Hypertensive retinopathy in Blantyre, Malawi

ORIGINAL RESEARCH

Prevalence and clinical spectrum of hypertensive retinopathy among hypertension clinic patients at Queen Elizabeth Central Hospital in Malawi

Petros Cyrus Kayange1,2, Markus Schulze Schwering1,3, Chatonda Stephen Manda1, Isaac Singini4, Vincent Vershin Phillip Myo4, Johnstone Kumwenda5

1. Ophthalmology Unit, College of Medicine, University of Malawi, Blantyre, Malawi 2. Lions Sight First Eye Unit, Queen Elizabeth Central Hospital, Blantyre, Malawi 3. Tübingen University Eye Hospital, Germany 4. Johns Hopkins Project Research, College of Medicine, University of Malawi, Malawi 5. Trinity Mission Hospital, Nsanje, Malawi

Department of Medicine, College of Medicine, University of Malawi, Blantyre, Malawi

Key words: hypertension, hypertensive retinopathy, sub-Saharan Africa, cardiovascular, stroke

Background
Prevalence and spectrum of hypertensive retinopathy in the population reflects the status of hypertension control and the associated risks for cardiovascular events. We investigated the prevalence and clinical spectrum of hypertensive retinopathy among patients attending hypertension clinic at a tertiary hospital in Malawi.

Methods
This was a cross-sectional study of systematically selected patients attending hypertension clinic at Queen Elizabeth Central Hospital. Patient interviews using a structured questionnaire and review of patients’ medical records (health passports) were done to obtain the following information: demographics, duration since the diagnosis of hypertension, history of stroke and blood pressure measurements. The presence and severity of hypertensive retinopathy was determined by dilated funduscopy through slit lamp biomicroscopy.

Results
We recruited 104 patients. Women outnumbered men by 3:1. Women tended to be younger compared to men (mean ages 54 and 61 years respectively). Of the surveyed patients, 80% had sub-optimal blood pressure control and 75% had evidence of hypertensive retinopathy. The history of stroke was associated with hypertensive retinopathy.

Conclusions
Hypertensive retinopathy is very common in patients attending the hypertension clinic at Queen Elizabeth Central Hospital in Blantyre, Malawi. This may be a reflection of sub-optimal blood pressure control in this patient population. There is a need to identify the actual reasons, rectify them and intensify intervention in control of hypertension in this patient population.

Data collection
A structured interview and review of patients’ medical records was done by a research assistant (a final year medical student) by use of questionnaire in order to obtain the following information: age, sex, occupation, place of residence, duration of hypertension and blood pressure measurements as recorded in patients’ health passports by clinic nurses. Blood pressure is routinely measured and recorded in patients’ health passports by nursing staff on all patients during each clinic visit. The current or most recent blood pressure measurements were recorded.

Fundoscopy was done in both eyes by an ophthalmologist through slit lamp biomicroscopy with an handheld Volk 90 Dipter lens in order to determine the presence and severity of hypertensive retinopathy. Papillary dilatation with Tropicamide eye drops was done before slit lamp examination. Grading of any retinopathy was done according to Mitchell-Wong simplified classification of hypertensive retinopathy.

Data analysis
The data was entered and cleaned using EpiData version 3.1 and exported to the Statistical Package for Social Sciences (SPSS, version 16.0). Exploratory analysis was based on findings from the eye with more severe retinopathy using graphical techniques and frequency distributions. Categorical variables are reported as proportions while continuous variables are reported as means and standard deviation for normally distributed variables and, where appropriate, as median (IQR) for variables with a skewed distribution. Descriptive statistics were run on all baseline covariates and inferential statistics are based on the 5% significance level and 95% confidence interval.

Ethical clearance
The study protocol was approved by the College of Medicine Research Ethics Committee (P08/13/1441). Permission to conduct the study was sought from Queen Elizabeth Central hospital and informed written consent was obtained from all participating patients.

Results
We invited 108 participants to participate in the study out of whom 104 were enrolled. One person declined and three persons were excluded (two patients had insufficient fundus due to dense cataracts and one patient had Uveitis). There were 28 men (26.9%) and 76 women (93.1%). The demographic and clinical characteristics of the study participants are shown in Table 1. Women were significantly younger (p=0.008) and were less likely to have had history of stroke than men (p=0.014). Almost all the study participants 100 (97.1%) were on anti-hypertensive medications at the time of the study. The prevalence of hypertensive retinopathy is shown in Table 2.

