Assessment of Polymerase Chain Reaction in the Detection of Pseudomonas aeruginosa in Contact Lens-Induced Severe Infectious Keratitis


Abstract

Purpose: The aim of this study is to evaluate the role of real-time polymerase chain reaction (PCR) and conventional bacterial culture methods in the detection of Pseudomonas aeruginosa in contact lens-induced severe, partially treated corneal ulcers referred to a tertiary center.

Methods: The study duration was 6 months. All patients with contact lens-related corneal ulcer, requiring admission during the study period were recruited. Samples from corneal scrapings were simultaneously sent at the time of admission for PCR and culture testing. An in-house real-time PCR was developed to detect the P. aeruginosa lasA gene. The results of PCR and culture were compared using McNemar's χ² test.

Results: Ten patients were recruited. The mean age was 33 years (20–45 years). All the patients had contact lens-related keratitis (>4 mm) of which eight (80%) were found positive for P. aeruginosa by PCR or culture. There was no significant difference between PCR and culture in detecting P. aeruginosa (P<0.05).

Conclusions: PCR is, at least, as good as conventional cultures in detecting P. aeruginosa. It is a rapid assay as compared with culture, and early detection enables prompt treatment thus reducing the destructive effect of the organism on the cornea.

© 2010 Lippincott Williams & Wilkins, Inc.