S1.1b The burden of mycotic keratitis in West Africa
Harith Gugnani1

1 Gullas College of Medicine and Pub Health, University of the Philippines, Philippines

S1.2 Mycotic keratitis, Sunday, 21, 11:20 AM - 12:10 PM

Background: Invasive fungal keratitis, known as mycotic keratitis, can cause permanent corneal scarring and perforation resulting in the loss of the eye. This paper reviews the prevalence and epidemiology of mycotic keratitis in different countries of West Africa to estimate its burden. Method: An exhaustive search of the literature was made on Google, PubMed, MEDLINE, Cochrane Library, and Web of Knowledge using different sets of keywords, viz., mycotic keratitis, ocular fungal infection, West Africa, risk factors, prevention, and treatment. Results: A study in Nigeria over a period of 4 years (1974–1977) dealt with 42 confirmed cases of mycotic keratitis with Paecilomyces solani as the predominant etiological agent (13 cases) followed by Penicillium species (8 cases) and Aspergillus fumigatus (5 cases). The 12 remaining cases were of Fusarium species (5 cases), Agaricus spp. (2 cases), and Cladosporium spp. (5 cases). The predominant fungi identified were from palm tree leaves, thorns, keratin, or other plant objects, mechanical tools, and fruiting oil. A 1-year review (2010–2011) of 152 cases of corneal ulcers at the University of Calabar Teaching Hospital, Calabar, Nigeria revealed only 21 cases due to Aspergillus sp., many patients in this study were farmers. Other studies from Nigeria only mentioned the prevalence of keratitis without any mention of fungal etiology. Of the two studies from Ghana, the one conducted in 1999 showed the predominant keratitis organism was Paecilomyces (52.5%) and Aspergillus spp. (15.3%), whereas the other conducted in 1999–2001, these agents were represented by 42.2% and 17.4% respectively. In another prospective study of suspicious corneal ulcers in 295 cases in Ghana (June 1999–May 2001), the etiological organisms identified in culturally proven 77 (83.5%) cases of mycotic keratitis were Paecilomyces spp. 46, Azorina sp. 7, Aspergillus fumigatus, Aspergillus niger, A. niger, A. sulphureus, and Aspergillus flavus. 4. Sura Lesoon studied cases of suspected infection ulcerative keratitis from January 2005 to January 2006 showed 10.5% of mycotic keratitis and 11.3% of mixed fungal and bacterial etiology. A study on the burden of serious fungal infections in Togo mentioned an annual incidence of 915 cases of mycotic keratitis but no details of fungal etiology were monitored. Conclusion: In this review, we estimated the annual global incidence of fungal keratitis at over 1 million cases. Reports of fungal keratitis from some countries only represent one-tenth the true burden of mycotic keratitis in West Africa. There is a need for more epidemiological surveys (involving collaboration between ophthalmologists and mycologists) of mycotic keratitis in representative communities in collaboration with primary health centers and hospitals in different countries. It should be possible for the development of a combined anti-inflammatory and antifungal preparation for widespread and immediate prophylactic first aid use after corneal trauma, especially in rural areas.

S1.3c Proteins in fungal keratitis research: a road map to personalized treatment
Lolita Prajna

S1.5 Mycotic Keratitis, Monday, 22, 12:30 AM - 1:20 PM

Background: Most studies on mycotic keratitis use the fungal infection, the complement and coagulation pathways were activated along with neutrophil-mediated defense responses, notably the neutrophil extracellular trap formation. These pathways and their cross talk with adjuvants are primarily responsible for the exaggerated immune response at the site of infection. We selected five target proteins that were significantly altered and validated them as the most suitable candidates for the indication of the on-site treatment.

Through our efforts on immunological studies, we now have five target protein as indications of the inflammatory status in keratitis patients. These proteins along with the clinical features can identify the subset of patients who are unlikely to respond to the treatment. We can prepare a predictive test to modify the therapeutic response in these non-responders patients.

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