

## Evaluation and Treatment of Corneal Fungal Infections

*Davide Borroni*<sup>1,2</sup>, *Melanie Ferronato*<sup>3</sup>, *Araniko Pandey*<sup>2</sup>,  
*Kabindra Bajracharya*<sup>2</sup>, *Ilze Lace*<sup>1</sup>

<sup>1</sup>*Rīga Stradiņš University, Department of Ophthalmology, Latvia*

<sup>2</sup>*Lumbini Eye Institute, Ophthalmology Department, Nepal*

<sup>3</sup>*Rīga Stradiņš University, Faculty of Medicine, Latvia*

**Introduction.** Corneal ulcer due to Fungal Infection is a major cause of blindness in agricultural areas of Nepal. The study was the evaluation of the characteristics of 158 patients with fungal keratitis at Lumbini Eye Institute (Nepal) and its medical treatments.

**Aim, Materials and Methods.** First diagnosis of fungal infection was performed to slit-lamp examination plus Potassium Hydroxide (KOH) procedure placing specimens in a 15% KOH solution (15 g KOH, glycerol 20 ml, distilled water 80 ml). Antifungal drops were used every half to one hourly initially and tapered as per the clinical response. Natamycin 5% and Amphotericin B 0.15% were the first choice of treatment. Other drops used in selective cases were topical 1% voriconazole, topical 2% econazole, topical 1% itraconazole, topical 2% fluconazole. Surface debridement was considered in 47 cases. Atropine and FANS (Diclofenac) were integrated in the management.

**Results.** Fungal infections of the cornea were frequently caused by *Fusarium*, *Aspergillus*, *Curvularia*, and *Candida*. Trauma was the most important predisposing cause 128/158 (81.01%). Surface debridement helped to reduce load of infection and enhanced drug penetration. Response to treatment in fungal infections is very slow and complete resolution often required 4–8 weeks of treatment.

**Conclusions.** Natamycin and amphotericin B were the most used drugs for fungal keratitis which showed good clinical results. Voriconazole showed effectiveness and security and it may be the drug of choice in optimal conditions for its better ocular penetration and wider coverage but the high price per unit poses difficulties in general applications. Fluconazole has high corneal penetration and reaches therapeutic corneal levels when given orally. Its clinical role in filamentous fungal keratitis is yet to be precisely defined; however, it could be considered in patients with deep fungal keratitis.

*The project was the basis of the “RECOVER-ME”; the project that last month was selected among the best 3 European projects in ophthalmology by ESCRS (European Society of Cataract and Refractive Surgeons).*