Profile of Ophthalmological Diseases in Out-Patients of Shree Birendra Hospital

Ramesh Raj Bist[1], Sagar Rajkarnikar[1], Anu Gurung[1], Ram Shrestha[1], Pratik Chetry[1].
[1]Department of Ophthalmology, Shree Birendra Hospital, Chhauni.

ABSTRACT

Introduction: The causes of blindness and the pattern of eye diseases differ in developing and developed countries and often in communities. A study of the pattern of ocular diseases is very important because while some eye conditions are just causes of ocular morbidity others invariably lead to blindness.

Methods: This was a retrospective study including all the cases which attended the department of Ophthalmology of Shree Birendra Hospital in April 2010 to April 2011.

Results: A total of 17988 patients were seen during the study period with mean age 39.95 ± 18.94 years, male to female ratio of 51.02: 48.92% in the department of Ophthalmology. Among them 4779 were regular serving army personnel and 13209 were ex-army and army families. The largest number of cases were seen in lens related disease (25.19%), followed by conjunctival and scleral disease (24.29%).

Conclusions: The pattern of eye disease varies in different age groups. In younger age group conjunctival, scleral disease and refractive error were commonly seen whereas in elder age group lens disorder was frequently seen. The number of blind patients was more in females than in male patients.

Keywords: cataract; conjunctivitis; blindness.

INTRODUCTION

Blindness is one of the most tragic yet often avoidable disabilities in the developing world[1]. The pattern of eye diseases vary in different parts of Nepal due to differences in socioeconomic and geographic factors. The army hospital in Kathmandu not only treats army personnel but also their family and ex- servicemen. A study of the profile of ocular diseases is very important; however no such analytical and descriptive study has been performed at Shree Birendra Hospital. This study was performed to analyze the pattern of ocular diseases in patients coming as outpatient ophthalmology department and use these data for future planning.

METHODS

This was a retrospective study and all the new cases which were diagnosed in the department of Ophthalmology, Shree Birendra Hospital from 14th April 2010 to 13th April 2011 were included. The patients were first seen in the general outpatient department before being referred to the eye clinic on account of ocular symptoms. All patients were seen by consultant ophthalmologists. For each patient the distance and near visual acuity was recorded using the Snellen or illiterate E chart and near chart except when this was not possible e.g. in infants and pre-school children. The anterior segment was examined with the slit lamp. Posterior segment examination was done using a direct ophthalmoscope or 90 Diopter lens with the pupils dilated, if found necessary. Vision is classified as follows, Normal Vision: 6/6- 6/18, Visual Impairment: < 6/18- 6/60, Severe Visual Impairment: < 6/60 – 3/60 and Blind: < 3/60. Data was tabulated and interpreted in terms of percentage using SPSS version 18.0. The ocular diseases were divided into different 12 groups (Table 1).

Correspondence:
Col. Dr. Ramesh Raj Bist
Dept of Ophthalmology, Shree Birendra Hospital, Chhauni, Kathmandu
E-mail: bistdr.rameshraj@yahoo.com

Table 1: Division of ocular diseases.

Group	Description
Group I	Normal i.e. no ocular problem.
Group II (Lid & Adenexa)	Chalazion, Stye, Blepharitis, Acute/ Chronic Dacryocystitis, Dacryoadenitis, Entropion, Ectropion, Congenital Dacryocystitis, post/ failed DCR Surgery, Ethmoidocele, Ptosis, Pre-septal Cellulitis, Cellulitis, Caranculitis, Trichiasis, Lid Edema, Epiphora, Concretion, Meibominitis, Wart, Canthal Cyst etc.
Group III (Conjunctiva & Sclera)	Conjunctivitis, Trachoma, Pinguecula, Pterygium, Episcleritis, Scleritis, Sub Conjunctival Haemorrhage, Dry Eye, Conjunctival Cyst/ Naevus/ Melanoma etc.
Group IV (Cornea)	Keratitis, Laceration, Dystrophies, Degeneration, Opacity, Ulcer, Foreign body, Microcornea, Bullous Keratopathy, Penetrating Keratoplasty Etc.
Group V (Lens)	Cataract, Pseudophakia, Aphakia, Subluxated Lens, Posterior Capsular Opacification etc.
Group VI (Uveal Tract)	Uveitis, Endophthalmitis, Panophthalmitis etc.
Group VII	Refractive errors, Presbyopia, Asthenopia, Amblyopia, Headache etc.
Group VIII	Nekebadi (Annual Medical Check Up) of army personnel.
Group IX (Posterior Segment)	Retinopathies, Macular diseases, Optic nerve lesions, Vitreous lesions, Retinal/ choroidal detachment etc.
Group X (Glaucoma)	Primary and secondary glaucoma, glaucoma suspect etc.
Group XI (Tumours)	consists of any neoplasm effecting eye include Ca Maxilla, melanoma, cerebro-pontine angle tumor, glioma, angioma etc.
Group XII (Others)	Systemic diseases affecting eye (HTN, DM, Thyroid Disease, Henson's Disease, Chicken Pox, Meningitis, Myasthenia Gravis, Seizure Disorder, Gilbert syndrome, Aplastic Anemia, Hepatitis, Vertigo, Xanthelesma, Amarousis Fugax, Urethritis,), Proptosis, Artificial Eye, Anophthalmos, Contracted Socket, Atrophic/ Phthisis Bulbi, Diplopia, Post Lightening, Retrobulbar Neuritis, Trauma, Squint, Computer Vision Syndrome, Cranial Nerve Palsies (3^{rd}, 4^{th}, 5^{th}, 6^{th}, 7^{th}) etc.

