Short Communication

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Common Who, Which, Why, How, What and When Questions of Invasive Fungal Infections

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Mycology is a science that is open to developments and innovations in the medicine and scientific areas. Fungi have taken place much more than bacteria in the Medicine with increasing the number of immunocompromised patients who are treated due to onco-hematological diseases and autoimmune diseases. However, fungi do not commonly come to all physicians' mind as a disease cause. This situation leads to delays in the diagnosis and treatment of fungal infections. It is becoming apparent on the agenda that fungi other than *Candida* species cause infections with serious morbidity and mortality. Therefore, when, what, who, and why questions in terms of fungal infections need to remind to physicians to ask.

Who is at Risk for Invasive Fungal Infections?

If a patient who has one of those factors, including central venous catheter, urinary catheter, comorbid conditions, total parenteral nutrition, surgery, especially intraabdominal surgery, transfusion, mechanic ventilation, broad-spectrum antibiotic use, oncohematological diseases, allogeneic haematopoietic stem cell transplantation (HSCT), immunosuppressive therapy, hypoalbuminemia, recipients of solid organ transplants (SOT), and APACHE II score (≥ 16), physicians should take into consideration fungal infections in line with patient' s signs, symptoms and other diagnostic findings [1].

Which Antifungal Drug Should be Chosen?

Antifungal drug should be chosen taking into consideration severity of disease and comorbidity in the patient, antifungal resistance status surveilled in the health care setting, drug-drug interactions, presence of organ failures, and probable or possible fungal pathogens. In the non-neutropenic, severe patients, an echinocandin should be considered initially. If a fluconazole-susceptible *Candida spp.* yields in the blood culture, fluconazole is switched once the patient becomes clinically stable. Voriconazole should be the preferred treatment option with Amphotericin B being an alternative for *Aspergillosis* in patients with allogeneic HSCT recipients, patients receiving induction chemotherapy for acute myeloid leukemia (AML) or myelodysplastic syndrome (MDS), and those undergoing immunosuppressive therapy for graft-versus-host disease after allogeneic HSCT [1]. *C. parapsilosis* candidemia is related to vascular catheters and parenteral nutrition [2]. *C. tropicalis* is commonly related to cancer and neutropenia. *C. krusei* and *C. glabrata* fungemias are related to previous exposure to azoles [3].

Caspofungin and liposomal amphotericin B deoxycholate (LAmB) should be opted as first and second choice of antifungal drug for the empirical treatment of persistently febrile neutropenia, respectively [1]. Mucormycosis is an angioinvasive infection caused by *Mucorales* (*Rhizopus*, *Mucor*, *Rhizomucor*, *Absidia*, *Apophysomyces*, *Cunninghamella* and *Saksenaea*), and related to risk factors, including immunocompromising states such as haematological malignancy, solid organ transplantation, diabetes mellitus with or without ketoacidosis, bone marrow or peripheral blood stem cell transplantation, corticosteroids, neutropenia, and deferoxamine therapy for iron overload [4].

Why should the Fungal Isolate be tested for the Antifungal Drug Susceptibility?

Aspergillus isolates should be tested for antifungal susceptibility, if azole-resistance is suspected or patient is unresponsive to antifungal agent, or there is an epidemiological purpose. Routine antifungal susceptibility testing is not recommended for isolates obtained in the initial infection. If there are increased use of azole antifungal drugs, or considerable azole resistance rates in the fungal isolates cultured in health care setting, antifungal resistance should be evaluated [5].

How should Galactomannan assay be used for the Diagnosis of Aspergillosis?

Serum and BAL galactomannan (GM) is recommended for the diagnosis of IA in adult and pediatric patients. GM is not recommended for routine blood screening in patients who

receive mold-active antifungal therapy or prophylaxis. However, bronchoscopy specimens can be tested for those patients. SOT recipients or patients with chronic granulomatous disease are not recommended for GM screening [5].

What is the value of radiologic imaging modalities in the diagnosis of invasive Aspergillosis?

Magnetic resonance imaging (MRI) has no additional benefit compared to CT scanning for early diagnosis of invasive pulmonary Aspergillosis, but is the preferred imaging modality to ascertain and illustrate osseous, paranasal sinus lesions, or central nervous system disease [6-8].

When are chemotherapy or transplantation harmless in a patient with invasive Aspergillosis?

Invasive Aspergillosis is not an absolute contraindication to further chemotherapy or HSCT. Decision should be taken depends on the risk of progressive aspergillosis during periods of following antineoplastic treatment versus the risk of death related to underlying malignancy [5].

References

1. Ruping MJGT, Vehreschild JJ, Cornely OA (2008) Patients at high risk of invasive fungal infections: when and how to treat. Drugs 68: 1941.
2. Clark TA, Slavinski SA, Morgan J, Lott T, Arthington-Skaggs BA, et al. (2004) Epidemiologic and molecular characterization of an outbreak of Candida parapsilosis bloodstream infections in a community hospital. J Clin Microbiol 42: 4468-4472.
3. Bassetti M, Ansaldi F, Nicolini L, Malfatto E, Molinari MP, et al. (2009) Incidence of candidaemia and relationship with fluconazole use in an intensive care unit. J Antimicrob Chemother 64: 625-629.
4. Prabhu RM, Patel R (2004) Mucormycosis and entomophthoramycosis: a review of the clinical manifestations, diagnosis and treatment. Clin Microbiol Infect 10: 31-47.
5. Patterson TF, Thompson GR, Denning DW, Fishman JA, Hadley S, et al. (2016) Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis 63: e1-e60.
6. Blum U, Windfuhr M, Buitrago-Tellez C, Sigmund G, Herbst EW, et al. (1994) Invasive pulmonary aspergillosis. MRI, CT, and plain radiographic findings and their contribution for early diagnosis. Chest 106: 1156-1161.
7. Gabelmann A, Klein S, Kern W (2007) Relevant imaging findings of cerebral aspergillosis on MRI: a retrospective case-based study in immunocompromised patients. Eur J Neurol 14: 548-555.
8. Siddiqui AA, Bashir SH, Ali Shah A (2006) Diagnostic MR imaging features of craniocerebral aspergillosis of sino-nasal origin in immunocompetent patients. Acta Neurochir (Wien) 148: 155-156.

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