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Letters to the editor

Chromobacterium violaceum: A potential nosocomial pathogen

To the Editor:

Chromobacterium violaceum is a motile gram-negative bacillus found as a saprophyte in soil and water.[1,2] It is characterized by production of a purple pigment named *violacein*.[2] It was first reported as a human pathogen in 1927 in Malaysia.[1] Currently, it is recognized as a highly virulent opportunistic pathogen to humans, and several cases have been reported mostly from tropical and subtropical areas.[1,2]

Usual portal of entry of *C violaceum* is skin. The most common presentation in patients infected with *C violaceum* is sepsis, which is frequently life threatening.[3] The other common manifestations include cutaneous involvement, followed by abscesses in liver, lungs, spleen, lymph nodes.[1,3] Disseminated *C violaceum* infection has been reported to be associated with 60% to 80% mortality.[1] *C violaceum* is frequently disregarded as a contaminant or misidentified. The awareness regarding this infection needs to be raised to a high degree because it is associated with high fatality rate.[4]

C violaceum has been commonly reported to be resistant to penicillins and cephalosporins. Therefore, in most cases of *C violaceum* infection, the initial empirical therapy based on penicillins and cephalosporins will not be effective and can result in increased mortality because of delay in initiation of appropriate therapy.[1] However, it is usually susceptible to cotrimoxazole, fluoroquinolones, aminoglycosides, chloramphenicol, and carbapenems.[1]

C violaceum is able to survive under diverse environmental conditions because it produces several proteins contributing for its tolerance to antimicrobial compounds, heavy metals temperature, and acid.[5] In our study, *C violaceum* was isolated 4 times from water samples collected under sterile precautions from operation theater taps of our hospital. Because contaminated water is the source of infection and skin is the usual portal of entry of this organism, these isolates from the hospital environment can be a source of nosocomial infection.[1,4] This can lead to fatal infection such as septicemia or deep abscess during pre- and postsurgical periods. Once infection is established, it should be diagnosed early, and prolonged antibiotic treatment is required.[6] Regular surveillance of operation theater and critical care units for *C violaceum* in water samples is necessary to prevent mortality. Proper water treatment and safe water supply are also essential.

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The impact of antimicrobial resistance and the challenge for professionals

To the Editor:

Bacterial resistance is considered a public health problem worldwide, and efforts have been made to prevent and control this epidemic. The spread of resistant microorganisms is the major challenge that mobilizes national and international organs of epidemiologic surveillance and control.[1,2]

Antimicrobial agent use and environmental factors of transmission have important roles in the emergence and spread of resistance mechanisms. Such measures as auditing antimicrobial use, hand hygiene, contact precautions, and in-service education do not always provide the expected contributions for resistance prevention and control.[3] It is important to stress that host-related factors and the selective pressure generated by antimicrobial agents, as well as easy movement of people, hinder the establishment of care.

In Brazil, according to the Ministry of Health, more than 70% of the bacteria that cause hospital infections are resistant to at least one antimicrobial agent commonly used in patient treatments.[1] Infected individuals have longer hospital stays and require treatment with drugs that may be less effective, more toxic, and more expensive and have a lower genetic profile. Bacterial resistance is

facilitated by antibiotic use and the lack of infection control routines, leading to increased morbidity and mortality of individuals due to preventable diseases.

This brief study describes the profile of bacterial resistance and strategies for prevention and control in a teaching hospital in southern Brazil. The analysis of microbiological cultures of infections and colonization identified the hospital's microorganism profile. It was observed that hospitalizations due to infections increased the length of hospital stay by an average of 35 days. Analysis of data for the second half of 2011, with a total of 210 microorganisms identified, showed 48% of *Staphylococcus* spp resistant to methicillin, 26% of *Pseudomonas* spp resistant to carbapenem, 9% of *Acinetobacter* spp resistant to carbapenem, 7% of *Klebsiela* spp resistant to amikacin, and 12% of the CESP group resistant to amikacin. No resistance to polymyxin was noted.

