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Keratoconus more common than widely assumed

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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.

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