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ORIGINAL ARTICLE

Distribution of Cataract by Age groups, Sex, Residency and Literality in Population of District Dera Ismail Khan

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Abstract

Background: Cataract is an age related condition in which lens of the eye becomes opaque leading to visual disability. Cataract is one of the most principle causes of preventable blindness and visual impairments worldwide which is responsible for nearly half (47.8% or 17.7 million) of the population worldwide.

Objective: This study is to assess the distribution of cataract in older adults, gender, literality and residency of cataract patient in district Dera Ismail Khan, Pakistan.

Methodology: The descriptive cross-sectional study was conducted in the department of Community Medicine, Gomal medical college Di Khan from May 1, 2022 to May 30, 2022

Data was collected from the file/card number of the patients who underwent proper eye examination for the cataract disease. Raosoft SPSS was used to calculate sample size. Demographic variable including gender, age groups and resident (as rural and urban were calculated. Laterality of cataract was also seen in said population.

Results: Out of a sample of 408 patients with cataract, the distribution was higher for patients above 50 than 50 or below (Table 1) and higher for female than male patients (Table 2). Unilateral were more than bilateral cataracts .The distribution of cataract was higher in the periphery than the city patients (Table 3).

Conclusion: Cataract is still one of the challenges as public health issue worldwide. Timely diagnosis and proper management can definitely alter the disease outcome and can decrease the burden of disables on the society. Prevalence of disease increases with aging especially after age of 50. Knowledge about the disease distribution, health care planers can plan for future prioritization of resources accordingly.

Key words: Cataract, age, prevalence, gender.

Cite this article: Noman N, Orakzai T, Zafar D, Khan A. Distribution of Cataract by Age Groups, Sex, Residency and Literality in Population of District Dera Ismail Khan. BMC J Med Sci. 2023. 4(2): 96-99

Introduction

Normally, the eye lens made up of natural crystalline material, in combination of specific proportion of proteins and waters, to form a transparent structure through which light can easily be passed.(1)Pathology behind cataract is the denaturation of the lens's proteins which causes the lens opaque and renders the light to pass through. Cataract is an age related condition in which lens of the eye becomes opaque, blurring vision.[2]

Cataract is one of the most principle causes of preventable blindness and visual impairments worldwide 3, which is responsible for nearly half (47.8% or 17.7 million) of the population worldwide.4 Globally, around 2.2 billion people are suffering of visual impairment, of which cataract is responsible for about 65.2 million.2 Age related cataract is the main cause of visual impairment in older patients, especially,5 and blindness due to cataract in more than 90% of total disability adjusted life years in developing countries 12. Cataract is likely to be responsible of increasing burden to health care system as overall population of the world 6.In China, despite of the immense efforts in public health to improve cataract surgery, still cataract is the primary cause of visual impairment in patients above age of 60.7In ocular health point of view, cataract and refractive error play major role in public health problem

Authorship Contribution: [1,2,5]Substantial contributions to the conception or design of the work; or the acquisition, Final approval of the version to be published & Supervision, [3]Data analysis, Literature review, [4]Drafting the work or revising it critically for important intellectual content

Funding Source: none
Conflict of Interest: none

Received: July 12,2023
Accepted: sep 5 ,2023
Published:Dec 20,2023

in developing countries like India, Pakistan, Bangladesh etc.8 Cataract, in low income countries, has greater impact on poverty and accounting about half of blindness; That's why WHO planned it mandatory to eradicate cataract as it is a serious problem of visual impairment by program vision 2020 2, but still cataract is public health issue globally.

Pakistan also contributes a major role in the list of those countries contributing in the burden of cataract among which China leads on the top followed by India.9 With the increasingly sociodemographic status and expectancy of life, most of the countries in the world are observing more people aging into adulthood which are the reason of increasing average age of the population, hence shifting the burden of diseases like cataract as well as refractive error towards non- communicable diseases. Such treatable diseases are the principal cause of epidemiological transition, which are also significant in individual and societal cost burden.[6] significant in individual and societal cost burden.[6]

Almost 39 million people are blind worldwide, of which approximately 82% are above 50 year of age.10 Cataract is more prominent in low and middle income countries (LMICs) people especially the disadvantaged groups are affected disproportionately notably the elderly poor rural and remote villages women are the victims of cataract in comparison to men.[11]

Knowing the Prevalence of cataract in a region give information on the extent in burden of the disease in the said region and can be used effectively for planning for disease control.

Though many studies have been done on subject of cataract, to my knowledge no study has been done in our region to see the distribution of cataract by age, gender and social groups. This study will help us in planning for disease control on need basis.

