Pattern of Eye Disorders in Ogbodo: A Rural Community in Rivers State.

Type of Article: Original

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ABSTRACT

Background: The incidence and prevalence of poor vision and blindness in the world, especially among the rural communities in developing countries is on the increase. This had led to the WHO/IAPB-driven "Vision2020 right to sight: "global initiative against blindness in rural communities, aimed at reducing global blindness to the barest level by the year 2020. As part of its contribution in the global fight against blindness in the rural communities, Rotary International, a humanitarian global organization encourages all Rotary clubs worldwide to undertake eye-camps in rural communities as part of their community service. We report the pattern of eye disorders found among subjects of Ogbodo, a rural community in the Ikwerre local government area of Rivers state, during a one day Rotary eye camp.

Objectives: To determine the pattern of visual problems and eye disorders in the Ogbodo rural community and to sensitize and educate members of the community about eye care and prevention of blindness.

Methods: The eye camp held in February 2010. All eligible subjects, presenting at the camp had detailed eye examination comprising, visual acuity, refraction, and detailed ophthalmologic evaluation as permissible in a field study. Findings were captured in a pre-designed data sheet for analysis.

Results: One-hundred and thirty-nine subjects were eligible for examination. They comprised 53 males and 86 females (M/F=0.6:1) with a mean age of 36.8 $\pm$15.1 years(range 8 to 90 years.).

Using WHO criteria for visual assessment, 15.0% of the subjects had low vision in the better eye, with a mean age of 56.3 $\pm$12.9 years, 11.6 % were blind , with a mean age of 76.3 +15.3 years. Vision deteriorated with increasing age. Presbyopia was the commonest error of refraction occurring in 72.9% of the patients with a mean age of 51.9 $\pm$12.5 years. Glaucoma(19.4%) with a mean age of 55.1 $\pm$ 20.8 years; Cataract (11.1%) mean age 65.5 $\pm$25.1years; allergic conjunctivitis (17.5%) , mean age 41.5 $\pm$21.4 years, and optic atrophy 5.6%, mean age 32.3 $\pm$ 27.2 years respectively, were the most frequent ophthalmologic disorders encountered.

Bilateral blindness was observed in 10(7.2%) of the subjects with cataract being the commonest cause, responsible for 40% of the blindness.

Conclusion: Visual impairment and blindness are common among subjects of the Ogbodo rural community of Rivers state. Presbyopia, Cataracts, glaucoma allergic conjunctivitis and optic atrophy were the commonest eye disorders and causes of visual impairment and blindness in the community. The need for Government to extend eye care service to rural communities as a way of reducing the prevalence of visual impairment and blindness in Nigeria cannot be over emphasized.

Key words: Pattern of eye disorders; Rural community; Ogbodo; Nigeria.

INTRODUCTION

Visual impairment and blindness is a global problem. By the year 2000 the World Health Organization (WHO) estimated that about 180 million people worldwide are visually impaired while 50million have profound visual loss or are blind, while an average of 6million people get blind each year[1]. Over 90% of world blind are in sub-Saharan Africa and Asia and especially among the persons in the rural communities[2].

The commonest causes of blindness world wide are cataract, trachoma, glaucoma, onchocerciasis and refractive errors [1,2] . Ironically almost all of these causes are potentially preventable and or easily treatable, but the bulk of the victims in Africa and Asia are either too poor, ignorant or do not have eye-care services available to them.

As a response to this global scourge, the World health organization (WHO) in collaboration with the International Agency for the Prevention of Blindness (IAPB) in 1999 launched the global initiative "Vision 2020 Right to Sight" initiative for the global fight against blindness in the world [2]. In this program governments, non-governmental organizations, philanthropic individuals etc, are encouraged to contribute to the global fight against visual impairment and blindness in the world with a view to eliminate avoidable blindness by the year 2020.

Rotary International (RI), a foremost non-governmental, non-profit, humanitarian organization partnered in the global initiative against blindness. As part of its strategy in the fight against blindness, RI encourages all Rotary clubs (over 32000 clubs worldwide) to organize annual eye-camps (with the assistance of volunteer eye care givers) in chosen rural communities.

The purpose of such eye-camps is to identify people in the

rural communities with visual impairment, blindness and other eye disorders, with a view to providing them with needed information and support to ameliorate their condition. In addition to creating the needed community awareness and provide eye health education to the members of these communities.

