Tidsskriftet Tidsskrift for Den norske legeforening

Keratoconus more common than widely assumed

OPINIONS

OLAV KRISTIANSLUND

E-mail: olav.kristianslund@medisin.uio.no
Olav Kristianslund, PhD, specialist in ophthalmology, acting senior consultant at the Department of Ophthalmology, Oslo University Hospital, and a senior lecturer at the University of Oslo.
The author has completed the ICMJE form and declares no conflicts of interest.

LINN CESILIE TOVÅS

Linn Cesilie Tovås, medical student at the University of Oslo.
The author has completed the ICMJE form and declares no conflicts of interest.

ANDREAS THORSRUD

Andreas Thorsrud, PhD, specialist in ophthalmology and senior consultant at the Department of Ophthalmology, Oslo University Hospital.
The author has completed the ICMJE form and declares the following conflicts of interest: He has received lecture fees related to keratoconus from the Norwegian Association of the Blind and Partially Sighted, Alcon (Novartis) and the Théa laboratories.

LIV DROLSUM

Liv Drolsum, PhD, specialist in ophthalmology and senior consultant/head of section at the Department of Ophthalmology, and professor at the University of Oslo.
The author has completed the ICMJE form and declares no conflicts of interest.

Keratoconus is a progressive corneal disease that can impair vision. Early diagnosis and treatment can be crucial for preventing severe and permanent loss of vision.

Estimates for the prevalence of the corneal disease keratoconus have varied. Historically the condition was considered relatively rare, with a reported prevalence of around 0.05 % (1, 2). However, several recent studies have found the prevalence to be higher. In a Norwegian study, we estimated it to be 0.19 % in the general population (and higher in younger age groups) (3), while a study from the Netherlands calculated a prevalence of 0.27 % (4). A longitudinal cohort study from Australia found the prevalence to be as high as 1.2 % among 20-year-olds (5). We suspect that keratoconus is significantly underdiagnosed in Norway.

Keratoconus is an ocular condition in which the cornea weakens and acquires a conical shape. This is often accompanied by thinning of this part of the cornea, and imperfections in the corneal curvature (astigmatism), which can become increasingly irregular and difficult to correct with glasses. The patient will then experience blurred vision. Keratoconus usually occurs in both eyes, but due to significant asymmetry, many patients only notice impaired vision when their stronger eye is affected. By then the condition may already have caused severe and permanent loss of vision in the other eye. The condition usually begins in the late teens or early twenties, and in the Norwegian study, 73 % of patients were male (3).

> ***«Progression can now be halted using corneal collagen cross-linking (CXL)»***

There is at present no cure for keratoconus. Symptomatic treatment in the form of glasses or contact lenses is therefore important. In most cases, progression stops as a result of the corneal ageing process, with an increase in stiffness of the corneal stroma usually occurring around the age of 30. However, a number of patients already have permanent visual impairment at this stage. In the past, keratoconus was treated with corneal transplantation, but this was appropriate only for advanced cases. Today, progression can be halted using corneal collagen cross-linking (CXL). The formation of new crosslinks is induced in the cornea with the aid of vitamin B2 (riboflavin) and UV light, resulting in stiffening of the cornea (6). Corneal collagen cross-linking was introduced in Norway a little over ten years ago and has led to a marked reduction in the number of corneal transplantations in this patient group (7).

Important to refer suspected cases

Keratoconus is a corneal disease that can lead to permanent loss of vision. However, mild disease produces few or no alarm symptoms. Having the right expertise in the right place is therefore essential for the condition to be

diagnosed as early as possible. There is no screening for keratoconus in Norway, and we suspect that a considerable proportion of cases are missed.

> ***«The health service should be able to diagnose keratoconus at an early stage»***

The health service should be able to diagnose keratoconus at an early stage. It will then be possible to halt progression using corneal collagen cross-linking, in many cases before it gives rise to permanent visual impairment. Corneal tomography has become an important diagnostic tool, and should always be performed prior to refractive laser surgery to detect any subclinical cases of keratoconus. This is important as laser surgery is generally contraindicated in all forms of keratoconus, as it may increase the rate of progression. It is also crucial that opticians and doctors from other specialties are aware of keratoconus and refer any suspected cases for further assessment. Keratoconus should be suspected in particular in younger patients with myopia and astigmatism who show frequent changes in their spectacle prescription. The condition usually begins at a young age, and early diagnosis and treatment can be vital for preventing permanent and severe loss of vision.

LITERATURE

1. Bak-Nielsen S, Ramlau-Hansen CH, Ivarsen A et al. Incidence and prevalence of keratoconus in Denmark - an update. Acta Ophthalmol 2019; 97: 752–5. [PubMed][CrossRef]

2. Kennedy RH, Bourne WM, Dyer JA. A 48-year clinical and epidemiologic study of keratoconus. Am J Ophthalmol 1986; 101: 267–73. [PubMed] [CrossRef]

3. Kristianslund O, Hagem AM, Thorsrud A et al. Prevalence and incidence of keratoconus in Norway: a nationwide register study. Acta Ophthalmol 2020; 98: aos.14668. [PubMed][CrossRef]

4. Godefrooij DA, de Wit GA, Uiterwaal CS et al. Age-specific Incidence and Prevalence of Keratoconus: A Nationwide Registration Study. Am J Ophthalmol 2017; 175: 169–72. [PubMed][CrossRef]

5. Chan E, Chong EW, Lingham G et al. Prevalence of keratoconus based on Scheimpflug imaging: The Raine Study. Ophthalmology 2020; 127: S0161-6420(20)30838-1. [PubMed][CrossRef]

6. Hersh PS, Greenstein SA, Fry KL. Corneal collagen crosslinking for keratoconus and corneal ectasia: One-year results. J Cataract Refract Surg 2011; 37: 149–60. [PubMed][CrossRef]

7. Sandvik GF, Thorsrud A, Råen M et al. Does corneal collagen cross-linking reduce the need for keratoplasties in patients with keratoconus? Cornea 2015; 34: 991–5. [PubMed][CrossRef]

Publisert: 22 March 2021. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.20.1059
Received 30.12.2020, accepted 12.2.2021.