



ORIGINAL ARTICLE

Prevalence of keratoconus in an adolescent population



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KEYWORDS

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Abstract

Introduction: Keratoconus is an idiopathic and progressive disease, where the cornea develops an irregular and conical shape, being the most common form of dystrophy or corneal ectasia, developing between the age of 12 and 20. In Mexico, the epidemiological information about the pathology is scarce.

Purpose: To explore the epidemiology of keratoconus in Mexico among adolescents, and to compare the prevalence with international literature reports. This study identified associated pathologies and examined the management of patients.

Methods: A retrospective study was conducted in an ophthalmology clinic; 500 charts were randomly selected from patients between 10 and 20 years of age in order to acquire information about the identification of the patient; the patient's gender, birthday, and age; three principal diagnoses at the first visit; as well as refraction and visual acuity in both eyes. After this, statistical analysis of the information was done.

Results: The prevalence rate of keratoconus was 1.8%, affecting 66% of females and 33.3% of males. The mean age of presentation was 16.1 years. The most frequently associated refractive error was compound myopic astigmatism (44.4%); 88.8% presented with bilateralism. The majority of patients were being managed conservatively.

Conclusion: Through this study, we found that our statistics matched those of internationally published reports concerning the early age of onset of the disease and its corresponding bilateralism. However, contrary to the international reports, it was evident that this condition was more prevalent among the females in our study sample, and no other associated pathologies were found.

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PALABRAS CLAVE

Queratocono;
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Queratoplastia;
Epidemiología

Prevalencia de Queratocono en Población Adolescente**Resumen**

Introducción: El queratocono es una enfermedad idiopática y progresiva, donde la cornea adquiere una forma irregular y cónica, siendo la forma más común de distrofia o ectasia corneal desarrollándose entre los 12 y 20 años de edad. En México no se cuenta con suficiente información epidemiológica en cuanto a la patología.

Objetivo: Explorar la epidemiología del queratocono en México en adolescentes y comparar la prevalencia con reportes internacionales. Este estudio identificó patologías asociadas y evaluó el manejo de estos pacientes.

Métodos: Estudio retrospectivo en una clínica oftalmológica; 500 expedientes fueron aleatoriamente seleccionados de pacientes entre 10 y 20 años de edad, obteniendo: identificación del paciente, sexo, fecha de nacimiento y edad, tres diagnósticos principales en su primer visita, refracción y agudeza visual en ambos ojos. Posterior a la captura de datos, se realizó el análisis estadístico.

Resultados: La tasa de prevalencia de queratocono fue de 1.8%, afectando al 66% de las mujeres y el 33% de hombres. La edad media de presentación fue de 16.1 años de edad. El error refractivo asociado a queratocono más común fue astigmatismo miópico compuesto (44.4%); 88.8% se presentó con bilateralidad. La mayoría de los pacientes se trató de manera conservadora.

Conclusión: A través de este estudio, encontramos que nuestros resultados concuerdan con lo publicado internacionalmente en referencia al inicio temprano del queratocono y la bilateralidad. Pero, contrario a lo reportado, fue evidente que esta condición es más prevalente entre las mujeres de nuestra muestra, además no se encontraron patologías asociadas a queratocono. © 2013 Sociedad Mexicana de Oftalmología. Publicado por Masson Doyma México S.A. Todos los derechos reservados.

Introduction

Keratoconus is a progressive and idiopathic disease in which the cornea develops into an irregular and conic shape. The clinical signs include thinning of the cornea in its central or paracentral region, an apical protrusion, or an elevation of the central zone with an irregular astigmatism, and this condition can progress to the point of corneal perforation in extreme cases¹; all of these issues can make it difficult to achieve adequate visual correction with the simple use of glasses.² Keratoconus is a rare disease, as classified by the Office of Rare Diseases of the National Institute of Health. Despite this, keratoconus is the most common form of dystrophy or corneal ectasia, with an incidence of 50–230 per 100,000 persons.³

Some initial studies revealed a greater prevalence of keratoconus among women than men. Today, studies have not been able to find a significant difference between genders, and some studies have even found higher prevalence rate among males.^{4,5}

Some reports have documented the age of onset as being as early as birth and up to 51 years of age. However, the vast majority of patients develop the disease between 12 and 20 years of age (it is diagnosed in adolescence and reaches its most severe form between the second and fourth decades of life).^{4,5} Based on these reports, we find the need to study this age population in order to define future strategies for diagnosis and treatment.

Keratoconus is a disease that is almost exclusively bilateral, yet asymmetric, as it begins in one eye and after 2–6 years it affects the contralateral eye. It is rare to

find a purely unilateral disease. Hall reported that from a total of 288 patients, eight cases were unilateral, while Tuft reported that 4.3% of his sample exhibited unilateral keratoconus.^{6,7}

In Mexico, the research on keratoconus is scarce; the articles published show statistics that are similar to those in international literature, which indicates a higher prevalence in male patients with a mean age of 24.5 years.⁸ This study will examine a specific population – adolescents. There is debate concerning the prevalence of keratoconus in the general population, but our focus is on the prevalence of keratoconus in the adolescent population visiting an ophthalmology concentration clinic.

Objective

To explore the epidemiology of keratoconus in Mexico among an adolescent population, and to compare the prevalence rates of this condition with international literature reports.

Methods

This study is a retrospective clinical study, which will examine the prevalence rates of keratoconus, for which 500 records were randomly selected. The calculated sample was 221 patients, using Raosoft®, with a 5% margin of error, a 90% confidence interval, and a population of 1200 patients. The patient records used were from patients between the ages of 10–20 years. A database was developed using Microsoft® Excel in which patients' identification, gender, age, three

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