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## Intraoperative *in-vivo* OCT pachymetric mapping during epi-off pulsed accelerated high fluence corneal collagen cross-linking with dextran free riboflavin

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**Purpose:** To evaluate central and peripheral corneal pachymetric variations by *in-vivo* HD-OCT mapping during corneal pulsed accelerated collagen cross-linking (PACXL) treatment with the use of dextran-free riboflavin and ultraviolet A irradiation (UVA).

### Method:

**Design:** Prospective, noncomparative, interventional clinical study.

**Participants:** Twenty five keratoconic patients (25 eyes) were enrolled.

**Methods:** All patients underwent PACXL (30mw/cm<sup>2</sup>, pulsed ratio 1:1) using a dextran- free riboflavin solution with hydroxypropyl methylcellulose. Corneal thickness maps were performed during the procedure. Central (CCT) and inferior paracentral (IPCT) thickness measurements, centered on cornea, were obtained preoperative (PREOP), after epithelium removal (Epi-R), after 10 min riboflavin soaking with Vibex Rapid (RS), after 8 min irradiation (IR). Paracentral thickness was calculated as average of three inferior paracentral octants.

**Main Outcome Measures:** Intraoperative central and paracentral corneal thickness measurements.

**Result:** Mean patient age was 26.9 years (range 17-40), 15 were male and 10 were female. Preop CCT and IPCT was 458.5 and 448  $\mu$  respectively. Epi-R CCT and IPCT was 415.7 and 403  $\mu$ . RS CCT and IPCT was 406.4 and 392.89  $\mu$ . IR CCT and IPCT was 395 and 381.76  $\mu$ . There was a reduction CCT and IPCT reduction was mild but significant after IR phase but not significant after RS phase. No intra, operative, early postoperative or late postoperative complications were observed in this patient series.

**Conclusion:** Intraoperative OCT showed that epi-off accelerated pulsed corneal CXL with the use of dextran-free riboflavin limits central and paracentral corneal thinning during the procedure. After epithelium removal a mild but statistically significant decrease of CCT was demonstrated only after irradiation phase.

### Biography

Miguel Rechichi has completed his training in ophthalmology at 28 and his Ph.D. at 32 from Magna Graecia University and Diploma of Specialist Superior in Ophthalmology from University of Lugano (Switzerland). He's actually a researcher for Magna Graecia University and Director of corneal and refractive Surgery service of S. Lucia Eye Clinic, Cosenza, Italy. He was a pioneer of crosslinking clinical application and actually is involved in developing new accelerated cxl protocols for which he's invited as opinion leader to several meetings. He has published several papers in reputed journals and has been serving as an editorial board member of repute.

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