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**CANDIDA AURIS – AN EMERGENT HUMAN FUNGAL PATHOGE
WITH MULTIDRUG RESISTANCE**

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Candida has been one of the major pathogens causing fungal diseases in humans. Recently, a member of this genus, *Candida auris*, has emerged as a significant concern for epidemiologists and healthcare workers. Initially identified in Japan in 2006, this microorganism has rapidly spread to over 40 countries within a decade.

Studies in experimental models have shown that *C. auris* displays phenotypic plasticity, enabling successful evasion of immune cells and resistance to abiotic factors. The fungus exhibits two phenotypes: non-aggregating and aggregating, each with distinct behaviors and levels of virulence. Many patients acquiring *C. auris* infections (including generalized mycoses – sepsis and candidemia) are typically on ventilators or have indwelling central lines or catheters. Several factors contribute to high virulence as the nosocomial infectious agent. One such factor is its capacity to form biofilms and cellular aggregates and colonize surfaces within healthcare facilities. Existence in the biofilm-forms has been documented on plastic surfaces, as well as resistance to commonly used biocides (quaternary ammonium compounds), which promotes survival in the environment and further spread. Another determinant of virulence is the pseudohyphae formation inside human body, although the exact biologic effect of this phenomenon remains unclear. Biofilms not only lead to recurrent hospital-acquired infection outbreaks but also enhance the microorganism drug resistance by imperfect drug penetration. Multidrug resistance (MDR) is a primary concern regarding *C. auris*. Some strains are resistant to all available chemical classes of antifungals (polyene, azoles and echinocandins). The origin of this *C. auris* feature is thought to be associated to the increased use of antifungal agents in both the agriculture and healthcare industries. According to the Centers for Disease Control and Prevention (USA), resistance levels to fluconazole, amphotericin B, and echinocandins exceed 90%, 30%, and approximately 5%, respectively. Studies have identified mutations in the *erg11* gene, responsible for encoding ergosterol, a key component of fungal cell walls, as a potential explanation for increased drug resistance. Mutations in the *fur1* gene have led to flucytosine-resistant strains of *C. auris*, although the exact biochemical mechanism is still unknown. Clade I isolates from the United Kingdom, India, and Pakistan have exhibited the highest levels of drug resistance. Managing infections caused by this highly drug-resistant microbe poses a significant challenge for healthcare providers, with certain drug regimens being recommended. Echinocandins are typically the first-line treatment; however, due to rapid resistance development, they should be administered in combination with other drugs like Amphotericin B for improved efficacy. Combination therapies have shown the most success in treatment.

Another major challenge associated with this microbe is the frequent misdiagnosis as other *Candida species*. Currently, Matrix-Assisted Laser Desorption/Ionization Time-Of-Flight (MALDI-TOF) mass spectrometry, incorporating specific spectra into databases, is considered the most reliable method for identification. However, this poses a challenge in developing countries where such techniques may be costly. One of the ways to rapidly identify MDR strains among other species of fungi of the genus *Candida* is to use a selective medium “HiCrome™ *C. auris* MDR Selective Agar”. PCR-based technics can also serve as an alternative in such scenarios.

Thus, currently, health care professionals from different countries consider *C. auris* as an emergent human fungal pathogen that can pose a global threat due to its increased virulence and extensive drug resistance to antifungals. Patients, particularly those in intensive care units, should undergo regular monitoring and screening for this mycosis. Infected individuals should be isolated with ongoing surveillance, while healthcare staff must adhere to strict hand hygiene practices. Public education and development of potential control strategies for *Candida auris* infections play a crucial role in halting the spread of the novel pathogen.