Corneal crosslinking for keratoconus at Frimley Park Hospital (2018-2021): a clinical audit

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Background and purpose

Corneal collagen cross-linking (CXL) is a minimally invasive procedure that aims to slow the progression of keratoconus and purpose of this study is to analyse outcome of the procedure for treatment of the same in Frimley.

Methods

Retrospective data collection of 109 eyes who had CXL from 2018 until 2021 was carried out to determine baseline and post-CXL best corrected visual acuity, Pentacam corneal topography data at 6 and subsequent months (maximum up to 3 years followed up) as well as any adverse outcomes. Accelerated crosslinking method was used which involves the removal of central 8-9 m epithelium followed by applying 0.1% riboflavin solution followed by 10 minutes of UVA radiation of wavelength 370nm and power 9mW/cm.[2]

Results

Of the 109 eyes crosslinked, 30 eyes had no/ lost follow up , most likely due to the COVID pandemic falling in that period therefore a sample of 79 eyes were used for analysis. The mean follow-up was 2 year. 3 (3.8%) eyes demonstrated progression of keratoconus, which we defined as an increase in K2 or Kmax of 1.5 dioptres or more following the CXL procedure. Two of these three eyes had a repeat crosslinking procedure, and one ended up having a keratoplasty. There were no adverse events in the follow up period. Mean BCVA also improved from 6/12 to 6/9

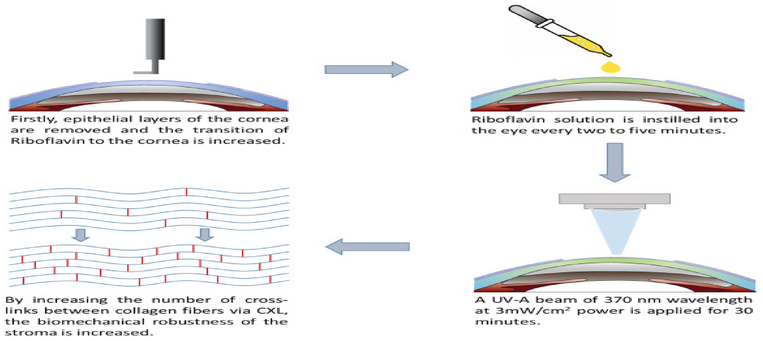


Figure 1: crosslinking procedure

	Baseline	First Pentacam after surgery 6-18 months	Recent Pentacam 2-5years
Mean K1	45.68	45.85	46.01
Mean K2	49.05	49.24	49.39
Kmean	47.32	47.47	47.68
Astigmatism	3.38	3.47	3.47
Kmax	56.04	56.22	56.19
Thinnest cornea	467.58	466.21	469.72
BCVA (logMAR)	0.27(6/12)	0.22(6/9)	0.21 (6/9)

Table A : Mean values for outcomes at baseline and following CXL

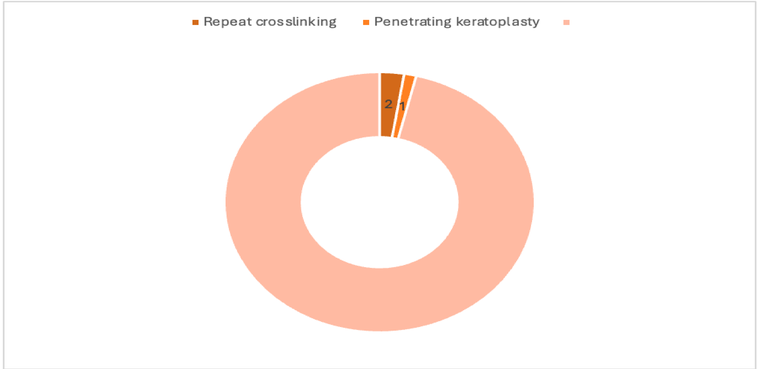


Fig 2:Three eyes underwent further procedures

Conclusion

Crosslinking with an accelerated protocol appears to be a safe and effective procedure that slows the progression of keratoconus. Our data also suggests that there may be halt in corneal distortion and improvement in best corrected visual acuity following the procedure.

References

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