

Profile of airborne fungal species in neonatal intensive care unit at two hospitals in Jakarta = Profil spesies jamur udara pada ruang perawatan intensif neonatus pada dua rumah sakit di Jakarta

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Abstrak

Penyakit infeksi masih menjadi masalah serius pada seperempat populasi manusia di seluruh dunia. Berbagai mikroorganisme penyebab infeksi berperan meningkatkan angka morbiditas dan mortalitas pada pasien berisiko tinggi diantaranya pasien dengan gangguan imunitas dan atau kondisi sakit berat. Jamur merupakan mikroorganisme penyebab berbagai penyakit mulai dari alergi, hipersensitivitas saluran napas atau asma, maupun infeksi sistemik yang mengancam jiwa, misalnya kandidiasis sistemik, aspergilosis sistemik, serta infeksi jamur lain. Transmisi infeksi jamur sistemik biasanya melalui inhalasi spora maupun kontaminasi elemen jamur di lingkungan sekitar pasien. Keberadaan jamur di lingkungan sekitar pasien penting mendapat perhatian mengingat potensinya sebagai sumber infeksi, termasuk di lingkungan rumah sakit.

Penelitian ini bertujuan untuk mengidentifikasi keragaman spesies jamur yang diisolasi dari lingkungan rumah sakit, dan merupakan bagian dari penelitian multisenter aspergilosis invasif pada pasien sakit berat di beberapa rumah sakit di Jakarta. Mengingat neonatus merupakan salah satu kelompok pasien berisiko tinggi mengalami infeksi jamur sistemik di rumah sakit, maka lokasi penelitian ini difokuskan pada lingkungan ruang perawatan intensif neonatus NICU. Pengambilan sampel dilakukan secara konsekutif pada lingkungan NICU di dua rumah sakit, baik di bagian dalam maupun luar NICU. Sampel udara diambil menggunakan cawan petri berisi agar Saboraud dekstroza selama 15 menit pada ketinggian 100-150 cm, setelah itu dilakukan inkubasi dan pengamatan selama tujuh hari di laboratorium.

Hasil penelitian menunjukkan terdapat delapan jenis jamur yang diisolasi dari lingkungan NICU, yaitu *Aspergillus flavus*, *Aspergillus fumigatus*, *Candida* sp., *Dematiaceae* sp., *Mycelia sterilia*, *Paecilomyces* sp., *Penicillium* sp., and *Trichosporon* sp. Spesies jamur yang paling sering ditemukan adalah *Mycelia sterilia* dan *Aspergillus fumigatus*.

.....Infectious diseases are still a serious problem affecting a quarter of the human population worldwide. Numerous microorganisms causing infection served to increase morbidity and mortality rate in high risk patients, including immunocompromised and or critically ill patients. Fungi are microorganisms that cause a variety of diseases ranging from allergies, hypersensitivity respiratory or asthma, as well as life threatening systemic infections, such as systemic candidiasis, systemic aspergillosis, and other fungal infections.

Transmission of systemic fungal infection is usually through inhalation of the spores or fungal elements contamination in the environment around the patient. The presence of fungi in the environment around the patient extremely needs attention considering its potency as a source of infection, including in a hospital environment.

This study aims to identify the diversity of fungal species isolated from the hospital environment, and is part of a multicentre study of invasive aspergillosis in patients with serious illness at several hospitals in Jakarta. Considering neonate is one group of patients at high risk of systemic fungal infections in the hospital, subsequently the location of this research is focused on the environment of neonatal intensive care unit

NICU . The sample was taken consecutively in the NICU environment at two hospitals, both indoor and outdoor of the NICU. Air samples were taken using a petri dish containing Sabouroud r'squo s dextrose agar for 15 minutes at a height of 100 150 cm, after it conducted incubation and observation for seven days in the laboratory.

The results showed there are eight types of fungi isolated from the NICU environment, including *Aspergillus flavus*, *Aspergillus fumigatus*, *Candida* sp., *Dematiaceae* sp., *Mycelia sterilia*, *Paecilomyces* sp., *Penicillium* sp., and *Trichosporon* sp. The most commonly fungal species found are *Mycelia sterilia* and *Aspergillus fumigatus*.