Epithelium-off corneal cross-linking surgery compared with standard care in 10- to 16-year-olds with progressive keratoconus: the KERALINK RCT

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Declared competing interests of authors: none

Published October 2021
DOI: 10.3310/eme08150

Plain English summary

The KERALINK RCT

Efficacy and Mechanism Evaluation 2021; Vol. 8: No. 15
DOI: 10.3310/eme08150

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Plain English summary

Keratoconus is a long-term disorder causing increasing steepening and thinning of the cornea, the clear front wall of the eye. It leads to progressive distortion of vision. In most cases keratoconus starts during the teenage years and stops progressing when people are about 30 years old. It is often more severe if it starts in childhood. It can progress quite quickly to a stage that good vision cannot be achieved by standard care (wearing glasses and contact lenses) and a transplant operation becomes necessary. Recently, a new surgical intervention involving the removal of the surface layer of the cornea ('epithelium-off'), the administration of eye drops and the application of ultraviolet light has become available. The procedure can be performed under local anaesthesia in most patients. It is called corneal cross-linking. It is believed to stop keratoconus progression by increasing the stiffness of the cornea, but previous research has been of poor quality.

KERALINK was a high-quality randomised trial to see if the new treatment really works. Young people with confirmed keratoconus progression in one or both eyes were randomly allocated to the new treatment in addition to standard care, or to standard care alone. In total, 60 young people aged 10–16 years participated (30 allocated to the new treatment and 30 allocated to standard care alone).

Participants were followed up for 18 months. The primary outcome was the degree of distortion of the cornea at 18 months. Other outcomes included vision, need for glasses and contact lenses, quality of life, and safety. We found significantly less distortion in eyes receiving the new treatment. This shows that the new treatment is effective in preventing disease progression. Participants allocated to the new treatment group also had better vision and were less likely to need to wear glasses or contact lenses, and there were no treatment-related complications.

Efficacy and Mechanism Evaluation

ISSN 2050-4365 (Print)

ISSN 2050-4373 (Online)

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Editorial contact: journals.library@nihr.ac.uk

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The EME programme is funded by the Medical Research Council (MRC) and the National Institute for Health Research (NIHR), with contributions from the Chief Scientist Office (CSO) in Scotland and National Institute for Social Care and Health Research (NISCHR) in Wales and the Health and Social Care Research and Development (HSC R&D), Public Health Agency in Northern Ireland.

This report

The research reported in this issue of the journal was funded by the EME programme as project number NIHR131734. The contractual start date was in October 2015. The final report began editorial review in November 2020 and was accepted for publication in May 2021. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The EME editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report document. However, they do not accept liability for damages or losses arising from material published in this report.

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