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RETINAL DISEASES IN FEDERAL MEDICAL CENTER OWERRI: A 5 YEAR RETROSPECTIVE REVIEW

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ABSTRACT

INTRODUCTION:
Retinal diseases are among the leading causes of visual impairment and blindness worldwide. However, they are underdiagnosed and undertreated in Nigeria as in other developing countries probably due to paucity of adequately trained manpower and equipment. With the increasing life expectancy and prevalence of non-communicable diseases such as diabetes mellitus and obesity, many patients will develop diabetic retinopathy and invariably sight threatening retinopathies. To adequately plan and develop a vitreoretinal service in our institution, data on the burden of retinal diseases is required and necessary. This study was undertaken to determine the prevalence and pattern of retinal disorders seen in Federal Medical Center, Owerri as evidence for advocacy towards capacity building and the establishment of a vitreoretinal unit in the institution.
METHODS: This was a retrospective, descriptive review of case notes of patients with retinal diseases seen between January 2010 – December 2014 at the Eye Clinic of the Federal Medical Centre, Owerri, Imo State. Data on retinal diseases were analysed using Pearson Chi Square into tables showing percentages and frequency distribution tables according to age and gender. Statistical significance was set at $p \leq 0.05$.
RESULTS: Four hundred and twenty-two patients of the 37,211 cases reviewed had retinal diseases. There were more females than males with a male to female ratio of 0.76 to 1. The mean age was 56.34±7.19SD. The prevalence of retinal diseases was 1.13%. Age-related macular degeneration was the most common retinal disease noted in this study. Retinal diseases occurred more in patients aged 61 years and above than in other age groups. This finding was statistically significant.
CONCLUSION: This study highlighted different retinal diseases identified in this study. ARMD, and non-diabetic maculopathy were the most common conditions recorded. To reduce the burden of visual impairment due to retinal disorders, it is imperative for institutions to establish well-equipped vitreoretinal clinics.
KEY WORDS: Retinal diseases, prevalence, pattern.

INTRODUCTION

Retinal diseases are among the leading causes of visual impairment and blindness worldwide. [1] The common retinal diseases include retinal detachment, age-related macular degeneration (ARMD), diabetic retinopathy, macular hole, retinitis pigmentosa, among others. The prevalence range of retinal diseases is between 10.4% and 21.02% for people aged 40 years and above. [1] Globally, age-related macular degeneration (ARMD) and diabetic retinopathy (DR) are the third and fifth commonest causes of visual impairment and blindness in developed countries, respectively. [1] However, in developing countries such as Nigeria, following cataract, retinal diseases are among the leading causes of visual impairment and blindness. [1,2,3]

In a population-based study carried out in Tehran, the prevalence of retinal diseases was 8.56%, with acquired retinopathies and peripheral retinal lesions being the commonest disorders. [4] Bradley et al [5] in Tanzania, recorded a 22.8% prevalence of vitreoretinal diseases. They found age-related macular degeneration (7%), hypertensive retinopathy (4.5%) and macular scars (2.7%) as the three most common disorders. In Benin, southern Nigeria, retinal detachment (4.5%), macular hole (4.0%), age-related macular degeneration (15.0%), diabetic retinopathy/maculopathy (12.6%), hypertensive retinopathy (8.9%) and retinal vascular occlusion (4.8%) were the retinal disorders identified with retinal detachment accounting for the highest prevalence. [6] A similar study done in Onitsha reported an 8.3% prevalence for retinal detachment. [7]

Retinal disorders are underdiagnosed and undertreated in Nigeria probably due to paucity of adequately trained manpower in the vitreoretinal subspecialty.[5] High cost of purchasing relevant equipment for the diagnosis and management of retinal diseases and focus on eliminating commoner causes of avoidable blindness in developing countries such as Nigeria may have placed lesser emphasis on retinal diseases. However, the burden of non-communicable diseases and their ocular complications particularly diabetic retinopathy (DR), seems to be on the increase[9] in the developed countries. With the increasing prevalence of diabetes mellitus (DM) and obesity in the developing countries, many patients will develop DR and invariably sight threatening retinopathies. To the author's best knowledge, the prevalence of retinal disorders in Imo state is yet to be determined. This study was undertaken to determine the prevalence and pattern of retinal disorders seen in Federal Medical Center, Owerri as evidence for advocacy towards capacity building and the establishment of a vitreoretinal unit in the institution.

Methods: This was a retrospective, descriptive review of case notes of patients with retinal diseases seen between January 2010 – December 2014 at the Eye Clinic of the Federal Medical Centre, Owerri, Imo State. Data on retinal diseases were analyzed into percentages and frequency distribution tables according to age and gender.