During such eye camps persons with simple eye problems such as conjunctivitis and simple errors of refraction are treated and given free corrective eye glasses to improve their sight. Persons with more complicated problems are referred for further treatment to the nearest comprehensive eye care centre.

This is a report of the pattern and prevalence of eye disorders found during a one-day eye camp organized by the Rotary club of Port Harcourt south in Ogbodo, a rural community, in the Ikwerre local government area of Rivers state, in the Niger delta region of Nigeria. The findings would contribute further to the data on blindness and eye disorders in rural communities in Rivers state and the Niger delta region, as well as bring to Government awareness, the paucity of eye care services in rural communities in Rivers state.

MATERIALS AND METHODS
The Health out-reach exercise was carried out on the 13th of February, 2010 in Ogbodo.

A preliminary visit was made one week prior to the Health out-reach, by some members of the out- reach team to mobilize the community through their leadership.

Ogbodo is a small rural community of less than 2000 people located in the Ikwere local government area of Rivers state. The community is located about 50 kilometers, north of Port Harcourt, the capital city of Rivers state.

The people are predominantly subsistence farmers, fishermen and women, petty traders, retired civil servants and local government staff.

There is no primary health care facility in the community. The nearest primary health care (PHC) facility to the community is located about 5 kilometers away in Isiokpo, the local government head quarters which also harbours a dysfunctional general hospital. There is no eye-care facility in the entire local government area. The nearest public eye care facility to the community is located in Port Harcourt about 50 kilometers away.

Their source of domestic water is from some public mono-pumps, few privately owned pay- bore-hole water scheme and dug-out wells. Faecal disposal is mainly through open defecation in the bush, though a few households have water-closets.

The personnel for the eye camp comprised, ophthalmic nurses, optometrists, ophthalmology resident doctors and house officers in internal medicine, medical students, consultant physicians and pharmacists.

Ophthalmic and medical equipment include Snellen's charts (literate and illiterate E-charts), refraction lens boxes, ophthalmoscopes, bathroom patient weight scales, sphygmomanometers (Accosson), Littman stethoscopes, latex gloves, sterile materials, glucometers and urine test strips.

After explaining the objectives of the eye camp to the participants in English and the local language Ikwerre using interpreters, each subject was registered to obtain basic bio-data namely, name, age, sex, and occupation after obtaining informed consent.

Thereafter, each registered participant had unaided visual acuity of each eye determined, using Snellen's chart (or E-chart) which was placed at 6-meters(or 3-meters for those with poor vision) from the subject.

Examination for visual acuity was done in the open under bright daylight. Infants and children whose cooperation with the examiners, could not be guaranteed were excluded. The result of each eye was recorded. In accordance with WHO criteria [3] for blindness, the result for the best eye was regarded as the subject's visual acuity. Refraction and examination of the eyes was done in a classroom.

Subsequently, each subject had refraction of the eyes performed by the optometrists, while the ophthalmologist resident doctors performed detailed examination of the eyes of the subjects. Visual acuity was classified in accordance with the WHO criteria [3]. By this criteria, visual acuity 6/18 or better was considered normal vision, visual acuity <6/18 to 3/60 was considered low vision while, visual acuity less than 3/60 were categorized as blindness.

The ophthalmologic disorders were diagnosed in accordance with WHO [3] International statistical criteria, as permissible in a field situation. All the data obtained were entered into a pre-designed data- sheet for subsequent analysis.

The data was analyzed with the Epi-info statistical package. Quantitative variables were expressed as mean $\pm$ SD. Student's t-test was used to determine statistical significance between two quantitative variables. Level of significance was set at p-values of < 0.05. Tables were used as appropriate.

LIMITATIONS
Being a one-day cross-sectional study, a preliminary community demographic study was not possible. House-hold population sampling for evaluation was not possible. Analysis was thus based on those that responded to the community mobilization and presented themselves for the eye camp.

RESULTS
A total of one hundred and forty five subjects presented for the health out reach. Of these, data for 139(95.9%) were suitable of analysis. The remaining six subjects were infants and children who could not be ophthalmologically evaluated in a field setting.