Material and Method

The descriptive cross-sectional study was conducted in the department of Community Medicine, Gomal medical college Di Khan from May 1, 2022 to May 30, 2022

Data was collected from the file/card number of the patients who underwent proper eye examination for the cataract disease. According to Raosoft SPSS sample size calculator for the said population with confidence interval of 95%, margin of error 5% and response rate of 50%, our sample size should not be lower than 385.

Results

Out of a 408 patients with cataract, the distribution was higher for patients above 50 than 50 or below (Table 1) and higher for female than male patients (Table 2). Unilateral were more than bilateral cataracts. The distribution of cataract was higher in the periphery than the city patients.

Table I: Age of patients.

		N	%	Valid Percent	Cumulative Percent
Valid	Above 50	270	66.2	66.2	66.2
	50 or below	138	33.8	33.8	100.0
	Total	408	100.0	100.0	

Table II: Gender of patients

		N	%	Valid Percent	Cumulative Percent
Valid	Male	200	49.0	49.0	49.0
	Female	208	51.0	51.0	100.0
	Total	408	100.0	100.0	

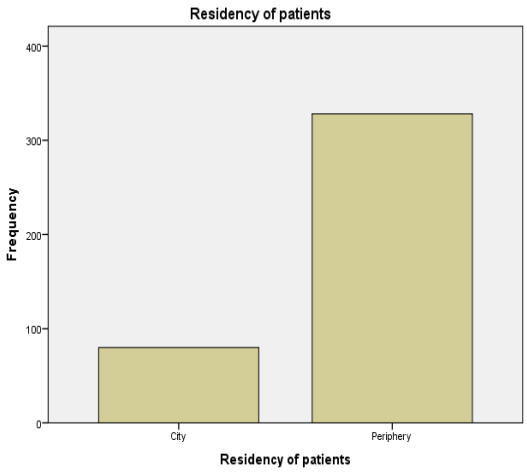

Figure 1: Residency of Patients

Discussion

With good surgical procedures and timely diagnosis cataract is now a curable disease [13], it is still one of the leading cause for visual impairment worldwide [14, 15]. This disease can affect the quality of the life remarkably 16

and it is still one of the public health issues in developing countries.

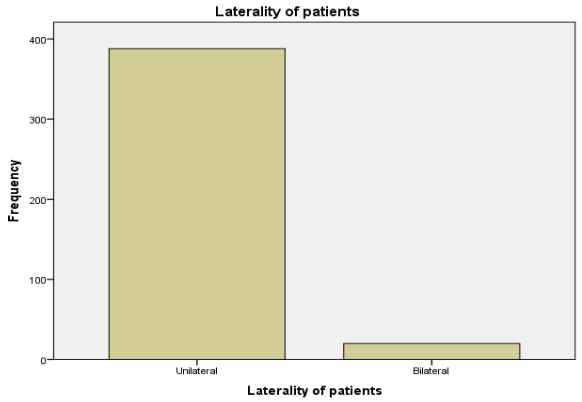

Figure 2: Laterality of patients.

Though Cataract is common destiny of aging however, some genetic and environmental factors can modify the disease process e.g ultraviolet rays exposure, steroid use, trauma, certain occupation and some systemic diseases like diabetes can be the risk factors [17,18]

In the age groups from table 1, there were total of 408 patients. The categorized age groups were patients above 50 and patients 50 or below. Using we came out with the result of 270 (66.2 %) patients above 50 while 138 (33.8 %) patients were 50 or below, their valid percentages were the same as mentioned above while their cumulative percentages were 66.2 and 100.0 respectively. It was observed that prevalence of disease increases above 50 years the same results were found in other studies which shows increase in prevalence of cataract with age, [19, 20] and it is normally considered as aging process.

Genders were divided into males and females and the data of 408 patients were put into the Raosoft SPSS. According to table 2, the results through SPSS, there were 200 male patients with valid and cumulative percentages of 49.0 each. The number and percentage of female patients were 208 and 51.0 respectively. According to available data, there is still know consensus on enter gender difference regarding cataract. Some studies shows female gender as risk factor for early development of cataract because of hormonal changes, exposure to more heat in managing kitchen chores and genetic variations [21] but other studies shows the reverse pattern claiming male gender as risk factor because of more exposure to sun light, occupational hazards and cigarette smoking [22] In our study cataract was more observed in female gender.