RESULTS

The total of 17988 patients were recorded during the study period. Among them 4779 were serving soldiers and 13209 were either ex-army or army families. Some patients had one problem in one eye and some had more than one problem in one or both eyes, so among 17988 patients, there were 39356 different problems.

The youngest patient was of 2 months and eldest was of 96 years with mean age 39.95± 18.94 years. Among 17988 cases 53.6% were male and 46.4% were female with male female ratio of 1.17:1. However, male were predominant among the serving soldiers with the male female ratio of 14:1 (Table 2). Among the number of serving army personnel, male (3724) was more than female (255).

Table 2: Diagnosis and Age Group:

	Age Category				Total (%)
	0-14(%)	15-40(%)	41-60(%)	>60(%)	
NAD	81 (2.77)	371 (2.47)	94 (0.91)	36 (0.32)	582 (1.47)
Lid & Adenexa	274 (9.37)	971 (6.47)	404 (3.92)	279 (2.50)	1928 (4.89)
Conjunctiva & Sclera	1182 (40.45)	5399 (35.99)	1898 (18.46)	1083 (9.70)	9562 (24.29)
Cornea	129 (4.41)	1065 (7.10)	429 (4.17)	297 (2.66)	1920 (4.87)
Lens	19 (0.65)	219 (1.46)	2563 (24.93)	7113 (63.75)	9914 (25.19)
Uveal Tract	11 (0.37)	99 (0.66)	48 (0.46)	26 (0.23)	184 (0.46)
Refractive Error	1068 (36.55)	3122 (20.81)	2345 (22.81)	758 (6.79)	7293 (18.53)
Nekebadi	0 (0.0)	2333 (15.55)	846 (8.22)	0 (0.0)	3179 (8.08)
Posterior Segment	19 (0.65)	287 (1.91)	312 (3.05)	465 (4.08)	1083 (2.75)
Glaucoma	19 (0.65)	543 (3.62)	625 (6.07)	446 (3.99)	1633 (1.14)
Tumors	10 (0.34)	21 (0.14)	14 (0.13)	0 (0.0)	45 (0.11)
Others	110 (3.76)	567(3.78)	702 (6.82)	653 (5.85)	2032(5.16)
Total (%)	**2922 (7.42)**	**14998 (38.10)**	**10280 (26.12)**	**11156 (28.34)**	**39356 (100.0)**

Among 39356 cases, total blind cases were 3973, the maximum number of blind cases (1866) was due to lens and its disorders which accounted 18.82% of lens problem and 4.74% among the total cases that attended in OPD and 46.96% of whole blind cases. Similarly 22.6% (434) of corneal disorder cases were blind i.e. 10.9% of whole blind cases and 1.1% cases were blind due to corneal disorder. Blindness due to conjunctival and scleral diseases and posterior segment accounted for 1.47 & 0.69% (579 & 270) respectively. In 512 cases, vision could not be taken as either very small patient (baby) or anophthalmic cases or uncooperative patients.

