https://doi.org/10.29309/TPMJ/2022.29.05.6741

The Professional Medical Journal
www.theprofesional.com
2022, Volume, 29 Issue, 05

ORIGINAL ARTICLE

Keratoconus. Its prevalence and severity in spring catarrh patients. A Perspective study.

Mohammad Alam[1], Lal Mohammad[2]

Article Citation: Alam M, Mohammad L. Keratoconus. Its Prevalence and severity in Spring Catarrh patients. A Perspective study. Professional Med J 2022; 29(5):701-704. https://doi.org/10.29309/TPMJ/2022.29.05.6741

ABSTRACT… Objectives: To find out the prevalence and severity of keratoconus in spring catarrh patients. **Study Design:** Descriptive and Perspective study. **Setting:** OPD K.D.A Teaching Hospital Kohat. **Period:** March 2017 to October 2019. **Material & Methods:** All patients suffering from spring catarrh were included in the study after consent. Proper proforma was designed for record. Detail history was taken and for diagnosis all the patients were properly examined with slit lamp. Visual acuity was checked. Radioscopy for irregular scissor reflex and fundoscopy for oil droplet sign for keratoconus was carried out. Keratometry was done to determine the astigmatism and severity of keratoconus Grading of keratoconus was done by the highest axis of corneal power on keratometry as mild (< 48 D), moderate (48-54 D) and severe (> 54 D). Suspected cases were advised corneal topography. Total 480 patients were included in the study. Out of these 480 patients 295 (61.45%) were male and 185 (38.54%) female. The age range of patients was 9 to 37 years. **Results:** Out of 480 patients, 47(9.79%) patients had keratoconus in which 36(76.59%) were male and 11(23.40%) were female. Out of 47 patients 19 (40.42%) had mild, 22(46.80%) had moderate and 6(12.76%) patients had severe keratoconus. **Conclusion:** Keratoconus has strong association with spring catarrh.

Kew words: Fundoscopy, Keratoconus, Keratometry, Spring Catarrh Patients.

INTRODUCTION

Spring catarrh is allergy mediated ocular disease with seasonal exacerbations. It is more in children and young adults. It is more prevalent in hot, dry climate region as compared to cold areas.[1] Spring catarrh induces severe ocular complications associated with its evaluation and treatment. Longstanding disease has strong association with vision threatening corneal complications in the form of keratoconus.[2] Keratoconus is thought to be a non inflammatory degenerative corneal disorder that results in thinning with axial protrusion eventually leading to conical shape cornea.[3] Recent research demonstrates that imbalance between pro and anti-inflammatory cytokines released leads to corneal structure changes, triggering apoptosis of keratocytes and metalloprotienases are responsible for the corneal thinning changes.[4,5] Keratoconus in pediatric patients is more progressive as compared to adults with devastating complications.[6,7] It can be easily diagnosed on slit lamp in moderate and advanced stages. In early stages corneal topography is needed for diagnosis.[8,9] Criteria for diagnosis of keratoconus is multiple, depending upon decentration of corneal apex, at 6 o·clock semi-meridian, roud cone shaped tangential map, keratometric reading exceeding 45 D, corneal thinning and nonsymmetrical corneal topography pattern.[10] Population-based research studies report prevalence of keratoconus ranging from 0.0003% to 2.3%.[11,12] Atu Gupta, S.Saravanthi have reported prevalence of keratoconus in 7% patients suffering from spring catarrh.[13] Yuksel Totan, Ibraheem Feyzi Hepra have reported 26.8% prevalence of keratoconus in patients of spring catarrh.[14]

Our study is based on the prevalence of keratoconus and its severity in spring catarrh

1. FCPS, Associate Professor Ophthalmology, Khyber Medical University Institute of Medical Sciences Kohat.
2. FCPS, Professor Ophthalmology, Khyber Medical University Institute of Medical Sciences Kohat.

Correspondence Address:
Dr. Mohammad Alam
Department of Ophthalmology
Khyber Medical University Institute of Medical Sciences Kohat.
malamktk@gmail.com

Article received on: 13/08/2021
Accepted for publication: 27/10/2021

patients.