According to residence patients were categorized into city versus periphery patients. The result through Raosoft SPSS shows that in out of 408 patients there were only 80 patients living in city the percentage of which can be 19.6 %. While the periphery patients were far more i.e. 328 with 80.4 %. Some studies shows increase prevalence of disease in low income societies due to low literacy rate [23], high rate of outdoor activities and less access to health care system. This observation can help us in making conclusion that we should concentrate for disease control and management more at periphery as well

Cataract can be unilateral as well as bilateral, in our study we observed that out of 408 patients very high number patients i.e. 388 patients were suffering from unilateral cataract which shows 95.1 % while bilateral patients and their percentage were 20 and 4.9 % respectively. In a study from January 1, 2012 to August 1, 2014, by Brandon J Baartman, et al, there were 26,363 cataract surgeries performed at the Cleveland Clinic. Of these cases, 20666 had duplicate MRNs, representing 10333 patients with bilateral surgery. The remaining 5,697 cases were unilateral (36%).

Conclusion

Dry eyes and diabetes seem to go together frequently. Type I diabetes is more likely to cause a milder degree of dry eye, but type 2 diabetes is more likely to cause mild to moderate dry eye.

Conflict of Interest: No
Acknowledgement: No

References

1. Alamri M, Alsammahi A, Alharbi M, Alshammari H, Alshehri M, Saeedi I, Alhomoud M, Albakri I, Alwagdani H, Yousef KB. Pathophysiology of cataract. Int J Community Med Public Health. 2018 Sep;5(9):3668-72.
2. Wale MZ, Derbew M, Tilahun M, Terefe M. Cataract and associated factors among adults visiting ophthalmic clinic at Debre Markos comprehensive specialized hospital, northwest Ethiopia, 2020. SAGE Open Medicine. 2021 Jan;9:2050312121989636.
3. Na KS, Park YG, Han K, Mok JW, Joo CK. Prevalence of and risk factors for age-related and anterior polar cataracts in a Korean population. PLoS One. 2014 Jun 17;9(6):e96461.
4. Jadoon Z, Shah SP, Bourne RR, Dineen B, Khan MA, Gilbert CE, Foster A, Khan MD. Cataract prevalence, cataract surgical coverage and barriers to uptake of cataract surgical services in Pakistan: the Pakistan National Blindness and Visual Impairment Survey. British Journal of Ophthalmology. 2007 Jun 7.

