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Effectiveness of diagnostics and treatment of severe keratitis and corneal ulcers: a case series

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Severe keratitis and corneal ulcers are one of the leading causes of blindness worldwide. The uncontrolled antibiotic use and resistance of microorganisms to them make management of keratitis challenging problem.
Purpose: the analisis of a case series of severe keratitis and corneal ulcers refractory to the standard medical therapy
Materials and methods: 30 patients (31 eyes) with severe keratitis and corneal ulcers were included in the study, 11 men, 19 women, mean age 45.6 y. o., varied from 19 to 67. The follow-up was from 8 to 24 months. Corneal ulcers were central in 19 eyes, peripheral–in 2 eyes, total corneal were involved–in 10 eyes. Hypopyon was found in 12 eyes, corneal perforations–in 19 eyes. Ulcers were related to contact lenses in 14 eyes (45.2%), to trauma–4 (12.9%), to herpetic infection–4 (12.9%). Multiple risk factors identified in 9 cases. Surgical treatment was performed in 21 eyes: therapeutic DALK–3 cases, PKP–18 cases. Samples of tear fluid, cor-

neal scraping or anterior chamber fluid were taken for microbiological examination in 28 eyes, PCR or bacteriology were performed.
Results: Local fluoroquinolones were prescribed at the first step of treatment in all cases, but they were not effective. The results of etiological examination revealed Ps. aeruginosa, E. coli, Klebsiella, Enterobacteria–in 8 cases, MRSA and coagulase negative Staphylococci (MR including) in 14 cases, fungi (Candida and Aspergillus)–5 cases, mixed infection–in 9 eyes (29%). In 4 cases several microorganisms were identified sequentially, in 2 eye polyresistant flora were revealed. According to sensitivity, the following antibiotics were used: linezolid, vancomycin, meropenem/doripenem. Fluconazole or voriconazole for the prevention or treatment of fungal infection was administered in all cases. In 14 eyes repeated corneal debridement, hypopyon evacuation and antibiotic injection into anterior chamber were performed. In 3 eyes repeated keratoplasty required. The anatomical success was revealed in 30 eyes, 1 eye undergone phthisis. Corneal transplant remained clear in 13 eyes.
Conclusion: Etiological diagnosis of corneal ulcers using real-time PCR provides an accurate diagnosis and adequate choice of antibacterial treatment. MRSA, coagulase-negative staphylococci, and fungi are the predominant pathogens in our case series. The final results and effectiveness of keratoplasty depend on appropriate medical management before and after surgery.

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