RESULTS

In the 5 years under review, 37,211 case notes were retrieved and analyzed. Of these, 419 patients had retinal diseases. There were more females (239) than males (180) with a male to female ratio of 0.75 to 1. The mean age was 56.34±7.19SD. The prevalence of retinal diseases was 1.13%.

Table 1: Age Distribution of Patients

Age range	Frequency	Percentage
< 20 years	19	5.0%
21 – 40 years	60	14.0%
41 – 60 years	146	35.0%
61 years and above	194	46.0%

Most of the patients with retinal diseases were aged 61 years and above followed by the 41-60 years age group.

Table 2: Gender Distribution of Patients

Gender	Frequency	Percentages
Male	180	43.0%
Female	239	57.0%

There were more females with retinal diseases than males.

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Table 3: Pattern and Proportion of Retinal Diseases identified in the review.

Retinal Diseases	Frequency	Percentage
ARMD	169	40.3%
Others	95	22.7%
Non-diabetic maculopathy	53	12.6%
Hypertensive retinopathy	25	6.0%
Diabetic maculopathy	23	5.5%
Retinal detachment	20	4.8%
Diabetic retinopathy	12	2.9%
Retinitis pigmentosa	10	2.4%
Central retinal vein occlusion (CRVO)	8	1.9%
Branch retinal vein occlusion (BRVO)	4	1.0%
Total	419	100%

Majority of the patients had ARMD (169).

Table 4: Frequency Distribution of Retinal Diseases according to Gender.

Retinal diseases	**Male**	**Female**
ARMD	63 (14.9%)	106 (25.1%)
Others	49 (11.6%)	46 (10.9%)
Non-diabetic maculopathy	27 (6.4%)	26 (6.2%)
Hypertensive retinopathy	6 (1.4%)	19 (4.5%)
Diabetic maculopathy	12 (2.8%)	11 (2.6%)
Retinal detachment	7 (1.7%)	13 (3.1%)
Diabetic retinopathy	5 (1.2%)	7 (1.7%)
Retinitis pigmentosa	7 (1.7%)	3 (0.7%)
Central retinal vein occlusion (CRVO)	2 (0.5%)	6 (1.4%)
Branch retinal vein occlusion (BRVO)	2 (0.5%)	2 (0.5%)

Pearson chi-square = 15.593, df = 9 p = 0.076

Some disorders occurred more in females than males. However, these findings were not statistically significant (p – 0.076). In this study, the term "others" included the following: vitreous opacities, vitreous degeneration, post-operative vitritis, other causes of vitritis, asteroid hyalosis.

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Table 5: Frequency Distribution of Retinal Diseases according to Age.

Retinal diseases	< 20 years	21 – 40 years	41 – 60 years	60 years and above
ARMD	0 (0.0%)	4 (0.9%)	45 (10.7%)	120 (28.4%)
Others	10 (2.4%)	20 (4.7%)	39 (9.2%)	26 (6.2%)
Non-diabetic maculopathy	6 (1.4%)	14 (3.3%)	19 (4.5%)	14 (3.3%)
Hypertensive retinopathy	0 (0.0%)	6 (1.4%)	8 (1.9%)	11 (2.6%)
Diabetic maculopathy	1 (0.2%)	4 (0.9%)	12 (2.8%)	6 (1.4%)
Retinal detachment	2 (0.5%)	4 (0.9%)	10 (2.4%)	4 (0.9%)
Diabetic retinopathy	0 (0.0%)	1 (0.2%)	4 (0.9%)	7 (1.7%)
Retinitis pigmentosa	0 (0.0%)	3 (0.7%)	4 (0.9%)	3 (0.7%)
Central retinal vein occlusion (CRVO)	0 (0.0%)	2 (0.5%)	3 (0.7%)	3 (0.7%)
Branch retinal vein occlusion (BRVO)	0 (0.0%)	2 (0.5%)	2 (0.5%)	0 (0.0%)

Pearson chi-square = 108.498, df = 27, p < 0.001

Vitreoretinal diseases occurred more in patients aged 61 years and above than 20 years and below. This finding was statistically significant ($p < 0.001$)

DISCUSSION

More females than males at a ratio of 1: 0.75 reported in this study was lower than that reported in similar studies in Southeast Nigeria [9,10] and Ethiopia [11]. Uhumnwangho et al [6] in South-South Nigeria also reported a female preponderance in their study.
The prevalence of vitreoretinal diseases noted in this study (1.13%) is lower than the 9.8% recorded [10] in a similar hospital-based but multi-centred prospective study involving four (three public and one private) hospitals in Nigeria. Loss of data as seen in retrospective studies as well as cases of missed diagnoses may have accounted for this difference. A much higher prevalence of 22.8% was reported in a population-based study in Tanzania. [5] The difference in methodology may be responsible for the wide disparity noted.

