Reviewer's report

Title: Customized pachymetric guided epithelial debridement for corneal collagen cross linking

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Reviewer: Farhad Hafezi

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Reviewer 1:

The manuscript
“Customized pachymetric guided epithelial debridement for corneal collagen cross linking”
by Kymionis et al. describes a modification of the currently used collagen cross-linking protocol. The rationale of this study is to enable the treatment of patients with thin corneas that otherwise would not be eligible to treatment.

However, I can not recommend publication of this paper for the following reasons:

• Most importantly, the manuscript is outdated.
  o Since 2 years, the currently existing protocol has been modified for the treatment of thin corneas by using hypoosmolar riboflavin solution (Hafezi et al, JCRS, in press). The use of riboflavin solution enables the surgeon to treat corneas down to a thickness of only 320 microns without the epithelium which is thinner than the method described here would allow.
  o Furthermore, there simply is no cross-linking effect in a non-deepithelialized area. This has clearly been demonstrated by Mazotta et al (Mazotta et al, JCRS, in press) and has been shown at the 3rd CXL congress in Switzerland in 2007. The adjacent cornea is cross-linked but the steepest area is not. The swelling approach where the entire cornea is treated is clearly preferable.

• Incorrect statements:
  o The authors state that the currently used cross-linking protocol involves the use of BSS drops during the irradiation and that this might lead to corneal swelling during the time of irradiation. This is prevented using the customized approach described here. This statement is false: the currently widely accepted protocol uses riboflavin 0.1% solution in 20% dextrane not only for the saturation of the cornea before the irradiation but also during the irradiation. Since the osmolarity of the riboflavin solution used and the corneal stroma are almost identical, no swelling is observed during the illumination. This has been demonstrated already five years ago.
• Minor orthographical errors:
  o Introduction: corneal ec(s)tatic diseases…

In conclusion, this manuscript does not provide an added value to the technique.

**Level of interest:** An article of insufficient interest to warrant publication in a scientific/medical journal

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests