Long-term results of accelerated trans-epithelial cross-linking for keratoconus with osmotic riboflavin solution (Paracel™)

**Aim:** The aim is to present the long-term results of accelerated transepithelial cross-linking (CXL) for keratoconus with osmotic riboflavin solution.

**Methods:** Patient with progressive keratoconus had accelerated transepithelial CXL. Visual and refractive outcomes and the endothelial cell density (ECD) were evaluated preoperatively and postoperatively.

**Results:** Thirty-five patients were examined unilaterally; postoperatively 35 eyes were evaluated at 3 months, 6 months, 1 year and 2 years form the treatment. No intraoperative or postoperative complications occurred. The mean uncorrected distance visual acuity improved significantly form 1.12 ± 0.60 logMAR preoperatively to 0.68 ± 0.49 logMAR at the last follow up and the mean corrected visual acuity form 0.37 ± 0.25 logMAR to 0.09 ± 0.15 logMAR, respectively. The mean steep and the mean flat keratometry readings decreased significantly form 54.71 ± 5.26 diopters (D) and 46.82 ± 3.29, respectively, preoperatively to 46.82 ± 3.69 D and 44.93 ± 3.61 D, respectively, at the last follow-up. The mean corneal astigmatism improved significantly from -6.75 ± 4.38 D preoperatively to -2.50 ± 3.10 D at the last follow-up. No significant ECD alteration occurred.

**Conclusion:** Accelerated trans-epithelial CXL was effective and safe in keratoconic patients over a long-term follow-up.

**Biography**
Roberto Pinelli graduated in Medicine and Surgery at the State University of Milan, and specialized in Ophthalmology. He trained in refractive surgery with Dr Michael Gordon at the Vision Surgery Laser Center in San Diego, the United States (currently the Gordon-Weiss-Schanzlin Vision Institute). In 2013 he undertook a new project in the Canton of Ticino, SERI Switzerland Eye Research Institute in Lugano, an eye surgery and ophthalmology research institute and care centre for visual defects and all kinds of eye diseases. Until 2014, he was a lecturer in corneal pathology and refractive surgery techniques at the ESASO, European School for Advanced Studies in Ophthalmology in Lugano. An ophthalmology and eye surgery specialist with the FMH (Swiss Medical Association), he has pioneered leading-edge surgery and innovation in ophthalmology, including P-Curve for prestopyia correction, osmotic transepithelial corneal cross-linking for the treatment of keratoconus, and the ParaCel eyewash. He was invited to join the exclusive International Intra-Ocular Implant Club (IIIC) for surgeons founded by Sir Harold Ridley. In 2009-10, in view of his groundbreaking research activity in the field of refractive surgery and the science of vision, he was invited to join the executive committee of the world’s most prominent ophthalmology association, the American Academy of Ophthalmology (ISRS/AAO). Currently a member of the Scientific Advisory Board of Biosyntrx (Colorado Springs, Colorado), a biotech company operating in the field of ophthalmology, and the Medical Advisory Board of Avedro (Waltham, Massachusetts), a leading company in the calibration of instruments and devices for eye pathologies.

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