ORIGINAL ARTICLE

CATARACT AND ITS RISK FACTORS IN PATIENTS PRESENTING TO OUTDOOR DEPARTMENT OF AYUB TEACHING HOSPITAL, ABBOTTABAD

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Background: In Pakistan, the leading cause of blindness in adults above 30 years of age is cataract. Cataract remains the leading cause of blindness worldwide. Cataract blindness presents an enormous problem in terms of magnitude, functional disability, and loss of self-esteem, considerable economic loss and social burden. This study was carried out to find the risk factors of cataract in patients presenting in Ayub Teaching Hospital (ATH). **Methods:** The study was hospital based cross sectional study of 386 patients that presented in outpatient department of ophthalmology, Ayub Teaching Hospital, Abbottabad. All the patients were included who presented to ATH during the study period. Data was collected using structured questionnaire. **Results:** Out of total patients, majority were male (53.4%) with most of them in age groups of 50 years and above. Most prevalent was acquired cataract with trauma being the major cause. Majority (77.7%) showed up for check-up after 50 days of onset of symptoms. **Conclusions:** Older age groups should be examined thoroughly by Ophthalmologist. Population should be counselled regarding trauma prevention and timely ocular check-ups.

Keywords: Cataract, risk factory, Ayub Teaching Hospital

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INTRODUCTION

Pakistan is a developing country with the world's sixth largest population. In Pakistan, the leading cause of blindness in adults more than 30 years of age is cataract. Cataract remains the leading cause of blindness worldwide. Individuals with moderate visual impairment (<6/18 to ≥ 6/60) have, in most of the cases, either refractive error (43%) or cataract (42%) as the main cause of their visual impairment.[1] Cataract blindness presents an enormous problem in terms of magnitude, functional disability, and loss of self-esteem, considerable economic loss and social burden.[2] In order to minimize the age factor, older people should be thoroughly examined by the ophthalmologists. The only cure for cataract is surgical intervention.

This survey was conducted in the ophthalmology outpatient department of Ayub Teaching Hospital, Abbottabad. Ayub Teaching Hospital started working in the year 1995, gaining the 1000 bedded status in the year 1998.[3] It is a centre for undergraduate and Post Graduate studies in different disciplines of Medicine and Surgery.[4]

Financial constraints in a third world country like Pakistan determine the procedures being carried out. Restraints are not observed in a private setup.[5] Since Pakistan is plagued by poverty like the rest of the developing world, the population below the poverty line is left with the only treatment options at the public sector hospitals so they opt for the conventional way of cataract surgery with relatively higher risk of complications.The objective of this study was to evaluate the major risk factors associated with cataract in different patients, to minimize the chances of getting the disease among those at risk and to come up with recommendations for better treatment plans in the future.

MATERIAL AND METHODS

This research was a hospital based cross sectional study that was conducted during the months of July to December 2013.

A total of 386 cataract patients of all ages who presented to the Ophthalmology outpatient department of ATH during the time of this study comprised our target population. The sampling technique used was convenient sampling. Patients of all age groups were included in this study and were further divided into the age groups of 0–14, 15–50, and 50 and above. Informed consent was taken before examination from all patients and the guardians of minor patients. After taking a brief history from the subjects, visual acuity for literate and illiterate patients was measured using Snellen's and E-chart respectively. Examination of eyelids, globe, pupillary reflex and lens were carried out with a pen-torch, slit lamp, binocular magnification loupe, and direct ophthalmoscope at a distance of 20–30 cm. The data collected was recorded and analysed using SPSS version 16.0.

RESULTS

Sample size was 386 of which 4 people refused to participate. Of these, 207 (54.1%) were males while

175 (45.9%) were females. Our data comprised of patients of all ages who were further divided into three age groups. The majority of patients, 219 (57.3%) lied in the age group of 50 and above, followed by 87 (22.8%) patients between the ages of 15-50 and 76 (19.9%) patients in the age group of 0–14 (Table-1)

Our study showed that the most frequent type of cataract in patients was acquired cataract occurring in 299 (77.8%) patients while congenital cataract was observed in 85 (22.2%) patients. Trauma was the most prevalent cause of cataract seen in 66 (17.1%) patients followed by metabolic disorders in 39 (10.1%), congenital in 29 (7.5%), muscular disorders in 21 (5.4%), complicated cataract in 18 (4.7%), neurological disorders in 12 (3.1%), radiation in 11 (2.8%), drug-induced in 10 (2.6%), osseous diseases in 6 (1.6%), skin diseases in 4 (1%) and cataract associated with other syndromes in 5 (1.3%) patients. In 161 (41.7%) patients, cataract was found to be due to causes other than those mentioned.

Our results demonstrated that 272 (70.7%) patients showed up for a medical check-up beyond 50 days after the onset of symptoms. Forty three (11.4%) patients came within 0 to 10 days of onset of symptoms, followed by 38 (10.1%) within 31 to 50 days and 29 (7.8%) patients within 11 to 30 days. Furthermore, 42 (11%) patients presented with a positive family history for cataract whilst 340 (89%) patients had no history of cataract in their families.

Table-1: Distribution of age groups of patients.

