

2-2021

## ABCD progression post crosslinking for Keratoconus

Sonali Patel

Neil Vadhar

Zeba Syed

Follow this and additional works at: [https://jdc.jefferson.edu/si\\_ctr\\_2023\\_phase1](https://jdc.jefferson.edu/si_ctr_2023_phase1)



Part of the [Translational Medical Research Commons](#)

### [Let us know how access to this document benefits you](#)

---

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in Phase 1 by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: [JeffersonDigitalCommons@jefferson.edu](mailto:JeffersonDigitalCommons@jefferson.edu).



**Sidney Kimmel  
Medical College™**  
at Thomas Jefferson University

# ABCD progression post crosslinking for Keratoconus

Sonali Patel, Dr. Neil Vadhar, Dr. Zeba Syed

- Keratoconus → corneal disease
  - Cornea thins out and becomes cone shaped
- Most common treatment → Cross Linking
  - Riboflavin drops are placed on the patients eyes and allowed to sit
  - The treated eye is then exposed to UV light
    - increases the degree of interfibrillar collagen cross linking
    - Extra strength from cross linking can help stop the progression of keratoconus.

- Post-surgical outcomes of cross linking → traditionally analyzed using an AK (Amsler- Krumeich) system
  - Could not account for posterior corneal surface and corneal thickness)
- New ABCD classification was developed
  - Takes into account anterior (A) and posterior (B) radius of curvature, the thinnest corneal pachymetry (C) and the distance for best corrected vision (D)
  - Data collected via Pentacam
- extra information should help describe the keratoconic cornea in a much improved manner /allow for more personalized treatment plans.

# Objectives & Hypothesis

- Research Question

- How do ABCD measurements fluctuate with the changes in visual acuity post cross linking surgery?

- Hypothesis

- ABCD measurements should all decrease post cross linking surgery

# Approach & Results

- A retrospective study was done using 104 patients who underwent CXL treatment for keratoconus at Wills Eye between 1/2016 and 6/2019
- previous Lasix surgery was an exclusion criteria
  - corneas might show different post-surgical changes
- Measurements were taken using a Pentacam.
  - pre-operatively
  - post operatively at months 3 and 6
  - D value not readily available for all of the patients and thus was not collected.
  - Increases in these measurements → disease progression
  - decreases → Disease regression

# Approach & Results

Table 1. Comparison of ABCD values pre-op and at POM3. n=35

	Pre-op	POM3	p-value
A	3.60	3.88	0.39
B	5.00	5.77	0.07
C	1.86	2.44	0.00016*

Table 2. Comparison of ABCD values pre-op and at POM6. n=25

	Pre-op	POM6	p-value
A	3.58	3.43	0.43
B	4.97	5.28	0.24
C	1.88	2.16	0.06

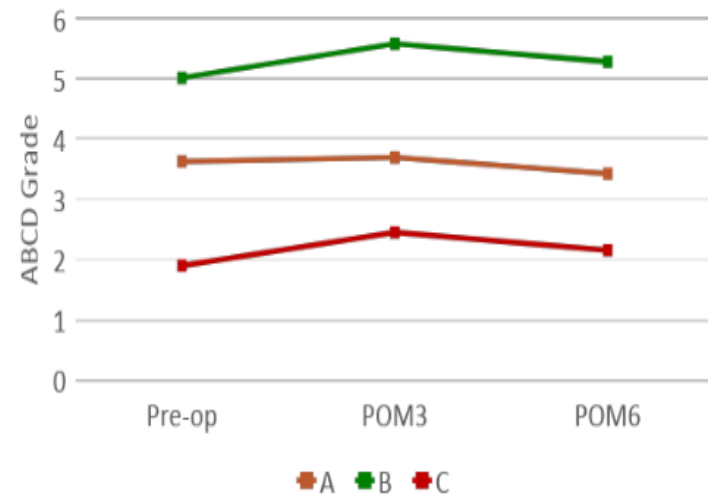


Figure 1. ABCD values pre-op, POM3, and POM6

- A, B and C → initially progressed post-operatively at 3 months
  - B and C values progresses to a much higher degree than A value
  - 6 months post operatively:
    - A values regressed past baseline
    - B and C values also regressed but not past baseline.
- CXL surgery → improves keratoconus in the anterior cornea but not as effective in the posterior cornea
- Initial regression in the B and C value → not a concern
  - stabilize later than the A value
  - does not mean that the CXL surgery was unsuccessful



# Future Directions

- Longer follow up times:
  - looking at patient data at 9 or 12 months could help pinpoint when the posterior chamber and corneal thickness stabilize in disease progression.
- Increased sample size
  - the amount of eyes looked at was relatively small

# Acknowledgements

- Thank you to Dr. Zeba Syed and Dr. Neil Vadhar