In all age groups, except > 60 years and 41-60 years, the most common ocular disease was conjunctival & scleral disorders 9562 (24.29%) followed by refractive error 7293 (18.53%). In the group >60 years, the maximum number of patients were of lens disorder 7113 (66%) and 2nd most common disease was conjunctiva & scleral problem 1083 (11.33%) followed by refractive error 758 (10.4%), others 653 (5.8%) and posterior segment problem accounted 465 (4.16%). In age group 41-60 yrs, the most common disease was lens disorder 2563 (24.93%) followed by refractive error 2345 (22.81%) (Table 2).

In age group 15-40 yrs & 0-14 yrs also conjunctival & scleral disorder was the most common problem 1182 & 5399 (40.45 & 35.99%) respectively. In these groups second most common problem was refractive error 1068 & 3122 (36.55 & 20.81%).

In the age group 0-14 yrs, 66.05% had normal vision, 12.11% had visual impairment, 4.520% had severe visual impairment and 5.62% were blind. In 15-40 yr age group 5.58% were blind. Similarly 17.2 & 11.76% patients were blind in 41-60 yrs & > 60 yrs respectively.

The percentage of blind patient was the highest in the age group of 41-60 yrs i.e. 4.22 % of whole attending OPD patients. Among the age group >60 yrs about 3.1% patients were blind and that of age group 15-40 yrs was 2.31% and in youngest group was 0.44% of whole attending OPD patients.

54.85% patients were male and 45.14 % were female patients. Among male patients 7.99% were blind, 2.90% had SVI, 9.65% had VI and 77.09% had normal vision. Similarly among females, 66.05% had normal vision, 15.45% had VI, 3.6% had SVI and 12.27% were blind. Thus this OPD data showed there was larger number of blind patients in female than male.

Out of 3179 cases of Nekebadi (Serving soldiers' ophthalmic status) of 1420 personnel, 2006 (63.1%) cases were normal, other disease or defects seen in the abnormal eyes were treated as cases as shown below in Table 4 shows the number of regular army personnel who attended OPD for Nekebadi (routine medical check up). Among rest 1173 (36.9%), 15.62 (497) had conjunctival & scleral problem, 10.46 (332) had refractive errors, 3.8 (121) had lid & adenexal problem, 2.24 (71) had corneal problem, 0.38 (12) had lens, 0.2 (6) had uveal tract, 1.07 (35) had posterior segment, 1.04 (33) had glaucoma and 2.09 (66) had others problem.

DISCUSSION

Three out of one hundred Nepalese are either blind, severely visually impaired or have low vision. There are over 1 million people with marked vision loss in Nepal: 120,000 blind (unable to count finger at 3 meters); 275,000 with severe visual impairment (unable to count finger at 6 meters) and 750,000 with low vision. Every day 125 Nepalese become blind. There are 30,240 blind children and over 90,000 low vision children. Every day 7 children become blind [2].

285 million people are visually impaired worldwide: 39 million are blind and 246 million have low vision. About 90% of the world visually impaired live in developing countries. The number of people visually impaired from infectious diseases has greatly reduced in the last 20 years. 80% of all visual impairment can be avoided or cured [3].

Avoidable blindness is defined as blindness which could be either treated or prevented by known, cost effective means. Among the main causes of avoidable blindness are cataract, refractive errors (myopia, hyperopia and astigmatism), glaucoma, diabetic retinopathy and age-related macular degeneration [4].

Over the last twenty years, the causes of blindness have changed in proportion and actual number. Cataract has remained the major cause of blindness globally. It is particularly important in Asia. The numbers of people blinded by trachoma, onchocerciasis, and vitamin A deficiency have tended to decrease over the last twenty years [5, 6].

In our study, the major cause of blindness was due to lens and its disorder which accounted 46.96% of whole blind cases. Second major cause of blindness was due to conjunctiva and scleral disorder (14.57%), then corneal cause (10.92%) followed by lid and adexenal disorder (8.58%), posterior segment disorder (6.79%), refractive error (4.6%) and others (3.92%) were the cause of blindness in our study. In worldwide the major cause of blindness is cataract [5-12].

Besides cataract the cause of blindness vary in different parts of world. The two most common causes of blindness in Asian studies are cataract and under corrected refractive errors. This contrasts with Western populations, in which the leading cause of blindness (accounting for more than 50% of cases) is age related macular degeneration (AMD) in white people, and cataract and glaucoma in black people However, in Singapore and Mongolia, glaucoma was the principal cause of both unilateral and bilateral blindness while in the Shihpai Eye Study in Taiwan, retinal diseases as a group, including AMD and myopic degeneration were the leading cause [5,7,10].

