Introduction

Cross linking is a recent procedure that can be used for management of many corneal disorders. It includes the use of UVA (370nm) and riboflavin as a photomediator. It was tested in pilot studies on human eyes with progressive keratoconus. In 2003, the first results of such pilot studies were published by Wollensak stated that collagen cross linking may be a new way for stopping the progression of keratectasia in patients with keratoconus. The need for penetrating keratoplasy might then be significantly reduced in keratoconus. Given the simplicity and minimal costs of the treatment, it might also be well-suited for developing countries. Long-term results are necessary to evaluate the duration of the stiffening effect and to exclude long term side-effects ***(Koller and Seiler, 2007).***

Its principle is to increase corneal rigidity. Biomechanical measurements have shown an impressive increase in corneal rigidity of 3٠٠% in human corneas after cross linking ***(Wollensak, 2006).***

It must be done under certain parameters and so preoperative pachymetry and individual control of the ultraviolet A-irradiance before each treatment are mandatory ***(Wollensak, 2006).***

As long the treated cornea has a minimum thickness of 400 micron (as recommended), the corneal endothelium will not experience damage, nor will deeper structures such as lens and retina. The light source should provide a homogenous irradiance, avoiding hot spots ***(Spoerl, 2007).***

It has many indications :

Keratoconus: Collagen Cross- Linking might become the standard therapy for progressive keratoconus in the future diminishing significantly the need for corneal transplantation ***(Wollensak, 2006).***

Bullous Keratopathy: Collagen Cross-Linking of the cornea has been shown to have an antiedematous effect in the cornea. Cross-Linking might become another useful tool in the treatment of bullous keratopathy ***(Wollensak, 2009).***

Progressive Myopia: new method of scleral Collagen Cross-Linking proved very efficient in increasing scleral biomechanical strength over a period of up to 8 months. Glyceraldehyde can be applied easily by sequential parabulbar injections ***(Wollensak and Iomdina, 2008).***

Post-Lasik Keratectasia: Collagen Cross-Linking leads to a stiffening of the anterior parts of the corneal stroma. The increase of biomechanical stability can stop the progresstion of a keratectasia after LASIK by means of a simple procedure ***(Speck. et al., 2005).***

Corneal ulcer: Experimental evidence that CXL increases the resistance of porcine corneal stroma to digestion by collagenase and other proteolytic enzyme- has led to the suggestion that CXL may have a role in slowing or preventing stromal ulceration resulting from infective, traumatic or immune-mediated corneal disease ***(Grant, 2010).***

Antimicrobial efficacy: Riboflavine-UVA was effective against S. aureus, Staphylococcus epidermidis, P. aeruginosa, methicillin-resistant S. aureus, multidrug-resistant p. aeruginosa and drug-resistant Streptococcus pneumoniae ***(Martins SA. et al, 2008).***