2046. FungiScope*: News on the Global Emerging Fungal Infection Registry

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Background. Numbers of rare invasive fungal diseases (IFD) are rising world-
wide due to increasing patient population at risk. To broaden the knowledge on epi-
demiology of rare IFD and eventually improving diagnosis and clinical outcome.
FungiScope*, a global registry, offers a platform for comprehensive analyses, which provides insights into clinical care.

Methods. FungiScope* uses web-based data capture (www.clinicalsurveys.net).
Eligible are cases with proven or probable infection due to rare, non-endemic fungi.
Data collected include demographics, underlying conditions, clinical presentation, diagnosis, antifungal therapy and outcome. Clinical isolates are collected for central-
ized identification, susceptibility testing and exchange between collaborators.

Results. To date, 728 valid cases of rare IFD from 41 countries are included in the registry: IFD due to Mucormycetes (n = 358), Fusarium spp. (n = 87), yeasts (n = 83), Aspergillus spp. (n = 69), and Scedosporium spp. (n = 55) are the most frequently reported. FungiScope* is supported by central labs in the Czech Republic, India, Russia, and Spain. Recently, FungiScope* collaborators jointly published results on (I) invasive mucormycosis in children analyzed together with cases from the registry study Zygomyco.net, (II) disseminated fusariosis in 10 children, and (III) invasive infections due to Saprophacte and Geotrichum spp. in 23 patients.

Conclusion. The clinical relevance and by this the awareness of emerging IFD is increasing. FungiScope* is a valuable resource used for collaborative studies on rare IFD. Operating and management of the registry requires considerable effort to ensure high quality for comprehensive analyses, which provide insights into clinical care.

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2048. Comparison Between Endpoint and Real-Time (RT) Polymerase Chain Reaction (PCR) for the Diagnosis of Pneumocystis Pneumonia (PCP)

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Background. Fungal pneumonia complicates critical illness with neutropenia, pro-
longed hospitalization and steroids as risk factors. Aspergillus species predominate as in Asian epidemiology. Culture methods are reliable and combinatorial of molecular test with BAL galactomannan is useful for rapid diagnosis. Serum/PCT is raised in patients with fungal pneumonia and associated with higher mortality. In our study the baseline PCT at ICU admission was higher in nonsurvivor group, levels on D3 and D7 were persistently higher. High serum procalcitonin level is an independent prognostic biomarker of mortality risk in fungal pneumonia. Genetic relatedness of clinical and environmental sample necessitates infection control measures to prevent invasive as-
pergillosis in high-risk patients.

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2019. *Pneumocystis jiroveci* Detection by Nested PCR in HIV-Infected Peruvian Patients

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**Background.** *Pneumocystis jiroveci* (PJ) is considered a common cause of pneumonia in HIV-AIDS patients. PJ detection now is facilitated by molecular techniques using non-invasive samples; however, there are few PJ colonization studies in HIV population using these techniques. The study aim was to evaluate the frequency and factors related to PJ colonization among HIV patients with CD4 count <500 cells/mm³.

**Methods.** We performed a cross-sectional study evaluating HIV patients older than 18 years old with or without respiratory symptoms with CD4 count <500 cells/mm³ who attended Hospital Cayetano Heredia in Lima, Peru during May 2017–March 2018. After patients signed an informed consent, clinical information was obtained from the medical chart and a non-induced sputum sample was collected. If patient did not have cough, an oral wash sample using saline was obtained. PJ detection was based on the amplification of the mitochondrial large subunit ribosomal RNA (mtLSU rRNA) in two stages. First, single round PCR was done using external primers (pAZ102E and pAZ102H); then, PCR products were amplified (nested PCR) using internal primers (pAZ102X and pAZ102Y). If the single round PCR was positive in a patient with respiratory symptoms, it was considered a PJ infection. If only the nested PCR was positive, this was considered as PJ colonization.

**Results.** A total of 177 patients were included, 75 (42.4%) with respiratory symptoms. Three cases were considered PJ infections. A total of 15 cases (8.6%) were colonized by PJ, 7/72 (9.7%) cases with respiratory symptoms and 8/102 (7.8%) among asymptomatic patients. A higher proportion of colonization was seen in patients in whom an oral wash was obtained (14/156, 9.0%) compared with those in whom a non-induced sputum was analyzed (1/18, 5.5%). The frequency of PJ colonization based on CD4 count was 6.5 and 10.3% among patients with ≤200 and >200 cells/mm³, respectively.

**Conclusion.** PJ colonization was seen in 8.6% of HIV patients. The proportion of PJ infection was higher when oral wash was analyzed compared with non-induced sputum. Patients with lower CD4 account did not show a higher proportion of colonization.

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### 2050. *Pneumocystis jiroveci* Detection by Nested PCR in HIV-Infected Peruvian Patients

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**Background.** Invasive fungal infection (IFI) is a major cause of mortality and morbidity among immunocompromised patients. Microbiologic culture of biopsy samples remains the diagnostic gold standard. Noninvasive biomarker testing can provide clinically useful information, but does not give species-level identification. Next-generation sequencing (NGS) of cell-free plasma is a noninvasive approach for species-level identification of pathogens, and may guide specific treatment. We sought to describe the diagnostic utility of plasma NGS in high-risk immunocompromised pediatric patients, correlating results with standard microbiology studies.

**Methods.** Plasma from at-risk immunocompromised patients with suspected IFI was tested using cell-free plasma NGS (Karius, Redwood City, CA). Human reads were removed, and remaining sequences aligned to a curated database including >1,000 pathogens. Organisms present above a predefined significance threshold were reported.

**Results.** Forty evaluable patients were enrolled, the majority of whom had underlying enologic diagnoses. Risk for IFI included prolonged febrile neutropenia (FN) in 22 patients, recrudescent FN in 7, concerns for IFI on imaging in 8, and concern for IFI based solely on other clinical findings in 3. Six patients met established criteria for proven IFI, 1 for probable IFI, and 13 for possible IFI. NGS plasma testing identified a patient which was cultured from infected tissue or blood in 4 of 6 proven cases; one patient with localized cutaneous Rhizopus had negative NGS results. A patient with probable IFI (positive β-D-glucan) had *P. jiroveci* detected by NGS. Among 33 patients without proven or probable IFI, NGS testing identified a fungus in one (C. glabrata), no organism in 11, and potential alternative sources of fever in 16.

**Conclusion.** Plasma NGS testing can detect IFI from blood. The test identified fungi from proven IFI, and detected other pathogens in both probable and possible IFI cases. Many patients at risk received prolonged courses of antifungals despite negative testing, suggesting a possible future role for NGS testing in ruling out IFI. Future studies should more definitively evaluate the positive and negative predictive value for NGS testing in patients at risk of IFI.

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