OCULAR DISEASE AND AGE GROUP

In our study, the most frequent ocular disease was conjunctival and scleral disorder in all age groups except the eldest age group, followed by refractive error. However, an increasing number of people are at risk of visual impairment as populations grow and people live longer. Developing countries are already aging much faster than those in the developed world. In 2000 more than 248 million (59%), of the roughly 418 million persons aged 65 and over, lived in developing countries. By the year 2020 this is projected to rise to 67%. The UN estimates that by 2020 there will be a global elderly population of 698 million [3].

In the youngest age group (0-14 yrs), the most common problem is of conjunctival and scleral disease followed by refractive error, corneal disorders which were similar with other studies [12, 13-16.]

It is important that screening of children for refractive errors are carried out at community level and integrated into school health programmes. The existing need should be assessed to determine appropriate education and awareness campaigns that would aim to ensure that corrections are used and cultural barriers to compliance are addressed and removed [17].

In the elder age group like group of 41-60 years, lens disorder was seen most commonly (24.93%) followed by refractive error (22.8%), conjunctival and scleral disease (18.46%), others (6.82%). The proportion of subjects with normal vision (≥6/12) was shown to decrease significantly with increasing age. The age specific blindness prevalence was found to be greater with increased age [8].

In our study also as the increased age, the pattern of disease also varies. Lens disorder was seen as the most common problem in eldest age group (66%) followed by conjunctival and scleral problem, refractive error and then posterior segment problem, glaucoma.

Table 3: Age, Sex and Visual Acuity of patients:

Age	RE VA Category						LE VA Category					
	Cannot be taken (%)	6/6 - 6/18 (%)	<6/18-6/60 (%)	<6/60-3/60 (%)	< 3/60 (%)	Total (%)	Cannot be taken (%)	6/6 - 6/18 (%)	<6/18-6/60 (%)	<6/60-3/60 (%)	< 3/60 (%)	Total (%)
0-14	191 (11.7)	1080 (66.05)	198 (12.11)	74 (4.52)	92 (5.62)	**1635 (8.3)**	192 (11.7)	1102 (67.56)	172 (10.54)	80 (4.90)	85 (5.21)	**1631 (8.3)**
15-40	71 (0.9)	6684 (84.24)	638 (8.04)	98 (1.23)	443 (5.58)	**7934 (40.27)**	71 (0.9)	6770 (85.53)	473 (5.97)	133 (1.68)	468 (5.91)	**7915 (40.27)**
41-60	87 (1.78)	3212 (65.79)	606 (12.41)	137 (2.80)	840 (17.2)	**4882 (24.78)**	81 (1.64)	3243 (66.59)	584 (11.99)	140 (2.87)	822 (16.87)	**4870 (24.78)**
>60	116 (2.2)	3164 (60.25)	1246 (23.72)	107 (2.03)	618 (11.76)	**5251 (26.65)**	147 (2.8)	2881 (55.0)	1396 (26.65)	209 (3.99)	605 (11.55)	**5238 (26.65)**
Total	**465 (2.37)**	**14140 (71.70)**	**2688 (13.64)**	**416 (2.11)**	**1993 (10.1)**	**19702 (100.0)**	**491 (2.5)**	**13996 (71.21)**	**2625 (13.35)**	**562 (2.85)**	**1980 (10.07)**	**19654 (100.0)**
Sex												
Male	238 (2.38)	7742 (77.05)	936 (9.31)	299 (2.97)	830 (8.26)	**10045 (50.98)**	230 (2.30)	7740 (77.13)	1004 (10.0)	284 (2.83)	776 (7.73)	**10034 (51.06)**
Female	227 (2.35)	6394 (66.22)	1510 (15.63)	361 (3.73)	1163 (12.04)	**9655 (49.02)**	262 (2.72)	6338 (65.88)	1476 (5.34)	340 (3.53)	1204 (12.51)	**9620 (48.94)**
Total	**465 (2.37)**	**14136 (71.74)**	**2446 (12.41)**	**660 (3.34)**	**1993 (10.11)**	**19700 (100.0)**	**492 (2.5)**	**14078 (71.62)**	**2480 (12.61)**	**624 (3.17)**	**1980 (10.07)**	**19654 (100.0)**

