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Outcome of vision screening of eye health workers at a tertiary eye hospital in north-western Nigeria

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Received:2016-09-01 Accepted:2017-02-03

尼日利亚西北部三级眼科医院中眼部保健工作者的视力筛查结果

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摘要

目标:评估尼日利亚三级公共眼科医院中眼部保健工作者的眼部健康状况。

方法:基于医院的横断面研究,这项研究中使用自填问卷收集参与研究的工作人员基本的人口统计学信息。每一位受试者都进行了眼部综合检查,包括裸眼或矫正视力、详细的眼前节和眼后节检查,以及使用 Goldman 眼压计测量眼压。有青光眼视神经病变征象的,或周围前房深度小于角膜厚度25%的受试者接受了房角镜检查。可能患有青光眼的人进行了中央视野分析(24-2, SITA Standard)。视力使用 WHO 视力受损分类标准镜像分类。

结果:共有 275 例保健工作人员进行了筛查,其中 176(64%)为非临床工作人员。166 人(60.4%)受调查者是男性,13.1% 有眼部疾病家族史。大部分受访者(86.2%)视力正常(6/18-6/6)。然而 1.5% 的有严重的视力障碍。女性有严重视力障碍的比例更大(3.7% *vs* 0%, $P=0.018$)。然而,我们观察到临床工作人员和非临床工作人员的视力情况无统计学差异($P=0.41$)。右眼和左眼的平均杯盘比分别为 0.42、0.45,两者之间的差异没有显著性($t=-0.882$, $P=0.37$)。右眼和左眼的眼压平均为 14.1、14.0mmHg。右眼眼压和右眼杯盘比之间、左眼眼压和左眼杯盘比之间存在弱相关。老花和屈光不正是受筛查人群中最常见的眼部疾病。有 14 位受访者(5.1%)患原发性开角型青光眼。而 47 人疑患有青光眼。

结论:未矫正的屈光不正、白内障和青光眼是眼部保健工作者中最常见的导致视力障碍的眼部疾病。这项研究强调了定期进行工作人员体检以保证及时的诊断和治疗对患病人员的必要性。

关键词:视力;工作人员;筛查

引用:Ndife T I, Abdullahi SM, Olaniyi S. 尼日利亚西北部三级眼科医院中眼部保健工作者的视力筛查结果. 国际眼科杂志 2017;17(4):615-618

Abstract

• AIM: To assess the ocular health status of eye health workers in a tertiary public eye hospital in Nigeria.

• METHODS: This is a cross sectional hospital-based study in which a self-administered questionnaire was used to collect basic demographic data from the participating staff. Comprehensive ocular examination including presenting visual acuity with glasses if available, details anterior segment and posterior segment evaluations were performed in each patient as well as intraocular pressure measurement using Goldman Applanation Tonometer. People with evidence of glaucomatous optic neuropathy or peripheral anterior chamber depth less 25% of the corneal thickness had gonioscopy performed on them. People suspected to have glaucoma had Central Visual Field analysis (24-2, SITA Standard). Vision was categorised based on WHO classification of visual impairment.

• RESULTS: A total of 275 health workers were screened, out of which 176 (64%) were non-clinical staff. Overall 166 (60.4%) of the respondents were males and 13.1% had family history of ocular disease. Majority of the respondents (86.2%) have normal vision (presenting visual acuity of 6/18-6/6), however 1.5% have severe visual impairment. There were more females with severe visual impairment (3.7% *vs* 0%) ($P=0.018$). However, we observed no significant difference in vision between the clinical and non-clinical staff ($P=0.41$). The mean cup-disc ration (CDR) in the right and the left eye were 0.42 and o.45 respectively. No significant difference between the RE and LE CDR ($t=-0.882$, $P=0.37$). The mean intraocular pressure in the RE and LE were 14.1 and 14.0mmHg. Weak positive correlation was observed between left IOP and left CDR (Pearson coefficient=0.008, $P=0.94$). Presbyopia and refractive error were the commonest ocular morbidities discovered among the screened staff. Fourteen respondents (5.1%) have primary open angle glaucoma (POAG) and 47 were classified as glaucoma suspects.

