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Pathogenic Candida Biofilms Producers Involved in Healthcare Associated Infections

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Abstract : The establishment of intravenous catheters in hospitalized patient is an act common in many clinical situations. These therapeutic tools, from their insertion in the body, represent gateways including fungal germs prone. The latter can generate the growth of biofilms, which can be the cause of fungal infection. Faced with this problem, we conducted a study at the University Hospital of Tlemcen in the neurosurgery unit and aims to isolate and identify Candida yeasts from intravenous catheters. Then test their ability to form biofilms. Materials and methods: 256 patient hospitalized in surgery of the hospital in west Algeria were submitted to this study. All samples were taken from peripheral venous catheters implanted for 72 hours or more days. A total of 31 isolates of Candida species were isolated. MIC and SMIC are determined at 80% inhibition by the test XTT tetrazolium measured at 490 nm. The final concentrations of antifungal agent being between 0.03 and 16 mg / ml for amphotericin B and from 0.015 to 8 mg / mL caspofungin. Results: 31 Candida species isolates from catheters including 14 Candida albicans and 17 Candida non albicans . 21 strains of all the isolates were able to form biofilms. In their form of Planktonic cells, all isolates are 100% susceptible to antifungal agents tested. However, in their state of biofilms, more isolates have become tolerant to the tested antifungals. Conclusion: Candida yeasts isolated from intravascular catheters are considered an important virulence factor in the pathogenesis of infections. Their involvement in catheter-related infections can be disastrous for their potential to generate biofilms. They survive high concentrations of antifungal where treatment failure. Pending the development of a therapeutic approach antibiofilm related to catheters, their mastery is going through: -The risk of infection prevention based on the training and awareness of medical staff, -Strict hygiene and maximum asepsis, and -The choice of material limiting microbial colonization.

Keywords : candida, biofilm, hospital, infection, amphotericin B, caspofungin
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