5. Tan AG, Wang JJ, Rochtchina E, Mitchell P. Comparison of age-specific cataract prevalence in two population-based surveys 6 years apart. BMC ophthalmology. 2006 Dec;6:1-7.
6. Steinmetz JD. Causes of blindness and vision impairment in 2020 and trends over 30 years, and prevalence of avoidable blindness in relation to VISION 2020: the Right to Sight: an analysis for the Global Burden of Disease Study (vol 2, pg 144, 2021). LANCET GLOBAL HEALTH. 2021 Apr 1;9(4):E408-.
7. Du YF, Liu HR, Zhang Y, Bai WL, Li RY, Sun RZ, Wang NL. Prevalence of cataract and cataract surgery in urban and rural chinese populations over 50 years old: A systematic review and meta-analysis. International Journal of Ophthalmology. 2022;15(1):141.
8. Prasad M, Malhotra S, Kalaivani M, Vashist P, Gupta SK. Gender differences in blindness, cataract blindness and cataract surgical coverage in India: a systematic review and meta-analysis. British Journal of Ophthalmology. 2019 May 14.
9. Hashemi H, Pakzad R, Yekta A, Aghamirsalim M, Pakbin M, Ramin S, Khabazkhoob M. Global and regional prevalence of age-related cataract: a comprehensive systematic review and meta-analysis. Eye. 2020 Aug;34(8):1357-70..
10. Shetti S, Pradeep TG, Devappa N. Barriers for the uptake of cataract surgery: A rural community-based study. African Vision and Eye Health. 2022 Mar 31;81(1):5.
11. Anjum KM, Qureshi MB, Khan MA, Jan N, Ali A, Ahmad K, Khan MD. Cataract blindness and visual outcome of cataract surgery in a tribal area in Pakistan. The British Journal of Ophthalmology. 2006 Feb;90(2):135..
12. Varma R, Torres M, Los Angeles Latino Eye Study Group. Prevalence of lens opacities in Latinos: the Los Angeles Latino eye study. Ophthalmology. 2004 Aug 1;111(8):1449-56..
13. Flaxman SR, Bourne RR, Resnikoff S, Ackland P, Braithwaite T, Cicinelli MV, Das A, Jonas JB, Keeffe J, Kempen JH, Leasher J. Global causes of blindness and distance vision impairment 1990–2020: a systematic review and meta-analysis. The Lancet Global Health. 2017 Dec 1;5(12):e1221-34.
14. Nam GE, Han K, Ha SG, Han BD, Kim DH, Kim YH, Cho KH, Park YG, Ko BJ. Relationship between socioeconomic and lifestyle factors and cataracts in Koreans: The Korea National Health and Nutrition Examination Survey 2008–2011. Eye. 2015 Jul;29(7):913-20.
15. Hashemi H, Hatef E, Fotouhi A, Feizzadeh A, Mohammad K. The prevalence of lens opacities in Tehran: the Tehran Eye Study. Ophthalmic epidemiology. 2009 Jan 1;16(3):187-92.
16. Cedrone C, Culasso F, Cesareo M, Mancino R, Ricci F, Cupo G, Cerulli L. Prevalence and incidence of age-related cataract in a population sample from Priverno, Italy. Ophthalmic epidemiology. 1999 Jan 1;6(2):95-103.
17. Li T, He T, Tan X, Yang S, Li J, Peng Z, Li H, Song X, et al. Prevalence of age-related cataract in high-selenium areas of China. Biological trace element research. 2009 Apr;128:1-7.
18. Mangione CM, Phillips RS, Lawrence MG, Seddon JM, Orav EJ, Goldman L. Improved visual function and attenuation of declines in health-related quality of life after cataract extraction. Archives of ophthalmology. 1994 Nov 1;112(11):1419-25.
19. Yu JM, Yang DQ, Wang H, Xu J, Gao Q, Hu LW, et al. Prevalence and risk factors of lens opacities in rural populations living at two different altitudes in China. International journal of ophthalmology. 2016;9(4):610.
20. Mahdi AM, Rabiu M, Gilbert C, Sivasubramaniam S, Murthy GV, Ezelum C, Entekume G. Prevalence and risk factors for lens opacities in Nigeria: results of the national blindness and low vision survey. Investigative ophthalmology & visual science. 2014 Apr 1;55(4):2642-51.
21. Athanasiov PA, Casson R, Sullivan T, Newland HS, Shein WK, Muecke J, Selva D, Aung T. Cataract in rural Myanmar: prevalence and risk factors from the Meiktila Eye Study. British Journal of Ophthalmology. 2008 Jul 23.
22. Athanasiov PA, Edussuriya K, Senaratne T, Sennanayake S, Sullivan T, Selva D, Casson RJ. Cataract in central Sri Lanka: prevalence and risk factors from the Kandy Eye Study. Ophthalmic epidemiology. 2010 Feb 1;17(1):34-40.
23. Cheng CY, Liu JH, Chen SJ, Lee FL. Population-based study on prevalence and risk factors of age-related cataracts in Peitou, Taiwan. Zhonghua yi xue za zhi= Chinese medical journal; Free China ed. 2000 Aug 1;63(8):641-8.
24. Delcourt C, Cristol JP, Tessier F, Leger CL, Michel F, Papoz L, POLA Study Group. Risk factors for cortical, nuclear, and posterior subcapsular cataracts: the POLA study. American journal of epidemiology. 2000 Mar 1;151(5):497-504.
25. Hirvelä H, Luukinen H, Laatikainen L. Prevalence and risk factors of lens opacities in the elderly in Finland: a population-based study. Ophthalmology. 1995 Jan 1;102(1):108-17.
26. Leske MC, Chylack LT, Wu SY. The lens opacities case-control study: risk factors for cataract. Archives of ophthalmology. 1991 Feb 1;109(2):244-51.
27. Nirmalan PK, Robin AL, Katz J, Tielsch JM, Thulasiraj RD, Krishnadas R, Ramakrishnan R. Risk factors for age related cataract in a rural population of southern India: the Aravind Comprehensive Eye Study. The British journal of ophthalmology. 2004 Aug;88(8):989.
28. Kim TN, Lee JE, Lee EJ, Won JC, Noh JH, Ko KS, Rhee BD, Kim DJ. Prevalence of and factors associated with lens opacities in a Korean adult population with and without diabetes: the 2008–2009 Korea National Health and Nutrition Examination Survey. PLoS One. 2014 Apr 9;9(4):e94189.
29. Krishnaiah S, Vilas K, Shamanna BR, Rao GN, Thomas R, Balasubramanian D. Smoking and its association with cataract: results of the Andhra Pradesh eye disease study from India. Investigative ophthalmology & visual science. 2005 Jan 1;46(1):58-65.

30. Hashemi H, Khabazkhoob M, Nabovati P, Ostadimoghaddam H, Shafaee S, Doostdar A, Yekta A. The prevalence of age-related eye disease in an elderly population. Ophthalmic epidemiology. 2017 Jul 4;24(4):222.