even further highlighting the importance of considering the contextual reference when evaluating the functions of second microbial enzymes.

5.1d Challenges in diagnosing and management of invasive fungal infections during the pandemic

Methay Chaithamkeerat
Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

5.1.4 Fusigenic infections in Asia, bringing it out of the dark, September 21, 2021, 11:00 AM - 12:30 PM

Fusigenic fungal diseases have been increasing in Asian countries. Recent advances in novel medical care such as solid organ and stem cell transplants, chemotherapy for cancer treatment, and comorbid conditions, resulted in the increased prevalence of invasive mycoses. Systemic aspergillosis, mucormycosis, and endocarditis mycoses are among the most common fusogen infections in Asia. In contrast to the classical neutrophilic pneumonitis, most of the patients with invasive mycoses who had non-classical risk factors are mostly non-neutrophilic and may present with an atypical clinical manifestation. These non-risk factors include biological age or sex, organ/kidney transplants for cancer treatment, and use of broad-spectrum systemic such as anti-inflammatory or coronavirus disease 2019 (COVID-19) pneumonia. Recently, COVID-19-associated aspergillosis (CAPA) and COVID-19-associated mucormycosis (CAM) have been described. These particular mycosis infections had high mortality. Treatment of CAPA and CAM infections is the same as to the treatment of fungal infection in COVID-19. However, the interaction between treatments and drugs used for the treatment of COVID-19 may be taken into consideration.

5.1.4.1 Cryptococcal PCR assay: the future for routine mycology labs and clinical trials dealing with cryptococcosis

Tahpeesri Mbitangwe,1,2 Aude Stumy-Leclerc,3 Kawena Leblidi,2 Cheausame Kajang,1 Boyette Charles Chambard,1 Olivier Lortholary,2 Françoise Dromer,2 Jennifer C. Hoving,2 David S. Lawrence,1 Henry Mwambudama,2 Mospala Robert,1 Bertrand W. Tom,2 Alexandre Alencar,2

1Institute of Infectious Disease and Molecular Medicine, Department of Pathology, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa
2Mycological Unit and National Reference Centre for Invasive Mucositis, Institut Pasteur, Paris, France
3Botswana Harvard AIDS Institute Partnership, Gaberone, Botswana

Further, we investigated the dynamics of fungal DNA and RNA detection during antifungal treatment.

Methods: We developed a qPCR assay that can differentiate serotypes A, D, and B/C of Cryptococcus neoformans and C. gattii based on the amplification of 2 unique nuclear Quacryptor serotype-1 (QPCR) and a multicopy 28S RNA gene and evaluated the assay on 205 patient samples from the AMBMET-2 trial in Benin, Malawi, and Botswana. DNA, and whole blood samples were stored per patient and were sampled at days 0 (baseline), day 14 and for CSA at day 1, 3, 7, 14, and 28, and while whole blood post-antifungal treatment initiation. In a ROC curve, qPCR and qPCR with gattii were used for data analysis.

Results: A total of 205/209 matched patient and controls (85 from Benin, 124 from Malawi), were used. For QPCR (QPCR sampled in CSA at D6, D14, 0.75%) was serotype A, B, C, and D/C was a mix in serotype A and B/C. There was no amplification with 76 (17.6%) samples. There was no difference in fungal loads of D1, D7, and D14 between serotypes A, B/C and with the QPCR (QPCR assay, and QC0). QPCR showed a good correlation with QPCR quantification with QPCR (QPCR spikes = 0.79, R2 = 0.73) and with 28S RNA qPCR (qPCR = 0.77, R2 = 0.77) assays. The fungal load at D0 was significantly higher in patients who died at week 2 (n = 4) and week 10 (n = 3) compared with patients who were alive. No post-week 10 survivor difference in initial fungal load was treated in both treatment regimens (P < 0.05). Detection of Cryptoccocal DNA (28S RNA qPCR) in plasma or whole blood within the first 24 hours of treatment was significantly higher with mortality at D0 and at mortality and AR with P < 0.05. QPCR RE-isolations of the qPCR of Positive samples from DNA was due to viable fungal cells as the quantification of QPCR while nucleic acids was symptomatically higher (X2) than that of DNA.

Conclusion: Quantification of C. neoformans in whole blood and CSA at day 0 is useful in identifying patients at risk of death and may be a promising tool for monitoring treatment response in the future.

5.1.5 Epidemiology of mycotic keratitis in developing countries

Philip Alloysius Thomas
Institute of Ophthalmology, Joseph Eye Hospital, Tiruchirappalli, India

5.1.5.1 Mycotic keratitis, September 21, 2021, 11:00 AM - 12:10 PM

Mycotic keratitis (corneal infection due to a fungal etiology) is a well-recognized ophthalmological emergency warranting rapid initiation of specific antifungal therapy. However, the magnitude of the problem of mycotic infections in the community, especially in the Indian subcontinent and the developing world, is, however, apparent. A national annual incidence estimate of 1051, 787 cases (23/0.001 population) (global) has recently been reported, with the highest rates being in Asia (13/530,000 peoples, an absolute number of 539 897) and Africa (13/530,000, 75 196). In all culture-positive cases are assumed to be fungal, especially where the incidence of mycotic keratitis is known to be high, than the annual incidence will be about 1480 956 cases. A fungal etiology has been found to account for a very high proportion (45%) of microbial keratitis cases worldwide. Cryptococcus neoformans is the most common cause of fungal keratitis nearly due to the fact that: first, the proportion of microbial keratitis patients with a proven fungal etiology shows a significant negative correlation with the gross domestic product per capita. Although it is clear that the most common fungal keratitis etiologies in this world pandemic, a marked regional variations in fungal keratitis have been noted. It is important to realise that the success rates of the cultural studies can vary from one country to another, depending on the context, as well as the morbidity and mortality of the fungal keratitis. As a consequence, a lack of awareness of the disease with lack of access to quality medical care, with some being an emerging trend in the proportion of all microbial keratitis cases being diagnosed as mycotic keratitis.

In a single geographical location, cases of mycotic keratitis may be higher than the yearly average at any given times of the year, as a result of outdoor harvesting of corneal habitats. A dermatologist may note that, in 8%-11% of patients with mycotic keratitis, the affected eye was not exposed, representing an irreversible loss of 84 -135 578 years. It is recognized that many people suffering from mycotic keratitis in rural distant communities may present with late care seeking, and therefore the actual number of cases likely to be missed.

Europe, 2010-2012; 135 cases of fungal corneal ulcers were identified, mostly mild local disease, a low rate of death and disfiguring. Additionally, the actual number of cases affected remains unknown due to lack of proper training among ophthalmologists about the dangers of not promptly recognizing and treating fungal keratitis. A role for mycotic keratitis in causing corneal scarring and visual effects is uncertain.