reservoir (eg, port-related infection) and further investigate the associated clinical and microbiological characteristics.

This study was conducted at a single institution, a 900-bed hospital located in southern Taiwan. From the computerized database of the bacteriology laboratory, patients whose cultures yielded *Aeromonas* species were identified. The medical records of all patients with port-related infection caused by *Aeromonas* species were retrospectively reviewed and included in this study.

Blood specimens were inoculated into BACTEC culture bottles using the BACTEC 9240 system (Becton Dickinson). Gram-negative isolates that tested positive for cytochrome oxidase, glucose fermentation, citrate usage, indole production, and ornithine decarboxylase were classified as *Aeromonas* species, as in earlier studies.[6,7] Susceptibilities of these isolates to a battery of antimicrobial agents were determined using the disk diffusion method as described by the Clinical and Laboratory Standards Institute.[8]

The diagnosis of port-related *Aeromonas* bacteremia was defined as primary laboratory-confirmed *Aeromonas* bacteremia in a patient with a port at the time of or within 48 hours before the onset of symptoms for whom infection was not related to an infection at another site. Standard definitions for healthcare-associated infection (HAI) were used.[9,10] Shock was diagnosed in patients with a systolic blood pressure less than 90 mmHg or in patients who required inotropic agents to maintain blood pressure. Infections were classified as polymicrobial infections if non-*Aeromonas* pathogens also grew from the blood sample. Inappropriate use of antibiotics was defined as use of antimicrobial agents to which the clinical isolates were resistant in vitro.

During the study period, a total of 5 patients were identified as having port-related *Aeromonas* bacteremia. Two infections were caused by *Aeromonas veronii* biovar sobria, 2 by *Aeromonas caviae*, and 1 by *A. veronii* biovar veronii. All of the clinical isolates were resistant to ampicillin, amoxicillin-clavulanate, and cefazolin, but they were susceptible to amikacin and gentamicin. Additionally, third- or fourth-generation cephalosporins, piperacillin-tazobactam, and ciprofloxacin showed in vitro activity against 4 (80.0%) of 5 isolates.

The clinical characteristics of 5 patients with port-related *Aeromonas* bacteremia are summarized in Table 1. Men comprised 4 of 5 patients, and the age ranged from 57 to 82 years. All of them had various cancers, and 4 had received chemotherapy. Four of the patients had initial presentations of fever, and 2 had shock. Two of the patients had white blood cell counts greater than 11,000 cells/mL, and none had neutropenia. In addition, 3 patients had hemoglobin levels less than 10 g/dL, and 3 patients had an elevated C-reactive pro-