The most common -retinal disorders noted in this study were age-related macular degeneration, and non -diabetic maculopathy. Uhumnwangho et al [6] in a similar study also reported age-related macular degeneration and diabetic retinopathy/maculopathy as the most common -retinal diseases. Both studies were retrospective and hospital-based in design. In contrast, diabetic retinopathy and hypertensive retinopathy were the commonest disorders reported in other studies done in Nigeria and [12] South Asia. [13] The latter suggested high altitudes in Bhutan as a possible reason for this occurrence. In another study also carried out in Nigeria, [14] retinal detachment was reported as the most common vitreoretinal disease followed by diabetic retinopathy, diabetic maculopathy, and diabetic retinopathy with maculopathy. This was a prospective multi-centred study one of which was a retinal referral center. In addition, more than one vitreoretinal disease was reported per eye for the subjects where applicable and in such cases, both diagnoses were recorded.

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ARMD was the most common retinal disease noted in this study. Several studies [5,8,10,14,15] also had similar findings. The adoption of a western lifestyle by developing countries may account for the rising prevalence of ARMD. [10] Unfortunately, the records reviewed did not differentiate between dry and wet(neovascular) ARMD especially since both of them have different prognosis. Early intervention may prevent loss of vision from wet ARMD [16]

Diabetic retinopathy, diabetic maculopathy and retinal detachment were seen in 2.8%, 5.5%, and 4.7% of the study participants, respectively. Higher prevalence of diabetic retinopathy and maculopathy were reported in other studies. [17,18,19] These studies, some of which were population based determined and graded diabetic retinopathy using digital retinal photography contrary to the present study. Grading DR with direct ophthalmoscope or slit lamp biomicroscope with indirect lenses has been found to underestimate diabetic retinopathy. [19] Unfortunately, fundus camera is expensive and rarely available in public hospitals and the prevalence of diabetic retinopathy and diabetic maculopathy is increasing. [20,21,22] It is important to screen and treat patients early to prevent visual loss especially from sight-threatening retinopathy. Screening should therefore be accessible to the patients including those dwelling in rural areas. Non-availability of DR screening programmes, ophthalmologists and retinal specialists have been identified as barriers to DR screening in Africa, in addition to the lack of functional retinal cameras. [20]

Retinal detachment the separation of neurosensory retina from retinal pigment epithelium is the most common disease requiring emergency vitreoretinal surgery .[3] Similar values to the index study was reported in a retrospective study in Benin, Nigeria contrary to the findings in other studies also in Nigeria.[2, 18] There are very few centers in the country with the facilities to treat retinal detachment. This has implications for the uptake of such services as cost and distance are potential barriers to access. In addition, such patients who may be breadwinners are unable to meet up with their socioeconomic obligations. Their quality of life may consequently reduce. [23,24]

Retinal vascular occlusion was noted in 2.8% of patients seen in this study. Similar Nigerian studies also recorded low prevalence of retinal vascular occlusion. [10,25] Ischaemic retinal vascular occlusion requires an aggressive management in order to prevent permanent and debilitating visual loss. This diagnosis is dependent on availability of equipment/support procedures such as Fundus camera, Optical coherence tomography and Fundus fluorescein angiography. Early diagnosis and treatment, laser/ intravitreal injections can prevent visual loss and attendant complications such as neovascular glaucoma. Visual loss from retinal diseases can be avoided or treated with surgical or pharmacological interventions. [3,10] Good visual outcomes can also be achieved with early intervention using adequate/qualified manpower and vitreoretinal equipment. [3,10]

Regarding demographic distribution of retinal diseases, some conditions occurred more in males than females and vice versa. However, this finding was not statistically significant. Increasing age was also found to be associated with a higher prevalence of retinal diseases in this study as in other studies within Nigeria [6,8] and elsewhere. [1]

Diabetic maculopathy, retinal detachment and diabetic retinopathy were high in patients between 41-60 years. At this age, most patients are still in active service, and fending for their families. Any disorder resulting in loss of vision will affect the individuals, their families, and the society at large with implications for the economic development of the country especially in countries where these patients are paid welfare and up-keep allowances. In developing countries these families become dependent on relatives and their children may consequently drop out of school, become house helps or deviants. [26,27]

There is therefore a dire need to train vitreoretinal specialists and develop vitreoretinal clinics in our tertiary institutions particularly in Imo State so as to meet the needs of our patients locally and reduce the barriers of access.

CONCLUSION: This study highlighted different vitreoretinal diseases as seen in Federal Medical Centre, Owerri. ARMD, and non-diabetic maculopathy were the most common conditions recorded. However, diabetic retinopathy and diabetic maculopathy were seen mostly in the working age group. Proper assessment, diagnosis and management of retinal disorders is challenging without expert training and the necessary equipment. Establishment of a well-equipped vitreoretinal unit and manpower development is recommended.

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