Original Article

Pattern of Eye Diseases in an Air Force Hospital in Nigeria

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Purpose: The aim of the study was to determine the pattern of eye diseases among armed forces personnel and other patients attending the eye clinic of the 347 Nigeria Air Force Hospital, Jos and to make recommendations to the hospital management for improvements in the clinic in respect of manpower and equipments.

Material and Methods: A prospective study involving all new cases presenting to the eye clinic of the 347 Nigeria Air Force hospital, Jos over a 42 month period from October 2008 to March 2012.

Results: A total of 1865 patients were seen during the study period with a male to female ratio of 1:1.2. The mean age was 30.46 years (SD 18.3). Majority of those seen were civilians (59%) with armed forces personnel accounting for 13%. The commonest eye diseases were allergic conjunctivitis (42%), refractive errors and presbyopia (33%) and degenerative conjuctival diseases (5%). Among armed forces personnel, refractive error and presbyopia was the commonest disorder (43%).

Conclusion: The pattern of eye diseases observed in the armed forces personnel was similar to the civilian population. The eye clinic will require additional manpower and an optical laboratory is recommended to address the spectacle needs of patients with refractive errors.

The causes of blindness and the pattern of eye diseases differ in developing and developed countries and often in communities[1]. 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[2]. In Nigeria, studies carried out in the southern part of the country on the pattern of ocular diseases in children[3,4] and young adults[5] have shown that refractive errors, allergic conjunctivitis are the commonest causes of ocular morbidity.

The 347 Nigeria Air Force (NAF) Hospital treats armed forces personnel and ex-servicemen and their families, students of the two air force secondary schools within the city as well as the general public. The hospital is located in the Nigeria Air Force base, Jos in north central Nigeria. The eye clinic, which was established in 2006 is managed by a visiting consultant ophthalmologist who runs the clinic twice a week. The clinic is equipped with a slit lamp, an applanation tonometer and a trial lens set. The aim of this study was to determine the pattern of eye diseases among patients presenting to the air force hospital, Jos and specifically among armed forces personnel and to make recommendations to the hospital management for improvements in the clinic in respect of equipments and manpower. To the best of the authors' knowledge, no study has been conducted on the pattern of eye diseases among armed forces personnel in the country. The information from this study will therefore be of assistance in planning for eye health care delivery in armed forces hospitals across the country.

MATERIAL AND METHODS

This is a prospective study of all new patients seen at the eye clinic of the 347 NAF hospital, Jos in north-central Nigeria between October 2008 and March 2012.

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 one consultant ophthalmologist who runs the eye clinic alone twice a week. 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 a torch and loupe or with the slit lamp. Posterior segment examination was done using a direct ophthalmoscope with the pupils dilated, if found necessary. Treatment was offered following a diagnosis. Refractions were also done by the ophthalmologist when VA was less than 6/9. Patients who required spectacles were referred to optical laboratories outside the hospital as the hospital did not have one. A register was opened and the names of the patients seen, the hospital number, age, sex and diagnosis were recorded. The patients were classified as civilian, armed forces personnel (both serving and ex-service men), and family members of armed forces personnel and student of the air force schools. Any person less than 18yrs of age was classified as a child. Data analysis was done using EPI info 2002 version 3.2.2.

RESULTS

Mean age of the patients seen was 30.5 years (range 8 days to 95 years, SD 18.32). The mean age for females was 30.5 years while the mean age for males was 30.4 years. Children seen were 618 (33%) in number while adults were 1247 (67%). This difference was statistically significant using the chi square test with a p value of less than 0.05. There were 857 males (46%) and 1008 (54%) females giving a male to female ratio of 1:1.2. The difference was not statistically significant with a p value of 0.25. In the paediatric age group, 297 (48%) of those seen were males while there were 321(52%) females. Adults also had a preponderance of females accounting for 687 (55%) of adults seen. Table 1, shows the age and sex distribution of the patients seen. Majority of the patients were civilians (1108) accounting for 59.4% while armed forces personnel (249) accounted for 13.4%. Family members of personnel were 351 (19%) while students from the air force schools were 157 (8%).