Age group	Frequency	Percent
0-14	76	19.9
15-50	87	22.8
>50	219	57.3
Total	382	100.0

DISCUSSION

Our findings demonstrate that majority of patients having cataract were males (54.1%) and in the age group of 50 and above. Such high fraction of senile cataract may be due to an over-presentation of elderly patients in our study. The latter finding is consistent with that of a study done by Avachat *et al.*[6]

According to our study, senile cataract remains the most common type (57.3%) as suggested by other studies too[7,8,12] due to a natural aging process of the nucleus and possibly a cumulative effect of certain risk exposures throughout life.[7] Conversely, various studies[4,15] showed that certain anatomical types of cataracts were fairly more prevalent among women probably due to some hormonal control; as increased incidence of cataract was seen in multiparous women and reduced incidence noted in women after menopause[7].

Congenital cataract was seen in 22.2% patients. This is consistent with a survey done in Bradford[13] where majority of patients with ocular congenital anomalies, including cataract, were of Pakistani origin mainly due to certain genetic factors and relatively high ratio of consanguineous marriages. This finding is almost in harmony with a study done by Ilechie *et al* in which 23.14% patients presented with congenital cataract[14] probably due to poor health promotion and preventive services in an under-developed region like Ghana.

The most striking feature of the current study was that, trauma remained as the most common cause of cataract for all age groups that is 17.1%. As known from previous researches, ocular trauma was the most frequent cause of eye problems encountered by people in developing countries.[17] An interesting finding noted in a study done in a rural setting in Pakistan[16] was that farmers had the highest prevalence of blindness and the most prominent cause of blindness in that study was cataract. This correlation is possibly due to the continuous risk of exposure of farmers to traumatic objects. Another study in Lahore, Pakistan[18] showed that cataract was observed in 34% of patients after ocular trauma. Traumatic cataract was one of the main ocular manifestations in firework-related eye injuries as mentioned in a retrospective study done in China.[19] Such type of trauma is also particularly common in our setup which may be one of the reasons why trauma is the most frequent cause of acquired cataract in our study.

This study showed that metabolic disorders like diabetes mellitus, gout, galactosemia and hypertension posed a significant risk for development of cataract. No other cause of cataract could be identified in those patients. This finding supports majority of other studies[7,20,21] due to the fact that diabetes mellitus continues to be an important risk factor, after increasing age, for the development of certain anatomical types of cataract. It is hypothesized that the initiating mechanism in diabetic cataract formation is the production of polyols from glucose by Aldose Reductase resulting in increased osmotic stress in the lens fibres leading to their swelling and rupture.[22] Future researchers can work on the specific association of the separate metabolic disorders with cataract formation as the risk of development of cataract in people with certain systemic diseases[7], which will consequently help in development of specific preventive strategies against formation of metaboliccataract.

A prominent feature of this study is a

relatively higher incidence of cataract in patients suffering from muscular disorders (5.4%). The type of muscular disorder could not be identified. However, a strong linkage is noted between cataract and myotonic dystrophy type 1[23] with a positive hereditary association. Thus, the consanguineous marriages, prevalent in our society, describe such a high frequency of muscular disorders associated with cataract formation. On the contrary, osseous diseases like arthritis had shown prominent association with cataract formation in a previously published study[7]; however our study portrayed only minimal association between cataract and osseous disorders (1.6%). Follow-up studies of cataract patients with osseous problems need to be carried out in order to ascertain an exact linkage between arthritis and cataract formation, because increased incidence of arthritis had been linked to decreased risk of cataract by certain studies.[7]

Another noticeable cause of cataract identified in the current study is exposure to radiation (2.8%). The main sources of radiations are sunlight UV radiations, occupational exposure to ionizing radiations[25] and radiation accidents[26]. Previously, a study done in northern Pakistan revealed that long term exposure to UV radiation from sunlight was not strongly suggestive of its significance in cataractogenesis.[24] However, sunlight exposure had important null association with cataract; the null result for sunlight UV-B radiation could be due to the method used to calculate annual ocular sunlight exposure.[7] Nonetheless, occupational exposure to ionizing radiation and long term exposure to radiation accidents could not be identified in patients who presented with cataract in this study. Exact association of radiation with cataractogenesis still needs to be established.

Various associations can be ascertained to the development of drug-induced cataract in our study that is 2.6%. Apart from individual roles of certain drugs in cataract formation, chronic usage of some drugs for treating long-term metabolic and neurological diseases can be linked to cataractogenesis. Our study is in conformity with earlier studies which had proved a substantial role of gout medications[20], calcium channel blockers, systemic corticosteroids[7], phenothiazine and other tranquilizers[27] in development of lens opacities. Other risk factors identified in this study were cigarette smoking, low literacy rate of patients and certain nutritional aspects. Cigarette smoking has a prominent role in development of nuclear cataract which was proved in certain epidemiological studies.[20,28] But its effect is believed to be reversible to some degree as studies have shown that past smokers had moderate risk reduction after stoppage of smoking.[7]

Majority of our findings are in consistency with those of other studies done locally as well as abroad. Increasing age, male gender, trauma, metabolic diseases, muscular disorders and drug ingestion exist to be the major contributing factors in the formation of lens opacities. One of the biggest limitations of this study was our small sample size due to which equal presentation of patients with all types of risk factors could not be made possible. Furthermore, factors related to neurological, osseous and skin diseases could not be accurately determined which needs further elucidation.

CONCLUSION

Elderly should be thoroughly examined by the ophthalmologists for prompt diagnosis and treatment. Trauma related cataract is another preventable risk factor that can be addressed to some extant provided our hospitals are better equipped for emergency management of ocular trauma. Timely ocular check-ups should be encouraged and better treatment facilities should be provided to the patients like phacoemulsification and vortex method which have fewer complications and more benefits.

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