MATERIAL & METHODS

This descriptive and perspective study was conducted on spring catarrh patients examined in Eye OPD KDA Teaching Hospital Kohat from March 2017 to October 2019. All patients suffering from spring catarrh were included in the study after consent. Proper proforma was designed for record. Proper history was taken from all patients. For diagnosis of spring catarrh and keratonus all the patients were properly examined with slit lamp. Visual acuity was checked. Retinoscopy for irregular scissor reflex and distant fundoscopy for oil droplet sign was carried out for keratonus. Keratometry was done to know the astigmatism and severity of keratoconus. 23 suspected cases of keratoconus were advised corneal topography in which 6 cases were declared as having mild keratoconus. Grading of keratoconus was done by the highest axis of corneal power on keratometry as mild (< 48 Diopter), moderate (48-54 Diopter) and severe (> 54 Diopter). Total 480 patients were included in the study. Out of these 480 patients 295 (61.45%) were male and 185(38.54%) female (Table-I). The age range of patients was 9 to 37 years.

RESULTS

Out of 480 patients, 47(9.79%) patients had keratoconus in which 36(76.59%) were male and 11(23.40%) were female (Table-II). Out of 47 patients 19 (40.42%) had mild, 22(46.80%) had moderate and 6(12.76%) patients had severe keratoconus (Table-III).

Gender	Number of Patients (%)
Male	295 (61.45%)
Female	185 (38.54%)

Table-I. Gender distribution. Number of patients: 480.

Gender	Number of Patients (%)
Male	36 (76.59%)
Female	11 (23.40%)

Table-II. Gender wise keratoconus distribution. 47

Grade	Number of Patients (%)
Mild	19 (40.42%)
Moderate	22 (46.80%)
Severe	6 (12.76%)

Table-III. Grade of keratoconus.

DISCUSSION

Spring Catarrh is not only allergic ocular disease but it is associated with severe ocular complications resulting in blindness. Its clinical features are exacerbated in summer and get lessened in winter. Prevalence of spring catarrh is more in hot climate. The disease is more prevalent in Mediterranean region.[15] Farouk et al have reported spring catarrh is the second more prevalent ocular disease after refractive error.[16]

Keratoconus is one of the important associated complication of spring catarrh. Our study has noted keratoconus in 9.79% patients suffering spring catarrh out of which 40.42% were mild, 46.80% had moderate grade while 12.76% had severe grade keratoconus. More national and international studies have been carried out on this issue. Khan M.D, Kundi N, Saeed N have reported keratoconus in 7% patients while Sultan S, Taqi U etal have reported it in 8% patients suffering from spring catarrh.[17,18] Shafique I, Sheikh Z.A etal have reported keratoconus in 0.5% spring catarrh affected patients.[18] Variations in result data may be due to climate changes, sample size and presentation stage of patients. However from all literature it has been concluded that disease is more prevalent in childhood and keratoconus is the definitely associated complication.

Khalid. F. Tabbara in research study has reported severe visual loss in spring catarrh patients in which in 9% it was due to keratoconus.[19] Keratoconus has been reported in 15% patients in large population based studies in patients suffering from spring catarrh.[20] Bangal, S, Bankar. M, Sharma. A have documented keratoconus in 1% spring catarrh patients.[22] Nagpal. H, Ravi .N have reported keratoconus with mixed complications in 6% spring catarrh patients.[23] Lapid-Gortzak et al have reported abnormal corneal topography pattern in patients suffering from spring catarrh consistent with keratoconus.[24] National and international studies with literature review support the association of keratoconus with spring catarrh. Variability in results as already mentioned are mainly due to climate geography issue, sample size and stage of disease.

CONCLUSION

Keratoconus has strong association with spring catarrh patients. Therefore all spring catarrh patients must be investigated for keratoconus and its management.

