

Prevalence of Eye Disease among Inmates of Ilesa Prison, Southwest Nigeria

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Prevalence of Eye Diseases among Prisoners in Ilesa Prison, Southwest Nigeria

Abstract

Introduction

In Nigeria, like many other developing countries where prisoners have restricted access to health care including eye health care, severe untreated eye disorders are common causes of ocular morbidity and blindness. This study was carried out to determine the prevalence and pattern of eye disease among prisoners in Ilesa Prison, Osun state.

Methods

A cross-sectional survey of ocular disorders among all the prisoners in Ilesa prison was conducted between October 2008 and March 2009. An interviewer – administered questionnaire was designed for the study. Ocular examination of each of the prisoners was carried out by an Ophthalmologist. This consisted of pen torch examination, direct ophthalmoscopy, intraocular pressure measurements, refraction, and visual field examination by confrontational methods.

Result

Overall, a total of 515 prisoners were examined consisting of 492 (95.5%) males and 23 (4.5%) females. The male to female ratio was 21:1. This is statistically significant ($p < 0.001$). The age range was 15 years to 77 years with mean age of 32 years $SD \pm 9.81$.

Of these, 359 (69.7%) had various eye disorders. The most common ocular conditions seen were refractive error (35.3%), allergic conjunctivitis (14.9%), presbyopia (10.9%) pterygium (8.9%) and glaucoma (8.9%).

In conclusion, ocular morbidity is a major problem among Ilesa Prison in-mates. Refractive error was the most common eye disorder and also the most common cause of visual impairment among the prisoners.

Key Words: Access, Blindness, Eye care, Ocular diseases, Prisoners

Introduction

Prisons are places where people are confined for a period determined by law for the purposes of retribution, deterrence, rehabilitation and protection of the public and state¹. A prisoner is a person incarcerated in a prison for crime committed or an individual who is confined against his will by the force of law, either for a crime he is convicted of or pending investigation and trial for a crime he is accused of². Prisoners have restricted access to health care particularly eye health care, hence prevalence of blinding disorders tends to be high in these communities³. Few studies have been carried on the pattern of eye problems among prisoners in Nigeria^{3,4} but none has been conducted on ocular status of prisoners in south western Nigeria.

In a study on the pattern of eye problems among prisoners at an Eastern Nigeria prison, a prevalence of 26.8% was reported in Onitsha³. The four most common ocular conditions seen were refractive error (25.6%), presbyopia (21.5%), pterygium (19.3%), and allergic conjunctivitis (12.5%)³. However in another study among prisoners in Benin City, the prevalence of eye disease was remarkably higher (66.5%) and the four most common ocular disorders were refractive error (22.2%), allergic conjunctivitis (14.0%), presbyopia (13.2%), and glaucoma (10.8%)⁴. In Nigerian prisons, many of which are overpopulated, factors such as malnutrition, trauma, drug abuse and infections promote the occurrence of eye, skin and psychiatric disorders⁵. At the end of their terms, prisoners need to be re-integrated into the larger community. It must be ensured that inmates do not become liabilities after their release from prison⁶

Ilesa prison is a medium security prison serving the whole of Osun State and neighboring state and being one of the 227 prisons in Nigeria, it is associated with similar environmental conditions such as overcrowded cells and poor sanitary living conditions similarly seen in

Oko Prisons Benin, and Onitsha Prisons. Therefore the purpose of this study was to determine the prevalence and pattern of eye disease among prisoners in Ilesa) with the aim of improving eye health care and prevention of blindness among prisoners.

Materials and methods

Study areas and data collection

The study was carried out between October 2008 and March 2009 in a prison located at Ilesa, an urban area in Ife-Ijesa Senatorial District of Osun State, located in south-western Nigeria. All 530 prison inmates were the subjects of this study, 15 of these were discharged from the prison before the conclusion of the study and so they were excluded from final data analysis.

Prior to the commencement of the study, a visit was made to the Controller of Prison Services at Osogbo (Osun state capital) where the permission to carry out the survey was obtained. Ethical clearance for the study was obtained from Medical Research Ethical Committee of the Obafemi Awolowo University Teaching Hospitals complex. Informed written consent was obtained from each participating subject before questionnaires were administered.