Table-1 shows the age and sex distribution of the 139 subjects. They were 53 males and 86 females with a M/F 0.6:1.Their

ages ranged from 8 to 90 years with a mean age of 36.8 ±15.1 years.They were predominantly adults with the peak ages in the 40-49 and 50-59 year age groups accounting for 41 percent of the subjects. Subjects below 40 years of age constitute 36%.

Visual acuity

Of the 139 subjects, 120(86.3%) had visual acuity determined. The remaining 19 persons did not present themselves for visual acuity testing. The distribution of the 120 subjects according to visual acuity status is shown in table- 2.

Eighty-eight subjects (73.3%) with a mean age of 44.6±16.7 years had normal visual acuity, 16(15.0%) subjects with a mean age of 56.3 ±12.9 years had low vision, while 14 subjects constituting 11.6% with a mean age of 76.3 ±15.3 were blind, by visual acuity status. Subjects with normal vision were the youngest while blind subjects were the oldest.

Refraction.

Of the 139 subjects 107(76.9%) had refraction done. Twenty four subjects (22.4%) with a mean age of 48.0 ± 29.1 years had no abnormality on refraction, 78(72.9%) with a mean age of 51.9 ±12.5 years had presbyopia. Two subjects (1.9%) and three subjects (2.8%) had hypermetropia and myopia respectively. These patients were younger than those with presbyopia .

Ophthalmologic disorders.

These are shown in table 3. Of the 139 subjects, 108(77.7%) had ophthalmologic examination done. Forty subjects, with a mean age of 41.8 ± 16.9 years constituting 37% of the subjects had no detectable ophthalmologic disorders. The five most prevalent ophthalmologic disorders in descending order of frequency, were glaucoma -19.4% with a mean age of 55.1 ± 20.8 years, allergic conjunctivitis in 17.5 %, cataract -11.1% with a mean age of 65.5 ±25.1 years , optic atrophy 5.6 percent and age related macular degeneration (AMRD) in 3.7 percent of the subjects.

Subjects with uncorrected aphakia were the oldest with a mean age of 80.5 ± 2.2 years followed by those with cataract. Subjects with optic atrophy were the youngest.

TABLES.

Table-1: Age and sex distribution of the subjects.

Agegroup	Males	Females	Total	Percentage
1-9	13	4	17	12.2
10-19	1	2	3	2.2
20-29	2	13	15	10.8
30-39	5	10	15	10.8
40-49	7	19	26	18.7
50-59	13	18	31	22.3
60-69	4	7	11	7.9
70-79	4	9	13	9.4
> 80	4	4	8	5.7
	53	**86**	**139**	**100.0**

Table -2: Distribution of visual acuity status. (n =120)

Visual acuity	Male	Female	Total	Percentage.	Mean age(yrs.)
Normal vision (6/18 or better)	23	65	88	73.3	44.6± 16.7
Low vision (<6/18>3/60)	9	9	18	15.0	56.3 ±12.9
Blindness (≤3/60)	8	6	14	11.6	76.3± 15.3
	40	**80**	**120**	**100.0**	

Table -3 : Ophthalmologic disorders (n = 108)

Ophthalmologic disorder	Male	Female	Total	Percentage	Mean age(yrs.)
Normal	12	28	40	37.0	41.75± 16.9
Glaucoma	5	16	21	19.4	55± 20.8
Allergic conjunctivitis	6	13	19	17.5	41.5± 21.4
Cataract	3	9	12	11.1	65.5± 25.1
Optic atrophy	2	4	6	5.6	32.3± 27.2
ARMD*	1	3	4	3.7	
Aphakia	2	1	3	2.8	80.5± 2.2
Corneal opacity	0	1	1	0.9	
Chalazion	0	1	1	0.9	
Pthisis bulbi	1	0	1	0.9	
	32	**76**	**108**	**100.0**	

*ARMD- Age related macular degeneration.

Table-4: Blindness.
4a. Mono-ocular blindness.

Causes	Males	Females	Total	Percentage
Cataract	2	1	3	60.0
Optic atrophy	1	0	1	20.0
Aphakia	0	1	1	20.0
	3	**2**	**5**	**100.0**

4b.Bilateral blindness.

