12-1985

Editorial: Corneal Stability with Rigid Gas Permeable Lens Refitting

Robert J. Crossen

Follow this and additional works at: https://scholarlycommons.henryford.com/hfhmedjournal

Part of the Life Sciences Commons, Medical Specialties Commons, and the Public Health Commons

Recommended Citation
Available at: https://scholarlycommons.henryford.com/hfhmedjournal/vol33/iss4/15

This Article is brought to you for free and open access by Henry Ford Health System Scholarly Commons. It has been accepted for inclusion in Henry Ford Hospital Medical Journal by an authorized editor of Henry Ford Health System Scholarly Commons.
Corneal Stability with Rigid Gas Permeable Lens Refitting

The trend in America today is to fit or refit all rigid contact lens patients with hard gas permeable lenses. It has been postulated that the use of a gas permeable material will increase corneal stability and decrease corneal physiological changes associated with contact lens wear. Contact lens problems to be considered as trouble areas with traditional hard lenses or soft lenses include spectacle blur, corneal epithelial staining, corneal vascularization, corneal topography changes, and recurrence of giant papillary conjunctivitis.

Corneal contact lenses made from rigid gas permeable materials have been used actively in clinical contact lens practice for the past five years. Clinical reports from contact lens fitters as well as from manufacturers have indicated a definite improvement in corneal physiology and corneal tolerance to a contact lens made with gas permeable materials. Most of these new lenses are silicone-acrylates and, as such, have the rigidity of the polymethylmethacrylate and the permeability of the silicone. Improvement in corneal tolerance is evaluated on a case by case basis in clinical practice, but a true analysis of a group of cases is seldom accomplished to really evaluate what is happening to the cornea and what is happening to the corneal physiology and pathological changes. Twenty-five consecutive cases that had been refitted with the hard Paraperm gas permeable lens were evaluated. They included 19 cases of myopia, three cases of keratoconus, two cases of postkeratoplasty, and one case of monocular aphakia. Since there is a marked variation in the anatomy and physiology of the cornea from patient to patient, these case reports become anecdotal because comparing one cornea with the next cornea is not a parallel activity and is difficult to evaluate on a statistical basis.

Of the 50 eyes evaluated, 27 eyes or 54% showed an improvement in mire symmetry. There was a general tendency toward a return to base K. Six of the eyes showed 0.50D flattening in the primary corneal meridian, and five eyes showed a flattened secondary corneal meridian flattening with an actual decrease in astigmatism.

Of the six keratoconus eyes, one was stable, four had 1-1/2 to 2 diopters of steepening, and one had a four-diopter decrease in corneal astigmatism. The variability of keratoconus with any contact lens in place would preclude any real statistics other than corneal tolerance as manifested by epithelial stability.

In one of the postgraft eyes, the three-diopter reduction in cylinder was just a normal desired healing and flattening of the graft, not connected with contact lens wear.

Spectacle blur was minimal in 18 of the cases of myopia that had preexisting significant spectacle blur with both traditional hard lenses and soft lenses.

In the 25 patients (50 eyes), no significant increase in vascularization into the clear cornea was noted on slit lamp examination over the six-month period of observation. Five of the 19 myopic soft lens fittings that were refitted with hard gas permeable lenses showed a reduction in the active vessel fingerlings although the hard gas permeable lenses were being worn most of the waking hours.

In summary, hard gas permeable lenses definitely improve corneal tolerance and corneal stability compared to preworn traditional PMMA hard lenses and soft contact lenses. New rigid lens materials are being investigated throughout the world, and it is hoped that the marked increase in oxygen permeability available with the new materials will increase the stability of the cornea in contact lens fitting. I believe that continued monitoring of these patients is indicated so that the true results of refitting with hard gas permeable lenses can be determined in a large volume of cases manifesting a range of anterior segment corneal diseases.

Robert J. Crossen, MD
Department of Ophthalmology
University of Michigan
Ann Arbor, Michigan