The commonest eye disorder (table 2) encountered was allergic conjunctivitis (42%). This was followed by refractive errors and presbyopia (34%). Eighty one percent of cases of cataract and 74% of cases of glaucoma occurred in those 40yrs and above. When compared with those below 40 years of age, the differences were statistically significant with p values of less than 0.05 using the chi square test. Among armed forces personnel the leading eye diseases were refractive error and presbyopia 107 (43%) and allergic conjunctivitis 79 (32%). In children the commonest eye disorders were allergic conjunctivitis 392 (63%), refractive errors 127 (21%), infective conjunctivitis 39 (6%) and blunt trauma 17 (2.8%). There was no significant difference in the prevalence of allergic conjunctivitis and refractive errors between the sexes with p values of 0.15 and 0.08 respectively. However, ocular trauma and infective conjunctivitis were significantly higher in boys with p values of less than 0.05 using the chi square test.

In adults the commonest ocular disorder was refractive errors and presbyopia 501 (40%). Two hundred and fifty (50%) of these were cases of presbyopia only and 67 (13%) presbyopia with refractive error. Women accounted for 55% of the cases of presbyopia and men 45%. This difference was not statistically significant with a p value of 0.15. Other common eye disorders seen in adults were allergic conjunctivitis 396 (32%), degenerative conjunctival disorders 97 (8%), cataract 65 (5%), glaucoma 49 (4%). Allergic conjunctivitis was significantly higher in women with a p value of less than 0.05. Table 3 shows the age distribution of the major eye disorders seen.

DISCUSSION

This study reveals a slight female preponderance. This contrasts with the general observation that fewer females are seen in medical clinics than males in the developing countries[1]. This may be due to the close proximity of the hospital to the barracks and residences of the air force personnel and the location of the hospital close to the city centre making it easily accessible to women who do not have to depend on their spouses or relations to bring them to the hospital. A similar study in south west Nigeria also reported a female preponderance[6].

More adults had ocular problems in this study than children. Ajaiyeoba[7] reported a similar trend though the difference observed in his study was not statistically significant. A likely explanation for this is that children may not be able to adequately articulate their problems and hence may not present to the hospital until the features are prominent enough to be noticed by their parents or guardians.

Table 1: Age and six distribution of patients

Age	Male n (%)	Female n (%)
≤ 10	145 (17)	138 (14)
11 - 20	176 (21)	212 (21)
21 - 30	119 (14)	154 (15)
31 - 40	140 (16)	207 (21)
41 - 50	149 (17)	195 (19)
51 - 60	66 (8)	54 (5)
> 60	62 (7)	48 (4)
Total	857 (100)	1008 (100)

Table 2: Pattern of eye diseases seen

Diagnosis	Frequency n (%)
Allergic conjunctivitis	788 (42.25)
Refractive error, Presbyopia	629 (33.72)
Pterygium, pingueculum	96 (5.14)
Infective conjunctivitis	70 (3.75)
Cataract	70 (3.75)
Glaucoma	50 (2.68)
Ocular trauma	47 (2.52)
Lid abnormalities	34 (1.82)
Retina and macular diseases	18 (0.9)
Migraine	15 (0.8)
Uveitis	12 (0.6)
Optic nerve disorders	7 (0.38)
Conjunctival disorders (e.g. Squamous cell Ca, cysts)	6 (0.32)
Strabismus	5 (0.27)
Cornea disorders	3 (0.16)
Other ocular diseases	15 (0.8)
Total	1865 (100)

Allergic conjunctivitis was the commonest ocular morbidity in this study with an incidence of 42%. Other studies reported it as the third leading cause of ocular morbidity with prevalence of less than 20%[5,6,8]. The dusty and windy nature of the weather in northern Nigeria may be responsible for the high occurrence in this study. It was also the major cause of eye disease in the paediatric age group in this series. This agrees with other hospital based studies as well as school eye health surveys that have also reported it as either the commonest[2,4,9] or the second most common[3,10-12] cause of eye disease in children.