REFERENCES

1. Colby K, Dohlman C. **Vernal keratoconjunctivitis.** Int Ophthalmol Clin. 1996; 36(1): 15-20-
2. Cameron JA, Al-Rajhi AA. **Corneal ectasia in vernal keratoconjunctivitis.** Ophthalmology. 1989; 96(11):1615-23.
3. Mas Tur V, MacGregor C, Jayaswal R, O Brart D, Maycock N (2017) **A review of keratoconus; diagnosis, pathophysiology, and genetics.** Surv ophthalmol 62(6):770-783.https://doi.org/10.1016/j.survophthal.2017.06-009.
4. Mukhtar S, Ambati BK. **Pediatric keratoconus: A review of the literature Int Ophthalmol.** 2018; 38:2257-66.
5. Lalgudi VG, Nischal KK. **Pediatric corneal collagen cross-linking for keratoconus: Not an experimental procedure.** J AAPOS. 2019; 23:63-5.
6. Olivo-Payne A, Abdala-Figuerola A, Hernandez-Bogantes E, Pedro-Aguilar L, Chan E, Godefrooji D. **Optimal management of pediatric keratoconus: Challenges and solutions.** Clin Ophthalmol. 2019; 13:1183-91.
7. Mazzotta C, Traversi C, Baiocchi S, Bagaglia S, Caporossi O, Villano A, et al. **Corneal collagen cross-linking with riboflavin and ultraviolet a light for pediatric keratoconus: Ten-year results Cornea.** 2018; 37:560-6.
8. Binder PS. **Analysis of ectasia after laser in situ keratomileusis: Risk factors.** Journal of Cataract & Refractive Surgery. 2007 Sep 1; 33(9):1530-8.
9. Randleman JB, Trattler WB, Stulting RD (2008) **Validation of the Ectasia. Risk Score system for preoperative laser in situ keratomileusis screening.** Am J ophthalmol 145(5):813-818 http://doi.org/10.1016/j.j.ajo.2007.12.033.
10. Holladay JT. **Keratoconus detection using corneal topography.** Journal of Refractive Surgery. 2009; 25(10).
11. Gorskova EN, Sevost ianov EN (1998). **Epidemiology of keratocouns in the Urals.** Vestn of ptalmol; 114(4):38-40.
12. Jonas JB, Nangia V, Matin A, Kulkarni M, Bhojwani K. **Prevalence and associations of keratoconus in rural maharashtra in central India: The central India eye and medical study.** American journal of ophthalmology. 2009 Nov 1; 148(5):760-5.
13. Gupta. A, Saravanthi. S. **Corneal topography in vernal keratoconjuctivitis (VKC).** J. Evolution Med Dent Sci. 2018; 7(19):2351-2354.DOI:10.14260/jemds/2018/530.-
14. Totan. Y, Hefsen. I F, Cekic. O, Ginduz. A etal. **Incidence of keratoconus in subjects with vernal keratoconjunctivitis: A Videokeratographic study.** Ophthalmology2001; 108:824-827.
15. Lambiase A, Minchiotti S, Leonardi A, Secchi AG, Rolando M, Calabria G, Orsoni J, Zola E, Ferreri G, Aragona P, Reibaldi A. **Prospective, multicenter demographic and epidemiological study on vernal keratoconjunctivitis: A glimpse of ocular surface in Italian population.** Ophthalmic epidemiology. 2009 Jan 1; 16(1):38-41.
16. Farouk, S., Al-Tal, A., Bamashmus, M. Haider, T. **Prevalence of allergic eye diseases in Kuwait University Hospital. Sana's yemen, presented in the first Yemani- Saudi Conference of Clinical immunology.** Sana, a. 2005; May: 25-26.
17. A.Khan MD, Kundi N, Saeed Net al. **Incidence of keratoconus in spring catarrh.** British Journal of Ophthalmology 1988.72.41-43.
18. Sultan. S, Taqi. U, Rizvi. SZ, Ahmed T. **The clinical presentation and frequency of ocular complications associated with vernal keratoconjunctivitis.** Pak J Surg 2011; 27(2):125-130.
19. Shafiq I, Shaikh ZA. **Clinical Presentation of vernal keratoconjunctivitis (VKC): A Hospital based study.** JLUMHS January-April 2009; Vol:08 No.01.
20. Khalid. FT. **Ocular complications of vernal keratoconjunctivitis.** Can J Ophthalmol 1999; 34:88-92. -
21. Caputo R, Versaci F, Pucci N, et al. **Very low prevalence of keratoconus in a large series of Vernal Keratoconjunctivitis patients.** Am J Ophthalmol. 2016; 172:64-71-
22. Bangal S, Bankar M, Sharma A, Sharma R. **Study of complications and visual impairment in vernal keratoconjunctivitis (VKC).** Saudi J Med. Jan 2021; 6(1): 1-5.
23. Nagpal H, Rani N, Kaur M. **A retrospective study about clinical profile of vernal keratoconjunctivitis patients at a tertiary care hospital in Patiala, Punjab, India.** Kerala J Ophthalmol. 2017 Vol 29 Issue 3: 189-191.

24. Lapid-Gortzak R, Rosen S, Weitzman S, Lifshitz T. **Videokeratography findings in children with vernal keratoconjunctivitis versus those of healthy children.** Ophthalmology. 2002; 109(11):2018-23.

AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Mohammad Alam	Principal Author	
2	Lal Mohammad	Co-Author	