Progress of corneal collagen crosslinking

This review overviews the theoretical basis of corneal collagen crosslinking (CXL) and aims to highlight the advances in this procedure to optimize the efficacy of its clinical applications. It consists of the development history of CXL, physical-chemical changes after CXL, clinical applications of CXL, scleral crosslinking and key elements of CXL. CXL was first introduced in the 1990s and has been adopted as a primary treatment for corneal ectatic disorders such as keratoconus worldwide. By using the combination of Riboflavin and ultraviolet-A (UVA), this method is aimed to increase the corneal biomechanical strength and reduce the requirement for corneal transplantation. Over the past decades, many scientific studies have demonstrated the safety and efficacy of this new minimally-invasive method which has been applied to treat infectious keratitis and bullous keratopathy other than keratoconus. However, more and more laboratory and clinical researches were performed to optimize the effect of this procedure by modifications to the standard treatment protocol, such as methods to remove corneal epithelium, the differences between the CXL procedure with or without epithelium and the way to treat thin corneas less than 400 um. Furthermore, the scleral CXL remains a concern in the future.

Biography
Guo-Ying Mu majors in the basic research and clinical treatment for ametropia, cataract and corneal diseases, especially for the treatment of karatoconus and infectious corneal diseases and has more than 20 related SCI papers have been published in international core journals. He has also participated in the editing of 6 monographs.

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