Table 3: Age distribution of major eye diseases

Age	AC	RE	Glaucoma	Cataract	Deg. Cong Disorders
≤ 17	392	126	1	5	3
18 - 29	159	47	3	3	21
30 - 39	119	100	9	5	39
40 - 49	72	245	8	7	24
50 - 59	32	70	10	11	6
≥ 60	14	41	19	39	3
Total	788	629	50	70	96

AC; allergic conjunctivitis, RE; refractive errors + presbyopia, Deg cong disorders; degenerative conjunctival disorders

Uncorrected refractive errors constitute important ocular health problems across the globe[13]. It has impact on quality of life, and has educational and socioeconomic consequences[14]. In this present study it was the second commonest cause of ocular morbidity. This is in agreement with previous reports[6,8]. Studies[2-4,10-12] have also shown that a major cause of eye disorder in children and without school health services that regularly screen for refractive errors many children with refractive errors will not be detected. A study on the prevalence of refractive errors in children in Iran revealed that many of the children were not aware of their refractive errors[15].

Presbyopia was the commonest refractive condition among those 30 years and above in this study. This is similar to observations by other authors[5,14]. A female preponderance for presbyopia as observed in this study is also in agreement with studies by Patel and West[16] and Ayanniyi et al[14]. The youngest age of presentation of 32 years in this study compares with 30 years reported by Ayanniyi et al[14]

and 33 years reported by Benice and Emmanuel[17]. Africans been reported to have a younger age of onset as well as more severe presbyopia[16].

Degenerative conjunctival diseases (pterygium and pingueculum) were the third leading cause of ocular morbidity in this series. Pterygium is particularly prevalent in tropical and subtropical areas of the world[18] with chronic ultraviolet light exposure attributed as a major cause[19]. Our finding compares with 2% reported by Amadi et al[8] in south east Nigeria.

Cataract and glaucoma had prevalence of 3.75% and 2.65% respectively in this series. Similarly Amadi et al[8] reported less than 5% for both disease conditions. Adeoye and Omotoye[6] however reported higher figures of 26% for cataract and 10.9% for glaucoma in a similar study in south west Nigeria. This difference may due to the fact that their study had a mean age of 52 years while the mean age for this study was 30.5 years. Both disease conditions are commoner with increasing age and in this study the prevalence was statistically greater in those aged 40yrs and above.

Ocular trauma has recently been highlighted as an important cause of visual morbidity[20]. Even though the overall prevalence in this study was less than 3%, it was the fourth leading cause of ocular morbidity in children. This compares favourably with other studies in the country conducted in children, which also reported ocular trauma as the third[4,21] and fourth[10] major cause of ocular morbidity. A male preponderance as seen in this study is consistent with previous observations by other authors[20,22,23]. Majority of the cases of eye trauma were blunt injuries. This is also in agreement with findings in other studies[11,20,24].

Our experience on the pattern of eye diseases among the armed forces compares favourably with a study conducted in an army hospital in Nepal[25] where conjunctival and sclera disorders, refractive errors and glaucoma were the most common ocular disorders among regular army personnel. Similarly, Nowak et al[25] 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 colour vision disturbances and strabismus. In Washignton[27], the most common ocular diseases and non-battle injuries seen in military personnel were uveitis, retinal detachment, infectious keratitis and choroidal neovascularization. This contrasts with our observation and environmental and racial factors may account for these differences.

In conclusion, the leading causes of eye disease in this study were allergic conjunctivitis, refractive error and presbyopia and degenerative conjunctival disorders. The pattern of diseases observed among armed forces personnel was similar to the civilian patients. The high prevalence of refractive errors and presbyopia indicate that the hospital will require an optometrist as well as an optical laboratory to address the spectacle needs of patients with these conditions. This will not only improve service delivery in the eye clinic but it will also serve as a source of revenue generation for the hospital.

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