A structured interviewer-administered questionnaire was designed for the study. Demographic data, duration of incarceration, past and present ocular history, history of associated systemic disease were obtained. Four prison health workers (3 nurses and 1 community extension worker) were recruited and trained for the study on the administration of the questionnaire and measurement of visual acuity. The Visual Acuity (VA) of the subjects was measured using Snellen's chart or illiterate 'E' chart, placed 6 meters away from the seated subject in open daylight, by the trained prison health workers and validated by a consultant ophthalmologist. Each eye was tested separately and unaided. A pinhole was used if visual acuity was 6/9 and below. In prisoners whose refractive errors predated their

incarceration, it was tested with their glasses on. The last complete line read on the chart was recorded as the visual acuity for that eye. Near Visual Acuity was tested using a Jaeger's Type Readers Chart at 33cm. Ocular examination of each of the prisoners was carried out by the authors 1 and 3. A consensus was reached by the authors (after a pilot study was conducted) on the ocular examination findings, also the measurements taken by these same authors 1 and 3 such as Intraocular pressure were repeated and the average readings accepted. The ocular examination included pen torch examination, direct and indirect ophthalmoscopy, intraocular pressure measurements with Perkin's Handheld Tonometer. Objective and Subjective Refraction were conducted on all those with refractive error and glasses were recommended to them. The gross Visual Field Assessment (VFA) was conducted using the confrontation method. This was done by seating the patient 1 metre away from the examiner, instructing him to focus on the examiner's nose. When the examiner occluded the right eye, the patient who was seated opposite him also occluded the right eye. With an outstretched arm, the examiner would bring the tip of a pen from a peripheral, "non-seeing" area to a "seeing" area. The patient then indicated when the examiner brought the pen to his view. For the purpose of the study, a diagnosis of glaucoma was made in eyes with intraocular pressure (IOP) greater than 22mmHg, Cup-Disc Ratio (CDR) greater than or equal to 0.7 on fundoscopy, and defective gross VFA.

Data analysis

The data collected from this study was recorded in the corresponding author's personal computer. Standardized data entry formats were developed using Microsoft office excel. Distribution of prevalence was analyzed with contingency tables and Chi-Square tests using the Statistical Package for Social Sciences (SPSS) software Version 12. Statistical methods

applied were mean, standard deviation, frequency counts and percentages. Statistical significance was inferred at $P < 0.05$.

Results

There were 492 (95.5%) males and 23 (4.5%) females. The male to female ratio was 21:1. The male preponderance was statistically significant ($p < 0.001$). The age range was 15 to 77 years. Mean \pm SD was 32 ± 9.81 years. (See Table 1)

Table 2 depicts the visual acuity in the better eye of the prisoners. Majority (89.3%) had normal vision, 51 (9.9%) were visually impaired and 4 (0.8%) were blind.

The study observed that none of the blind or severely impaired had undergone any eye check since incarceration and only 3 (0.6%) had an ophthalmic evaluation in their life time.

Overall, 805 eyes of 453 prisoners had various problems. 359 (69.7%) prisoners had a single diagnosis while 94 prisoners had more than one eye condition. No abnormality was found in 62 of the 515 prisoners examined. (See Table 3).

Table 4 shows the pattern of eye diseases seen in 805 eyes of 515 prisoners. The most common ocular conditions seen were refractive errors seen in 284 eyes (35.3%), allergic conjunctivitis 120 (14.9%), presbyopia 88 (10.9%), and pterygium and glaucoma 72 (8.9%) each. Rare conditions were maculopathy in 30 (3.7%), corneal opacity 18 (2.2%), closed globe injury 14 (1.7%), ptosis 12 (1.5%), hypertensive retinopathy 8 (1.0%) and phthisis bulbi 4 (0.5%).

Discussion

Eye disease is common occurrence worldwide⁶. In Nigeria, prevalence of eye disease has been reported in various geographical zones and the distribution is influenced by factors such as age, sex, occupation, geographical location and cultural practice⁷. Eye disease, when not

properly managed may result in visual impairment or even blindness³. Studies on the pattern of ocular morbidity among Nigerian prisoners are very few^{3,4}.

Majority of the inmates in Ilesa Prison were less than 40 years of age with the highest number in the 21– 30 year age group. This is similar to studies done among prisoners in Onitsha³ and Benin City⁴. The occurrence of male preponderance among the prisoners was not unexpected because males (especially those in this age range) are more active and daring. They run a greater risk of breaking the law than their female counterparts⁸. The percentage of females in this study (4.5%) is slightly less than in prisons in the United States (6.5 %) ⁹ and in Asian prisons (5.9%) ¹⁰. In a survey of a prison in Lagos, majority of the inmates were unemployed young men¹¹, however in this study, majority were artisans.