• CONCLUSION: Uncorrected refractive errors, cataract and glaucoma are the common ocular morbidities responsible for visual impairment among the eye health workers. This study underscores the need for periodic staff screening to enable prompt diagnosis and timely treatment of ocular diseases in the affected staff.

• KEYWORDS: vision; workers; screening
DOI:10.3980/j.issn.1672-5123.2017.4.06

Citation: Ndife TI, Abdullahi SM, Olaniyi S. Outcome of vision screening of eye health workers at a tertiary eye hospital in north-western Nigeria. *Guoji Yanke Zazhi*(*Int Eye Sci*) 2017; 17(4):615-618

INTRODUCTION

Working in the Nigerian health sector is tasking. The work schedule entails reading, writing, teaching and many other visual tasks. Previous studies have demonstrated decline in quality of life and vision-dependent activities with visual impairment[1-3]. Although it is the practice in the hospital for newly employed persons to undergo pre-employment medical examination, comprehensive eye examination before enrolment is not part of the routine pre-employment examination even though the hospital is a specialist eye centre. In a study of ocular problem of retirees in Port Harcourt[4], South-southern Nigeria, 8.1% had severe visual impairment while 17.2% were blind. Cataract and glaucoma were the commonest cause of blindness among the retirees studied. This would have been prevented if detected early during their active service by conducting regular ocular examinations on the public servants. The present study was done to assess the visual status of the eye health workers and to identify the profile of ocular diseases among them with a view to make a possible recommendation to integrate comprehensive eye examination in pre-employment medical check-up. The findings of such examination can also be of help in staff placement and assigning of responsibilities. Treatable ocular disease can as well be identified, treated and the person counselled appropriately.

SUBJECTS AND METHODS

The study is a cross-sectional hospital-based survey of ocular status of the staff of National Eye Centre, Kaduna, in North-Western Nigeria. It was part of glaucoma week activities of 2014. The study protocol was approved by Human Research and Ethics Committee of the hospital and it adhered to the tenets of Helsinki Declaration. Informed consent was obtained from the respondents before enrolment in to the study. Self-administered questionnaires were distributed to the consenting staff to obtain basic demographic data. Presenting visual acuity using Snellen's chart at 6m with glasses if available or pinhole in both eyes was recorded by a trained ophthalmic nurse and comprehensive ocular examination was conducted by two consultant ophthalmologists and one senior registrar. The examination included anterior segment examination using slit lamp biomicroscopy and posterior segment examination with Volk+60D and direct ophthalmoscope. Pupillary reaction, ocular alignment and intraocular pressure using Goldman applanation tonometer were also recorded for each eye. Gonioscopy with G4 mirror was performed in patients with evidence of glaucoma. World Health Organization classification of visual impairment was adapted to categorise the vision of the screened staff[5-6]. Qualitative variables were expressed using percentages and frequency while quantitative using mean and standard deviation. Chi-square test was employed to test for statistical significance in case of qualitative variables and paired student t-test for quantitative variables.

RESULTS

Respondents' Demographic Characteristics A total of 275 health workers were screened, out of which 176 (64%) were non-clinical staff. Overall 166 (60.4%) of the respondents were male and majority were within the age group of 40-49 years. Thirteen (4.8%) had family history of ocular disease.

Clinical Characteristics Majority of the respondents (86.2%) have normal vision (presenting visual acuity of 6/18-6/6), however 1.5% have severe visual impairment by WHO classification. There was a statistically significant difference in visual impairment between male and female respondents ($P=0.018$). However, we observed no significant difference between the clinical and non-clinical staff ($P=0.41$). The mean cup-disc ration (CDR) in the right eye (RE) and the left eye (LE) were 0.42 and 0.45 respectively. No significant difference between the RE and LE CDR ($P=0.37$). The mean intraocular pressure (IOP) in the RE and LE were 14.1 and 14.0mmHg. Weak positive correlation was observed between the right intraocular pressure and right cup-disc ratio (Pearson coefficient = 2.75, $P<0.001$) and between left IOP and left CDR (Pearson coefficient = 0.008, $P=0.94$). Presbyopia and refractive error were the commonest ocular diseases discovered among the screened staff. Fourteen respondents (5.1%) have primary open angle glaucoma (POAG) and 47 were classified as glaucoma suspects. Figure 1 shows age-group distribution of the ocular diseases diagnosed during the screening exercise.