OCULAR DISEASE AND SEX

There was a marked difference in presenting visual acuity between women and men. In our study the number of female blind patients was more than that of male patients. There was a higher prevalence of blindness in women (1.72%) than men (1.06%) in the study conducted in Bangladeshi adults. Similar findings are seen in other studies [8, 9, 18-23]. Our experience on the pattern of eye diseases among the regular serving forces compares favorably with a study conducted in an Air Force Hospital in Nigeria [16] where conjunctival and sclera disorders, refractive errors and glaucoma were the most common ocular disorders among regular army personnel. Similarly, Nowak et al [24] observed that the commonest ocular disorder in candidates and members of the Polish military service was refractive error. However, the other major ocular disorders seen in the Polish study were not observed among the armed forces personnel in this series. These are color vision disturbances and strabismus. In Washington [25], the most common ocular diseases and non-battle injuries seen in military personnel were uveitis, retinal detachment, infectious keratitis and choroidal neovascularization.

Table 4: Visual Acuity and Diagnosis:

	Vision cannot be taken			Normal (6/6-6/18)			Visual Impairment (<6/18-6/60)			Severe Visual Impairment (<6/60-3/60)			Blind (<3/60)			Total		
Diagnosis	No of cases	Disease wise percentage	Precentage of total cases	No of cases	Disease wise percentage	Precentage of total cases	No of cases	Disease wise percentage	Precentage of total cases	No of cases	Disease wise percentage	Precentage of total cases	No of cases	Disease wise percentage	Precentage of total cases	No of cases	Disease wise percentage	Precentage of total cases
NAD	36	6.19	0.09	546	93.8	1.39										582	100.0	1.47
Lid & Adenexa	69	3.5	0.18	1376	71.3	3.5	122	6.3	0.31	20	1.0	0.05	341	17.69	0.87	1928	100.0	4.89
Conjunctiva & Sclera	263	2.75	0.67	7971	83.36	20.25	675	7.06	1.72	74	0.77	0.19	579	6.06	1.47	9562	100.0	24.29
Cornea	5	0.26	0.01	1250	65.10	3.18	185	9.64	0.47	46	2.4	0.12	434	22.6	1.10	1920	100.0	4.87
Lens	6	0.06	0.02	2574	25.96	6.54	4374	44.12	11.11	1094	11.03	2.78	1866	18.82	4.74	9914	100.0	25.19
Uveal Tract	1	0.54	0.0	108	58.70	0.27	34	18.48	0.09	6	3.26	0.02	35	19.02	0.09	184	100.0	0.46
Refractive Error	20	0.27	0.05	6177	84.70	15.7	826	11.33	2.1	87	1.19	0.22	183	2.51	0.46	7293	100.0	18.53
Nekebadi	0	0.0	0.0	3133	98.55	0.34	43	1.35	0.11	3	0.09	0.01	0	0.0	0.0	3179	100.0	8.07
Posterior Segment	0	0.0	0.0	401	37.03	1.02	295	27.24	0.75	117	10.80	0.30	270	24.93	0.69	1083	100.0	2.75
Glaucoma	6	0.37	0.02	1393	85.30	3.54	90	5.51	0.23	45	2.76	0.11	99	6.06	0.25	1633	100.0	4.14
Tumors	0	0.0	0.0	34	75.56	0.09	1	2.22	0.0	0	0	0	10	22.22	0.03	45	100.0	0.11
Others	106	5.21	0.27	1273	62.62	3.23	422	20.76	1.07	76	3.74	0.19	156	7.67	0.4	2032	100.0	5.16
Total	512		1.3	26236		66.66	7067		17.96	1568		3.98	3973		10.10	39356		100.0

Out of 3179 cases of nekebadi of 1420 personnel, 2006 cases were normal, other disease or defects seen in the abnormal eyes were treated as cases as shown below in table 5.

Table 5: Annual Checkup ophthalmic status of serving soldier

	Frequency	Percentage %
NAD	2006	63.1
Lid & Adenexa	121	3.8
Conjunctiva & Sclera	497	15.62
Cornea	71	2.24
Lens	12	0.38
Uveal Tract	6	0.2
Refractive Error	332	10.46
Posterior Segment	35	1.07
Glaucoma	33	1.04
Tumors	0	0
Others	66	2.09
Total (%)	**3179**	**100**

CONCLUSIONS

The leading cause of eye diseases in this study was lens related disease, conjunctival and scleral disease and refractive error. The pattern of diseases observed among army personnel was similar to the civilian patients.

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