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Keratoconus progression in pediatric patients with allergy and elevated surface matrix metalloproteinase 9 point-of-care test vs. negative patients

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Purpose: To assess keratoconus (KC) progression in pediatric patients with allergies who tested positive to surface matrix metalloproteinase 9 (MMP-9) point-of-care tests versus negative patients.

Methods: Prospective comparative study including 100 stage I-II keratoconic patients, mean age 15. All patients underwent an anamnestic questionnaire for concomitant allergic diseases and were screened with the MMP-9 point-of-care test. Patients were divided into 2 groups: KC patients with allergies (KC AL) and KC patients without allergies (KC NAL). Severity of allergy was established by papillary sub-tarsal response grade (PSR) and keratoconus progression assessed by corneal tomography, and corrected distance visual acuity (CDVA) measurement in a 12-month follow-up.

Results: The KC AL group included 52 patients and the KC NAL group 48. In the KC AL group 42/52 of patients (81%) were positive to MMP-9 point-of-care test vs. 2 positive patients in the KC NAL group (4%). The KC AL group data showed a statistically significant decrease of average CDVA, from 0.155 ± 1.1 to 0.301 ± 1.2 log MAR ($p < 0.005$) at 12 months; K max value increased significantly, from 50.2 ± 2.7 to 55.2 ± 1.9 on average. The KC NAL group revealed a slight keratoconus progression without statistically significant changes. Person's correlation test showed a high correlation between K max worsening and severity of PRG in the KC AL group.

Conclusions: The study demonstrated a statistically significant progression of KC in pediatric patients with concomitant allergies, positive to MMP-9 point-of-care test vs. negative. A high correlation between severity of allergy and keratoconus progression was documented.

Biography

Cosimo Mazzotta has done his MD from School of Medicine, University of Siena, Italy in the year 1997. He did a Specialist Diploma in Ophthalmology in 2001 and has received his PhD in Ocular Pathology in 2006. He introduced the Corneal Cross Linking in Italy in 2004 being awarded by the Italian Society of Ophthalmology. In 2009, he became the Assistant Professor of Corneal Surgery at Optometry School of University of Siena, Italy. Currently, he is an Assistant Professor of Corneal Pathology and Surgery at Post-graduate Ophthalmology School of Siena University and Director of the Siena International Crosslinking Center. His areas of interest include corneal cross-linking, keratoconus, corneal transplants, corneal dystrophies, cataract and refractive surgery, and in vivo confocal microscopy.

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