DISCUSSION

In this study 60.4% of the respondents were males. This differs from the 121 male: 280 female ratio of respondents in a similar study at the University of Uyo Teaching Hospital[7]. We noticed that the male staff were more eager to be examined than their female counterparts.

It was observed that majority of the staff are within the age group of 40-49y. This is in the neighbourhood of the average reported among group of workers in Uyo (39.8y)[7], Ughelli (33.6y)[8], Birnin Kebbi (31.7y)[9], Ibadan (48.3y)[10] and Ile ife (41.3y)[11]. This age distribution is expected as the peak of civil service years fall between 30 and 50y.

There was a heterogeneous staff distribution with all the major tribes fairly represented in the respondents. The diverse nature of respondents in this study is desirable as it gives a fair representation of the larger multi-ethnic Nigerian population.

Our study shows refractive error as the commonest cause of ocular disorder significantly so in the 30-39y and 40-49y groups. In the 50-59y group, cataract, glaucoma, retinal complications of systemic diseases competed closely with refractive error.

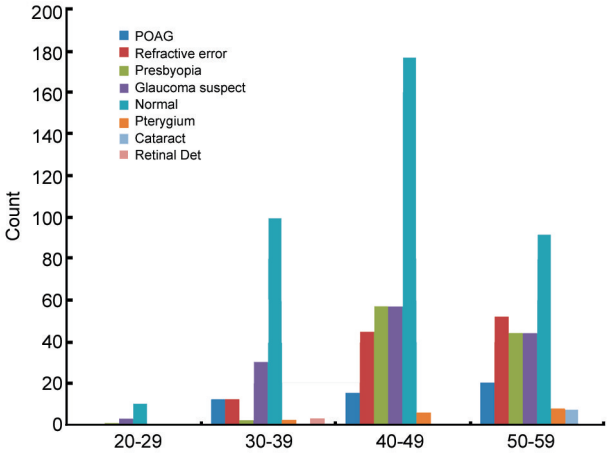

Figure1 Age-group distribution of the ocular diseases.

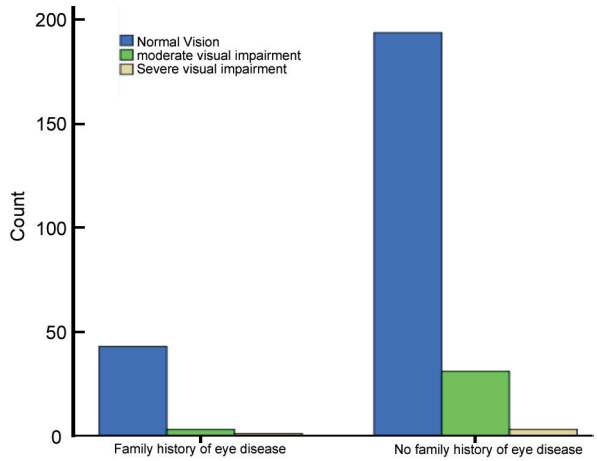

Figure 3 Distribution of visual impairment by family history of ocular disease.

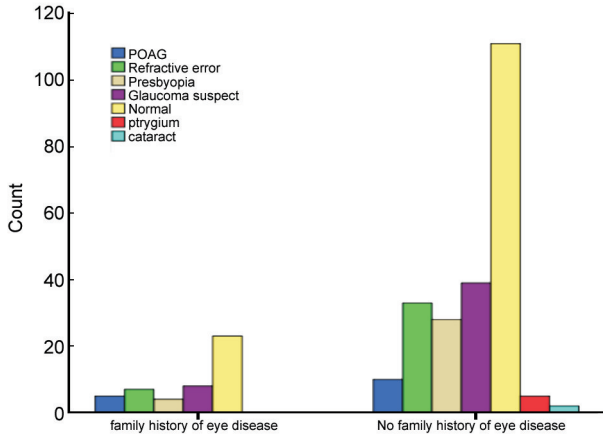

Figure 2 Visual disorders versus family history of ocular diseases.