Table 1: Demographic and clinical characteristics of the study participants

| Characteristics          | All | Male | Female |
|--------------------------|-----|------|--------|
| Age (years)              | 55.9 (12.8) | 53.9 (12.5) | 59.0 (12.8) |
| Sex                       |       |      |        |
| Male                      | 4 (2 - 8) | 3 (2 - 9) | 5 (17.9%) |
| Female                   | 32 (31.4%) | 24 (23.5%) | 46 (45.1%) |
| BP category (%)           |       |      |        |
| Controlled (<140/90 mm Hg) | 6 (21.4%) | 12 (16.2%) | 18 (17.6%) |
| Grade 1 (mild)           | 9 (28.6%) | 19 (25.7%) | 27 (26.5%) |
| Grade 2 (moderate)       | 5 (17.9%) | 20 (27.0%) | 25 (24.5%) |
| Grade 3 (severe)         | 3 (21.1%) | 3 (21.1%) | 3 (31.4%) |
| On treatment of hypertension (%) | 29 (100.0%) | 12 (96.0%) | 100 (97.1%) |
| History of stroke (%)    | 26 (8.8%) | 7 (9.3%) | 15 (14.8%) |

https://dx.doi.org/10.4314/mmj.v30i3.9

1.008

181
The prevalence of retinopathy was high (75.0%, 95% CI 66.7 – 83.3%) in our setting. Mild hypertensive retinopathy was the most prevalent grade. There were no patients with malignant hypertensive retinopathy.

We also studied the association between the prevalence of retinopathy and factors such as sex, old age, history of stroke, severity and known duration of hypertension. We found that only history of stroke was significantly associated with the prevalence of hypertensive retinopathy among hypertensive persons as was high as 69.4%. The high prevalence of mild hypertensive retinopathy among our study participants is not surprising because there was high prevalence of uncontrolled hypertension. We did not find severe hypertensive retinopathy. We think this was mainly because hypertensive patients with end organ damage such as renal failure and hypertensive heart diseases are seen in renal and chest clinics respectively.

Large population based studies done outside Africa have demonstrated that hypertensive retinopathy is associated with cardiovascular morbidities such as coronary cardiac disease and left ventricular hypertrophy and stroke [10]. We found in our study participants that hypertensive retinopathy was associated with control of hypertension among our study participants that hypertensive retinopathy was as high as 69.4%. The high prevalence of mild hypertensive retinopathy among our study participants is not surprising because there was high prevalence of uncontrolled hypertension. We did not find severe hypertensive retinopathy. We think this was mainly because hypertensive patients with end organ damage such as renal failure and hypertensive heart diseases are seen in renal and chest clinics respectively.

The prevalence of retinopathy in Africa in persons with controlled hypertension was 17.6% with a 95% CI of 11.4 – 23.8% and the prevalence of hypertensive retinopathy in Africa in persons with controlled hypertension was 17.6% with a 95% CI of 11.4 – 23.8% and the prevalence of hypertensive retinopathy in those with uncontrolled hypertension was 66.7 – 83.3% in our setting. Mild hypertensive retinopathy was the most prevalent grade. There were no patients with malignant hypertensive retinopathy.

Large population based studies done outside Africa have demonstrated that hypertensive retinopathy is associated with cardiovascular morbidities such as coronary cardiac disease and left ventricular hypertrophy and stroke [10]. We found in our study participants that hypertensive retinopathy was associated with control of hypertension among our study participants that hypertensive retinopathy was as high as 69.4%. The high prevalence of mild hypertensive retinopathy among our study participants is not surprising because there was high prevalence of uncontrolled hypertension. We did not find severe hypertensive retinopathy. We think this was mainly because hypertensive patients with end organ damage such as renal failure and hypertensive heart diseases are seen in renal and chest clinics respectively.

Large population based studies done outside Africa have demonstrated that hypertensive retinopathy is associated with cardiovascular morbidities such as coronary cardiac disease and left ventricular hypertrophy and stroke [10]. We found in our study participants that hypertensive retinopathy was associated with control of hypertension among our study participants that hypertensive retinopathy was as high as 69.4%. The high prevalence of mild hypertensive retinopathy among our study participants is not surprising because there was high prevalence of uncontrolled hypertension. We did not find severe hypertensive retinopathy. We think this was mainly because hypertensive patients with end organ damage such as renal failure and hypertensive heart diseases are seen in renal and chest clinics respectively.

Large population based studies done outside Africa have demonstrated that hypertensive retinopathy is associated with cardiovascular morbidities such as coronary cardiac disease and left ventricular hypertrophy and stroke [10]. We found in our study participants that hypertensive retinopathy was associated with control of hypertension among our study participants that hypertensive retinopathy was as high as 69.4%. The high prevalence of mild hypertensive retinopathy among our study participants is not surprising because there was high prevalence of uncontrolled hypertension. We did not find severe hypertensive retinopathy. We think this was mainly because hypertensive patients with end organ damage such as renal failure and hypertensive heart diseases are seen in renal and chest clinics respectively.

Large population based studies done outside Africa have demonstrated that hypertensive retinopathy is associated with cardiovascular morbidities such as coronary cardiac disease and left ventricular hypertrophy and stroke [10]. We found in our study participants that hypertensive retinopathy was associated with control of hypertension among our study participants that hypertensive retinopathy was as high as 69.4%. The high prevalence of mild hypertensive retinopathy among our study participants is not surprising because there was high prevalence of uncontrolled hypertension. We did not find severe hypertensive retinopathy. We think this was mainly because hypertensive patients with end organ damage such as renal failure and hypertensive heart diseases are seen in renal and chest clinics respectively.