Epidemiological Alert

Candida auris outbreaks in health care services

3 October 2016

In light of reports of outbreaks of *Candida auris* associated with health care services in Latin America, the Pan American Health Organization / World Health Organization (PAHO / WHO) recommends Member States to establish the capacity for early detection and notification in order to enable the implementation of appropriate measures to prevent and control spread in communities and in health care services in the Americas.

Background

Candida auris was first identified as causing illness in humans in 2009, following its isolation in the secretion of the external ear canal of a Japanese patient.[1] Since that time, there have been reports of infections by *C. auris* in several countries around the world, most notably in South Korea, South Africa, Kuwait, and India. The majority of those cases were associated with health care services. In 2012, the first hospital outbreak of *C. auris* detected in the Region of the Americas was reported in Venezuela. The outbreak occurred in the intensive care unit of a tertiary hospital.

The incidence rate and prevalence of this pathogen is not well known because detection methods to diagnose *C. auris* routinely identify it as part of the *Candida haemulonii* complex, which is phylogenetically related, or identify it as other frequent yeast isolations.[2,11] For this reason, *C. auris* may be a more common cause of candidemia than originally considered.[3]

Reported cases of *C. auris* have occurred in patients with prolonged stay in hospitals, particularly in neonatal and adult intensive care units; most of them received broad-spectrum antibiotics, had intravenous catheters, and were on mechanical ventilation. Most of the isolates were in blood, although there are also reports of *C. auris* in other biological samples, such as urine and in bronchoalveoalar fluid. To date, it has not been established whether the presence at these locations represents evidence of infection or colonization; the transmission mechanism is unknown.

Due to difficulties of identifying *C. auris* through commercial methods, its characterization is performed by sequencing. An additional reliable method for the identification of this pathogen is obtaining the proteic profile by MALDI TOF.[4,8,9,10,11]

Situation summary in the Americas

The first detected outbreak of *C. auris* in the Region of the Americas was reported in **Venezuela**. The outbreak occurred from March 2012 to July 2013, in the intensive care unit of a tertiary hospital in Maracaibo. The outbreak affected 18 patients, 13 of which were

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pediatric.[2] The case fatality rate was 28%. Of note, all isolates were initially identified as *Candida haemulonii*. Later sequencing of ITS and analysis by AFLP conducted to study the possible clonality of the isolates involved in the outbreak, identified that it was *C. auris*. Regarding the sensitivity of strains, all isolates were resistant to fluconazole and voriconazole, and half of the isolates showed elevated minimum inhibitory concentration (MIC) to amphotericin B.

In **Colombia** isolated cases of infection by *C. auris* have been reported in various cities (City of Santa Marta, Bogota, and Valledupar) since 2013. Between 2015 and 2016, the city of Barranquilla reported 27 isolates. In August 2016, an outbreak was reported in a pediatric intensive care unit in the district of Cartagena. Five cases of disseminated infection of *C. auris* were identified. Initially the five isolates were identified as *C. albicans*, *C.guillermondii*, and *Rhodotorula rubra*, but after performing MALDI-TOF they were confirmed as *C. auris*. The use of a central venous catheter, mechanical ventilation, or urinary catheter, was a risk factor for all confirmed cases. As to the antifungal susceptibility test, only the results of two out of the five isolates are available, both of which were sensitive to fluconazole and resistant to amphotericin B.[5]

In the **United States of America**, *C. auris* isolation was reported as part of a surveillance program in 2013.[6]

Given these findings, PAHO / WHO makes the following recommendations:[7]

Surveillance and epidemiological investigation

- Increase the participation of national laboratories in hospital-based surveillance in order to facilitate the timely detection of this organism.

- Disseminate information obtained from surveillance for the implementation of adequate treatment and infection control measures in health care service.

- Sampling all patients coming from hospitals where cases of *C. auris* colonization / infection have been reported is recommended.

- Urge health care professionals to contact the relevant public health authorities, either local or national, if they suspect that a patient may have a *C. auris* infection in a health care service center.

Laboratory diagnosis

- All laboratories with *C. auris* detection methods (MALDI-TOF or molecular methods) are recommended to notify any positive isolation for this organism.

- Faced with the isolation of any of the following listed microorganisms, whether by conventional or commercial methods, it is recommended to contact the relevant public health authorities to assess the need for specific tests for the detection of *C. auris*:

    - *C. haemulonii*, regardless of the type of sample;

    - Other *Candida* species, e.g. *C. guilliermondii, C. famata,* or *C. sake*;

- Other yeasts, e.g. *Rhodotorula glutinis* and *Saccharomyces cerevisiae*;

- Identification of *C. albicans* without germ tube production and with high MIC to azoles and / or amphotericin.

- In the event of the isolation of any of the *Candida* species mentioned above, sensitivity tests, mainly of azoles and amphotericin B, must be performed by commercial methods and must be confirmed by the microdilution reference method.*,[12]

Infection prevention and control

Upon detection of *C. auris* isolates in a patient, it is recommended to:

- Keep the patient in isolation, if possible, and use gloves and gowns for any patient contact. The use of masks and face shield is only indicated when there is a risk of body fluid exposure.

- Keep the environment clean. Clean with soap and water followed by disinfection with 0.1% bleach. Once the patient is discharged, cleanliness of the surfaces, floor, and wall must be ensured with soap and water, followed by 0.1% disinfection bleach.

- Clean, disinfect, or sterilize equipment and appliances as per the type of material, after use by the patient.

- Isolate patients coming from centers with documented presence of *C. auris* until screening results have been obtained.

- Obtain a series of three negative samples, preferably urine, blood or respiratory secretions, to remove the patient from isolation; each sample should be at least 24 hours apart.

- When a patient requires a test or services that cannot be carried out in the patient's room, that test or service should be scheduled at the end of the day and thorough cleaning of the area after realizing the test should take place.

- Apply special care in handling waste, following the same recommendations for multi-resistant pathogens. In the case of pediatric units, special attention should be placed on the elimination of diapers of colonized / infected patients. The handling of dirty laundry in a patient's room should be done carefully to minimize the environmental spread of the microorganism.

- Avoid hand-washing the patient's linens and clothes; washing by machine is recommended.

* Currently, there are no MIC specific values for *C. auris*; therefore, other *Candida spp*. cutoff are being used as a reference in accordance with the M27-S4 document of the Clinical Laboratory Standards Institute (CLSI).[13]

- Waste from these patients should not be disposed of in a sink.

Treatment

- Currently, the first-line of treatment are the echinocandins, which are used while the sensitivity test results are pending. There is evidence suggesting the rapid development of resistance to this family of antifungals.

- Currently, there is insufficient evidence on the appropriate treatment. Using combined antifungal therapy at the initial stage is not recommended; however, clinicians must make the decision on an individual basis.

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