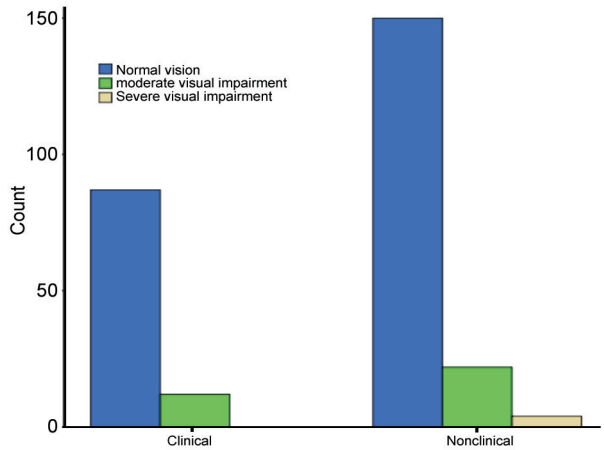

Figure 4 Levels of visual impairment in clinical and non-clinical staff

Our findings are supported by studies at Enugu[12] where 57.6% of industrial workers had refractive error. Furthermore, commercial drivers in a study at Ibadan[10] also had refractive error. In Ghana, Ocansey *et al*[13] reported that 28.8% of mine workers confirmed previous diagnosis of eye diseases with presbyopia as commonest eye condition in 5.2%. They observed 28.1% of respondents had visual impairment but only 1.4% reported previous history of refractive error. Studies from Plateau[14], Abuja[15] and Ekiti[16] in Nigeria reported presbyopia as the commonest refractive error.

From the younger (30-39y) to older (50-59y) age groups of this study uncorrected refractive error is hugely responsible for impaired vision. Uncorrected refractive error up to 41.8% was reported among health workers at Birnin Kebbi[17] and most were not using spectacles because they do not feel the need to do so. Nigerians tend to be presbyopic in their late 30's but postpone use of presbyopic glasses until they cannot perform near-work unaided.

In our cohort, 14 respondents (5.1%) had glaucoma while 47% were glaucoma suspect.

In Ogun and Anambra States 17.1 %[18-19] of blindness was due to glaucoma while at the University of Uyo 1.2% had absolute glaucoma[20], 4.7% glaucoma and 17.7% were glaucoma suspects[7]. In various studies Nwosu and Bodunde[21], a low level of glaucoma awareness and knowledge was reported.

Our facility is a tertiary institution of ophthalmology with glaucoma specialists and state of the art equipment to diagnose glaucoma. This could explain the significant number of suspects who were diagnosed after comprehensive ocular examination and investigations. Staff newly diagnosed with glaucoma were informed of their condition and have already commenced treatment.

Majority of the respondents (64%) were non-clinical staff. There was a 13.1% positive family history of eye diseases.

The non-clinical respondents had significantly more ocular diseases. This group had more untreated cataracts, uncorrected refractive error, presbyopia, glaucoma suspects and pterygium. Some of these ocular diseases could have been treated and cured early in the service years if they had been detected earlier.

It is worthy of note that at the time of this study, most non-clinical staff were having their first ever comprehensive ocular examinations even though they had worked in an exclusively eye hospital for many years.

Uncorrected refractive errors, cataract and glaucoma are the commonest ocular morbidities responsible for visual

impairment among staff of National Eye Centre, Kaduna. Some of them undergo detailed ophthalmic evaluation for the first time in their lives. This study underscores the need for pre-employment and periodic staff screening to enable prompt diagnosis and timely treatment of affected hospital staff to ensure effective health care delivery and reduce visual impairment. This will enhance productivity as most workers need sight for optimal output and spectacles could be used to correct refractive errors.

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