Refractive errors have been reported as the most common ocular disorders in Nigeria^{12,13} and they accounted for the largest number of cases of ocular morbidity seen in this study. This agreed with previous studies among prisoners in Onitsha³ and Benin City. ⁴ In the Indian state of Andhra Pradesh, it was reported that uncorrected refractive error is the second leading cause of treatable blindness and also the most common cause of visual impairment in the general populace¹⁴

Despite the fact that refractive errors are correctable with the aid of vision correction devices such as spectacles or contact lenses, it has been found that in many countries, uncorrected refractive errors are the second commonest cause of treatable blindness after cataract¹⁵. The global initiative for the elimination of avoidable blindness (VISION 2020) has recognized that refractive errors are a major cause of visual disability and refractive services have been listed as part of primary health care and schools services with provision of locally produced glasses and corrective optical devices¹⁶. Provision of eye glasses will go a long way in alleviating the visual impairment among inmates in Ilesa prison.

Allergic conjunctivitis seen in this study as another common ocular morbidity is associated with a lot of discomfort. This finding was similar to reports from previous studies among other prisoners.^{3, 4, 5} According to a study in Ibadan, overcrowding and the poor ventilation that follows combustion of firewood were among risk factors identified for allergic conjunctivitis¹⁶. Ilesa Prison was observed to be smoky and overcrowded and this may be a risk factor in the development of these allergic conditions among inmates.

Pterygium was also common among the prisoners. It has been reported as the most common conjunctival degenerative changes seen in Nigeria¹⁷. The peak age of occurrence in this study was in the second and third decade which is similar to findings by Ashaye¹⁷. Most of the pterygia (72%) encountered in this study were located nasally and similar findings were reported in Ibadan¹⁷ and Benin¹⁸.

The prevalence of glaucoma among inmates of Ilesa prison (5.8%) was slightly lower than the value (9.1%) reported among prisoners in Benin City⁴. This difference may be ascribed to the study population. In a northern Nigeria population, the prevalence of open angle glaucoma was found to be 1.02%¹⁹, while in another study in South-Western Nigeria, it was found to be 2.1%²⁰. Although chronic open angle glaucoma (COAG) had been documented as the most common type of glaucoma seen in Nigeria,²¹ it was not possible to classify the types of glaucoma seen in this study due to logistic and security issues.

Most of the prisoners with glaucoma in this study were between the ages of 30 and 65 years. Glaucoma is known to be more aggressive in blacks occurring at a younger age than in Caucasians²². In this study, 3 of the prisoners had been diagnosed with glaucoma by an ophthalmologist prior to incarceration. They however had no access to anti-glaucoma medications following incarceration. This portends a great danger as there is continuous irreversible loss of visual field when glaucoma remains untreated.

Closed globe injury, hyphema, subconjunctival hemorrhage, maculopathy, age-related macular degeneration, macular scar and macular hole were documented in these prison inmates. Any of the above eye diseases may be associated with marked visual impairment especially when there is poor ophthalmic attention as seen in this prison.

In conclusion, eye disorders are common among inmates seen at the Nigerian Prison in Ilesa; the pattern of ocular disorders was similar to what obtains in general population in Nigeria¹² so prisoners should be allowed to have access to appropriate eye care in order to prevent blindness.

References

1. Hornby AS. Oxford Advanced Learner's Dictionary of Current English (1997) (664)th edition Oxford U K.
2. Encarta Premium. World English Dictionary, Microsoft Encarta (2006).
3. Ekwenchi EE. Pattern of eye problems among prisoners at the Nigerian Prison Onitsha. Fellowship Dissertation, National Postgraduate Medical College of Nigeria, May 1999.
4. Atamah AO. Frequency and pattern of eye disease among prisoners in Benin City (A survey of Oko Prisons) Benin City. Fellowship Dissertation, National Postgraduate Medical College of Nigeria 2005.
5. Jessie L, Marth H. UN's report on Nigeria Prisons condition. The South West Journal of Criminal Justice. 2003; 2 :10-15
6. ChiramboMC. Blindness and visual impairment in southern Malawi. Bulletin, WHO. 1986; 64:567-572
7. Adeoti AO. Prevalence and causes of blindness in a tropical African population. West African Journal of Medicine. 2004; 23: 249-252
8. Nigeria Crime and Punishment. Source: The Library of Congress Studies and the CIA World Fact Book. June 1991
9. Green A. Female prisoners in United State American. Journal of Sociology. 2001; 61: 525-530.
10. Biles D, Morgan N, McDonald A. Record of the Twentieth Asian and Pacific Conference of Correctional Administrators, Sydney, Australia. 2000;1:5 – 10

