Supplementary Material S1

Search strategy

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MEDLINE (Pubmed)

cross-linking OR cross-link* OR cross-link OR cross linking OR cross link* OR cross link) AND ("Keratoconus"[Mesh] OR keratoconus) NOT (animals [mh] NOT humans [mh])

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Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library (Wiley)

#1 MeSH descriptor: [keratoconus] explode all trees

#2 keratoconus

#3 (#1 OR #2)

#4 cross-linking

#5 cross-link

#6 cross-link*

#7 cross linking

#8 cross link

#9 cross link*

#10 (#4 OR #5 OR #6 OR #7 OR #8 OR #9)

#11 (#3AND #10)
EMBASE (Ovid)

1.'cross linking'/exp
2.cross linking
3.cross link*
4.'cross link'/exp
5.cross link
6.or/1-5
7.keratoconus
8.'keratoconus'/exp
9.or/7-8
10.'human'/exp
11.human
12.or/10-11
13.6 and 9 and 12

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ClinicalTrials.gov search strategy

(cross-linking OR cross-link* OR cross-link OR cross linking OR cross link* OR cross link) AND (keratoconus)
Supplementary Material S2

Table S1: Subgroup analysis by dividing the ACXL trials into four groups according to the difference of UVA irradiation/time

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Number of trials</th>
<th>UDVA SMD (95% CI)</th>
<th>CDVA SMD (95% CI)</th>
<th>Mean K SMD (95% CI)</th>
<th>Kmax SMD (95% CI)</th>
<th>MRSE SMD (95% CI)</th>
<th>CCT SMD (95% CI)</th>
<th>ECD SMD (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9mW/cm²(10 minutes)</td>
<td>7</td>
<td>-0.24 (-0.52, -0.02)</td>
<td>0.15 (-0.20, 0.46)</td>
<td>0.29 (-0.28, 0.87)</td>
<td>0.39 (0.17, 0.59)</td>
<td>-0.14 (-0.42, 0.15)</td>
<td>0.35 (0.01, 0.65)</td>
<td>0.15 (-0.27, 0.57)</td>
</tr>
<tr>
<td>18mW/cm²(5 minutes)</td>
<td>2</td>
<td>-0.18 (-0.69, -0.00)</td>
<td>-0.55 (-1.78, 0.68)</td>
<td>0.09 (-0.43, 0.66)</td>
<td>0.09 (-0.31, 0.40)</td>
<td>0.02 (-0.37, 0.26)</td>
<td>0.26 (-0.26, 0.19)</td>
<td>0.19 (-0.21, 0.59)</td>
</tr>
<tr>
<td>30mW/cm²(3 minutes)</td>
<td>3</td>
<td>-0.10 (-0.42, -0.00)</td>
<td>-0.06 (-0.36, 0.24)</td>
<td>0.80 (0.33, 1.28)</td>
<td>0.32 (0.05, 0.58)</td>
<td>0.02 (-0.44, 0.48)</td>
<td>0.34 (0.06, 0.62)</td>
<td>0.62</td>
</tr>
</tbody>
</table>

UVA, ultraviolet A radiation; ACXL, accelerated corneal collagen crosslinking; SMD (95% CI), standardized mean differences with 95% confidence intervals; UDVA, uncorrected distance visual acuity; CDVA, corrected distance visual acuity; Mean K, mean keratometry; Kmax, maximum keratometry; MRSE, mean refractive spherical equivalent; CCT, central corneal thickness; ECD, endothelial cell density.
**Supplementary Material S3**

Figure S1: Standardized mean differences (SMD) of change in corrected distance visual acuity (CDVA) between patients undergoing SCXL and ACXL with forest plots.
Figure S2: Standardized mean differences (SMD) of change in mean refractive spherical equivalent (MRSE) between patients undergoing SCXL and ACXL with forest plots.
Figure S3: Standardized mean differences (SMD) of change in central corneal thickness (CCT) between patients undergoing SCXL and ACXL with forest plots.
Figure S4: Standardized mean differences (SMD) of change in endothelial cell density (ECD) between patients undergoing SCXL and ACXL with forest plots.
Figure S5: Standardized mean differences (SMD) of change in corrected distance visual acuity (CDVA) between patients undergoing SCXL and ACXL by only including RCTs with forest plots.
Figure S6: Standardized mean differences (SMD) of change in mean refractive spherical equivalent (MRSE) between patients undergoing SCXL and ACXL by only including RCTs with forest plots.
Figure S7: Standardized mean differences (SMD) of change in central corneal thickness (CCT) between patients undergoing SCXL and ACXL by only including RCTs with forest plots.
Figure S8: Standardized mean differences (SMD) of change in endothelial cell density (ECD) between patients undergoing SCXL and ACXL by only including RCTs with forest plots.