Causes	Males	Females	Total	Percentage
Cataract	2	2	4	40.0
Optic atrophy	1	1	2	20.0
Glaucoma	1	0	1	10.0
Aphakia	1	0	1	10.0
*Retinal deg.	0	1	1	10.0
**ARMD	0	1	1	10.0
	5	**5**	**10**	**100.0**

* Retinal degeneration
**Age related macular degeneration.

Blindness.

The distribution of blindness is shown in tables 4a and 4b. Five subjects (4.6 %) had mono-ocular blindness while ten subjects (9.3%) were bilaterally blind. The three commonest causes of blindness in the subjects were cataract (46.7%), Optic atrophy (20%) and uncorrected aphakia (13.3%).

DISCUSSIONS

The population distribution of the subjects of the community who turned up for the health outreach is skewed in favour of the older age groups.(table1) and differs from the population distribution as previously reported from two different communities in Rivers state[4,5]. Whereas subjects between the age groups less than 40 years constituted 36 % of the population, the peak age groups was observed in the 40-49 and 50-59 age groups who constitute 41 percent of the patients. Omoni[4] in a study of the epidemiology of blindness and visual impairment in a fishing village (Oyorokoto) in Rivers state reported 80 percent of the population being less than 40 years old. Similarly, Pedro-Egbe et al[5] in a study in rural communities in Ahoada- east in Rivers state found 66.5% of the population less than 40 years of age.

The difference in the population distributions is as a result of the differences in methodology of subject recruitment. Whereas subjects in this study were volunteers responding to the health outreach, the subjects in the other studies were sampled in their house-holds reflecting the entire population structure of the communities.

The paucity of children and young adults in our subjects may be a result of the fact that these age groups do not have eye problems and thus, did not think it necessary to present for eye examination. This fact is corroborated by the findings of very low prevalence of eye disorders in these age groups from the results of Omoni[4] and that of Pedro-Egbe et al.[5]

The results from this study show a relatively high prevalence of errors of refraction and eye disorders among the subjects .These include high prevalence of low vision, blindness , presbyopia, glaucoma, allergic conjunctivitis, and cataract . Less common disorders include- age related macular degeneration (AMRD), uncorrected aphakia, corneal opacity, chalazion and phthisis bulbi.

Disorders of the uveal tracts such as iritis and irido-cyclitis, were however not observed. Similarly onchocercal and trachomatous eye disorders were not encountered.

The pattern and the prevalence rates of visual and ophthalmologic disorders are however similar to observations in other communities in Rivers state [4,5,6] as well other parts of southern Nigeria,[7] with minor differences.

The rarity of onchocercal and trachomatous eye lesions is consistent with previous observations in the southern parts of Nigeria [4-7], as compared with the northern parts of Nigeria where onchocerciasis and trachoma constitute major causes of blindness and poor vision[8]

The rarity of onchocercal eye lesions have been attributed to the absence of suitable breeding environment for the simulium fly [9]. Similarly the rarity of trachomatous eye lesions have been attributed to the more abundance of water in the southern parts of Nigeria[10] . Rivers state is in the Niger delta with abundance of both marine and fresh water.

In this study glaucoma constitute the leading opthalmolgic disorder with 19.4 percent prevalence among the subjects .It however did not contribute significantly to blindness. It was not a cause of mono-ocular blindness and was responsible for bilateral blindness in only one subject.

The inference is that most of the glaucoma cases in our series were detected early before deterioration to blindness. Such subjects were counseled, administered initial therapy and referred to the comprehensive eye centre for further care.

The early detection of glaucoma during this survey buttresses the importance of periodic eye examination as a strategy for early detection, early intervention and prevention of blindness in the community.

In Omoni's series [4] glaucoma prevalence was not stated, but it contributed to 11.7 percent of monocular blindness, but not to bilateral blindness. Patrick Ferife et-al [7] in 0zoro rural community in Delta state, reported glaucoma being responsible for 3.4 % of low vision and 0.6% of blindness. These community based figures, as expected were lower than clinic based (pooled patients) observations in Nigeria which reported glaucoma as being responsible for between 15 to 22% of blindness [11,12].

Like glaucoma, cataract was also quite prevalent among our subjects with an 11.1 % prevalence rate. Cataract was the leading cause of both mono-ocular and bilateral blindness (table 4a /4b). This pattern is consistent with all previous studies of blindness in the southern part of Nigeria[4-7].