11. Adesanya A, Adelokun O. Psychoactive substance abuse among in-mates of a Nigerian prison population. *The British Journal of Psychiatry*.1998; 101:50-56
12. Akinsola FB, Majekodunmi AA. Pattern of eye disease in adults 16years and above in Ikeja and Alimosho LGA of Lagos State. *Nigerian Postgraduate Medical Journal*.1995; 2(2): 56-61
13. Ayanru JO. Environment Culture and Eye Diseases in Nigeria (Experience at Benin City Bendel State of Nigeria) *Proceedings of African Eye, Nairobi, Kenya*; 1982: 4 – 63.
14. DandomaL. Blindness in the Indian State of Andhra Pradesh. *Investigative Ophthalmology and Vision Science*. 2001;42: 908 – 916.
15. Brien A Holden, Sylvia Suleiman, Kylie Knox. The challenges of providing spectacles in the developing world. *J. Comm. Eye Health*. 2000; 13 (33): 9 – 10
16. Bekibele CO, Olusanya BA. Chronic allergic conjunctivitis: an evaluation of environmental risk factor. *Asian Journal of Ophthalmology*. 2006: 8: 147-150
17. Ashaye AO. Pterygium in Ibadan, *West African Medical Journal*. 1991;10(3):232-243.
18. Osahon AI, Edema OT. Pterygium in Benin City, Nigeria – A Hospital based study. *Nigeria Journal of Surgery*. 1998: 5: 77 – 80
19. MurdochIE, CousensSN, Babalola OE, Yang YF, Abiose A, Jone BR. Glaucoma prevalence may not be uniformly high in all black population. *African Journal of Medicine and Medical Sciences*. 2001;30(4):337-9.
20. Olurin O. Primary glaucoma in Nigeria. *East African Medical Journal*. 1972; 49 (10): 726 – 734.
21. FafoworaOF, Osuntokun OO. Age related Eye diseases in the elderly members of a rural African Community. *East African Medical Journal*. 1997; 74(7):435-437.

22. Foster PJ, Buhrmann R, Quigley HA, Johnson GJ. The definition and classification of Glaucoma in prevalence surveys. *Br J Ophthalmol* 2002;86:238-242.

Table I: Age and sex distribution of the prisoners

AgeGroup (Years)	Sex		Total No.	%
	Male%	Female%		
20 and below	31 6.3	2 8.7	33	6.4
21 – 30	24249.2	10 43.5	252	48.9
31 - 40	12725.8	6 26.1	133	25.8
41 - 50	7515.2	3 13.0	78	15.1
51 - 60	13 2.6	2 8.7	15	2.9
61 - 70	4 0.8	-	4	0.8
Total	492 100.0	23 100.0	515	100.0

Table 2: Visual acuity in the better eye of all the prisoners

Visual Acuity in the Better Eye	Category of Vision	Frequency (%)
6/4 – 6/18	Normal Vision	460 (89.3)
< 6/18 – 6/60	Low Vision	40 (7.8)
< 6/60 – 3/60	Low Vision	11 (2.1)
< 3/60 – NPL	Blindness	4 (0.8)
Total		515 (100)

Table 3: Pattern of eye disease among prisoners

Diseases/Disorders	No. of Persons	%
Refractive Errors	117	22.7
Allergic Conjunctivitis	45	8.7
Presbyopia	30	5.8
Pterygium	30	5.8
Glaucoma	30	5.8
Cataract	25	4.9
Maculopathy	18	3.5
Corneal Opacity	14	2.7
Closed globe Injury	12	2.3
Ptoxis	10	2.2
Optic Atrophy	9	1.8
Chalazion	4	0.8
Phthisis Bulbi	2	0.4
Posterior uveitis	2	0.4
Hypertensive retinopathy	2	0.4
Squint	2	0.4
Retinal detachment	2	0.4
Diabetic Retinopathy	2	0.4
Retinitis Pigmentosa	1	0.2
Normal eyes	156	30.4
	515	100.0

Table 4: Number of Eyes affected by Diseases/Disorders

Diseases/Disorders	No of Eyes	%
Refractive Errors	284	35.3
Allergic Conjunctivitis	120	14.9
Presbyopia	88	10.9
Pterygium	72	8.9
Glaucoma	72	8.9
Cataract	50	6.2
Maculopathy	30	3.7
Corneal Opacity	18	2.2
Closed globe Injury	14	1.7
Ptosis	12	1.5
Optic Atrophy	11	1.4
Chalazion	6	0.8
Phthisis Bulbi	4	0.5
Posterior uveitis	4	0.5
Hypertensive retinopathy	8	1.0
Squint	4	0.5
Retinal detachment	2	0.3
Diabetic Retinopathy	4	0.5
Retinitis Pigmentosa	2	0.3
Total	805	100.0