Once these indicators were established, guidelines for contact precautions were reinforced. These precautions are ideally performed in private rooms with specific routines to reduce cross-transmission and management of infected patients at the bedside and on transport, provide guidance to family members and visitors, and provide alcoholic chlorhexidine at the bedside. To identify these patients, illustrative plates are placed on the doors of their rooms, listing routine use of materials and equipment specific for each type of precaution, as well as color charts according to each routine. An electronic surveillance system containing information on the colonized/infected patients helps maintain control of these measures. In this context, it is necessary to establish educational activities with the teams regarding the use of personal protective equipment, as well as hand hygiene of professionals and management of catheters and care protocols.

The efforts of all health professionals are essential to the control of infections related to health services, and their co-participation will favor the main outcome of minimizing bacterial resistance. Success is related to an approach that addresses the individual practice. Furthermore, this understanding confirms that the health professionals and institutions should abandon the simplistic idea that the infection control and transmission of nosocomial pathogens in health care facilities is the sole responsibility of Infection Control Committee members, and understand that professionals must actually be part of the process as members, and co-responsible for this process.

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How clean are the overhead lights in operating rooms?

To the Editor:

We assessed the cleanliness of the illuminating glass surface (IGS) of overhead lights in operating rooms in our ambulatory surgical suite by obtaining bacterial and fungal culture swabs from these surfaces. Many studies have been done investigating disinfection in the operating room, but to date there are no reports regarding the cleanliness of the of overhead lights in operating rooms, and therefore no guidelines exist that pertain to cleaning these surfaces.[1,2]

Overhead lights have 3 parts: head, arm, and ceiling mount. The head has a dome with an IGS. This IGS overlies the sterile surgical field and is expected to be clean, if not sterile. All surfaces are usually cleaned before and after each and every procedure by a dedicated team of cleaners. Observation revealed that cleaning of IGS is at times missed in the ambulatory surgical suite because of high turnover and time constraints between cases.

After institutional review board approval, a pilot study was performed wherein 5 operating rooms (specifically Rooms 1, 2, 3, 4, and 7) in the ambulatory surgical suite at our hospital were selected on a random day where several surgeries were booked. Each operating room had 2 overhead, movable lights, from which culture swabs were taken twice in the same day from the IGS: once before the beginning of the first surgery and once after the end of the last surgery. Both cleaners and personnel involved in culturing the swabs were blinded. Bacterial cultures were grown for up to 1 week and fungal cultures were incubated for 2 weeks.

Cultures from 3 of 5 operating rooms had positive bacterial growth. One light in Room 1 showed no growth initially but grew *Staphylococcus epidermidis* after the last case. Similarly, 1 light in Room 2 grew *S. epidermidis* before the first case, but had no growth after the last case. In Room 7, 1 light grew *S. epidermidis* in the morning and *Streptococcus viridans* as well as *S. epidermidis* in the evening. The second light in Room 7 grew *Neisseria mucosa* in the morning and *S. epidermidis* in the evening. All strains of *S. epidermidis* were different and multi-drug resistant. The remaining swabs from the other operating rooms showed no bacterial growth. All 20 swabs for fungal cultures yielded negative results.

Growth of bacteria like *Staphylococcus*, *Streptococcus*, and *Neisseria* from the overhead lights makes the IGS a potential source of surgical site infections, thus possibly contributing to morbidity and mortality among patients having surgery because they have been shown to contribute to perioperative infections.[2,3] All 3 bacteria strains have been shown to cause many infections, with endocarditis being the most significant.[4] We believe cross-contamination may have a role in the growth of bacteria on these lights, especially if the lights are cleaned with the same wipe that was used to clean other surfaces in operating rooms and from soiled gloves worn by personnel, because once gloves are worn they are hardly ever changed within an operating room.