The leading causes of blindness among our subjects were cataract, optic atrophy and uncorrected aphakia. This pattern is also generally consistent with previous studies in southern Nigeria.

As recognized globally, visual impairment and blindness is age related as is the case in this study. There was a progression in the mean ages of subjects with normal vision through low vision and blindness (table 2). Similarly, subjects with presbyopia had a higher mean age than subjects with normal refraction, though the difference was not statistically significant (p>0.05). Hypermetropes and myopes (though fewer in number) were much younger than those with normal refraction. The difference between their mean ages being statistically significant (p<0.001) is probably indicative of the congenitally acquired nature of these two conditions.

Subjects with cataract, glaucoma, and uncorrected aphakia had higher mean ages than subjects without any ophthalmologic disorder. The differences in mean ages were statistically significant (p<0.001).

In this study, allergic conjunctivitis was the second most frequent ophthalmologic disorder observed, being responsible for 17.5% of all ophthalmologic disorders in the subjects.

The relatively high prevalence of allergic conjunctivitis as observed in this study had been reported in a previous study [6] in another rural community of Rivers state, in which allergic conjunctivitis was also the second commonest ophthalmologic disorder after cataract.

The subjects with allergic conjunctivitis had a mean age of 41.5 years, which corresponds to the occupationally active age group. Thus occupational and environmental exposures may be responsible for the allergic conjunctivitis. The high environmental pollution by petroleum exploratory and exploitative activities in the Niger Delta may play a significant role. Also, being a predominantly farming community, exposure to organic dusts in the farm may also be a factor.

The virtual absence of any form of eye care service in this community, no doubts contribute to the relatively high prevalence of visual impairment and the other ophthalmic disorders. Eye disorders that would have been detected earlier and intervention given, continue to persist and deteriorate, eventually progressing to blindness.

The General hospital at Isiokpo, the head quarters of the Local Government does not have any form of eye service. Given the long distance between Port Harcourt where eye services are available, the logistics and costs involved, only few of the rural dwellers can afford to seek eye service in the city. The greater majority remain in the community with their problem until they may become blind. The observation in this rural community in not peculiar to Ogbodo as similar observations have been reported in other rural communities in the Nigeria[4-8].

The factors responsible for this state of affairs are multi factorial. They include: the general scarcity of trained eye manpower in the country(Some state governments in Nigeria, do not have any consultant ophthalmologist in their health service); the skewed distribution of the few available eye-manpower in the country in favour of the urban centers and the specialist hospitals; the rather elitist tendency of the available eye care personnel, most of who would not accept postings to the rural areas as well as the lack of Government policy on eye health care in the country.

Governments at all levels should build capacity in the area of eye-manpower development and ensure appropriate deployment of same to cover the rural communities. Where shortages exist the available manpower can be made to undertake regular rural visitations to provide eye service to the rural communities. Basic eye care service should be integrated into the Primary health care (PHC) system in the country. Educated youths in the rural communities can be recruited and trained as ophthalmic nurses and optometrists, to man rural eye posts as part of the PHC system, under the supervision of qualified eye care personnel on periodic visitations.

Also the Medical post graduate colleges should make part of the senior resident training period compulsory rural posting period. During such postings the senior residents in ophthalmology work in the General hospital of a local government to provide eye services under the supervision of his/her consultant. The resident doctor undertakes periodic visitations to the Primary health centers to oversee the activities of the PHC eye-out posts. These will go a long way in providing qualitative eye service to the rural communities in the country and thereby reduce the high prevalence of visual disabilities and blindness in the country. The measures suggested above are some of the ways the noble objectives of the Vision 20-20 can be realized.

CONCLUSIONS

As with other rural communities in the southern parts of Nigeria, visual abnormalities and other ophthalmologic disorders are quite prevalent among subjects in Ogbodo rural community of Rivers state. Low vision, blindness, presbyopia were frequent visual disorders, while glaucoma, allergic conjunctivitis, cataract were the leading eye disorders. Blindness is prevalent and caused predominantly by cataract, optic atrophy and uncorrected aphakia.

The lack of rural eye care service in the Ogbodo community, as has been observed in some other rural communities in Nigeria [4-7] contribute to the high prevalence of visual impairment and blindness in the community. Strategies to improve rural eye care in Nigeria to meet the objectives of Vision 2020 are recommended.

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