Hypertensive patients in eye OPD, TUTH

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Abstract

A retrospective hospital-based analysis of cases with systemic hypertension attending the eye out-patient department (OPD), TU Teaching Hospital (TUTH) was done. Out of 56 cases, 30 had hypertensive fundus changes. Twenty per cent of hypertensive patients of less than 6 months duration had fundus changes. Among them 26.6% were not aware that they were hypertensives. More females (40%) had severe grade of hypertensive fundus changes and more of them (43.3%) had uncontrolled hypertension than males. Branch retinal vein occlusion (23.3%) was the most commonly encountered ocular complication of hypertension. Diminution of visual acuity (40%) and a headache (36.7%) were common presenting features of hypertensive patients with fundus changes.

Keywords: Systemic hypertension; hypertensive fundus changes.

Introduction

Hypertension plays an important role in the pathogenesis of a variety of ophthalmic conditions producing severe visual impairment.[1] Similarly, it has been reported that systemic arterial hypotension due to either excessive blood loss or aggressive antihypertensive therapy, may result in severe visual loss resulting from anterior ischaemic optic neuropathy.[2] Population in urban areas have already shown a greater prevalence of obesity and hypertension.[3] Studies have shown that prevalence of hypertension in urban Nepal varies from
5-15%.[4] According to a hospital-based study carried out in a central hospital in Kathmandu, 2.5% of hypertensive patients admitted to the medical ward presented with blurring of vision.[5] It is known that 3.3%
of blindness in Nepal is associated with retinal diseases.[6] There are, however, no definite data to estimate hypertension as a cause for ocular morbidity in the country. All
these facts make the status of systemic blood pressure an important topic for ophthalmologist.

The subject of systemic hypertension
is still the focus of many controversies.[7] Recent studies have revealed that from
the pathogenetic point of view, various fundus lesions in malignant hypertension consist of three distinct categories: **hyper-tensive retinopathy**, **hypertensive optic neuropathy** and **hypertensive choroidopathy**. Retinopathy is the result of changes in retinal vessels. Optic disc oedema and retinal pigment epithelial lesions represent manifestations of hypertensive optic neuropathy and choroidopathy respectively.[8,9,10,11,12] The first and most widely used classification of hypertensive fundus changes has been that of Keith
et al.[13] One of the limitations of this classification is that not all the cases fall into one of the four defined categories.[14]

Methodology

For this study, a total of 56 individuals were included from those attending the Retina Clinic and Department of Ophthalmology, TUTH, over a period of 2 years from September 1993 until August 1995. The cases of cataract and other conditions impairing the fundal clarity, and with other systemic conditions like diabetes mellitus were excluded from this study. Patients were labeled as hypertensive when their blood pressure measured at least twice during two separate occasions after the initial screening was higher than normal. Diastolic pressure of 90 mmHg and systolic of 140 mmHg were considered as the highest normal limits. Already diagnosed cases of hypertension with the diastolic blood pressure below 90 mmHg were taken as cases of hypertension under control.

Patients' identity, presenting complaints, history of treatment and duration of hypertension were recorded. A detailed examination of the eyes was carried out including slit lamp biomicroscopy and fundus examination under mydriatic with a direct ophthalmoscope, indirect ophthalmoscope, +90 D lens and a Goldmann 3-mirror lens whenever necessary. The cases were then divided into two series according to fundus findings. The first group showed no evidence of hypertensive fundus changes - **Group A**, and the second included cases with hypertensive fundus changes - **Group B**. The latter group was further subdivided according to the Keith-Wagener-Barker (KWB) classification of hypertensive retinopathy. The ocular complications of hypertension that did not fall into any of the defined categories of KWB classification were also included in this group but under a different column.

Result

A total of 56 cases were taken for this study. Out of them 26 cases were hypertensive without fundus changes - Group A, and 30 with fundus changes - Group B. Twenty percent of hypertensive patients of less than 6 months duration had fundus changes, whereas only 10% of them with the duration of 10 years and above had such findings. A total of 14 (25%) patients including both

with and without fundus changes were for the first time being discovered to have had hypertension on examination in Eye OPD. Similarly, 26.6%
of patients with fundus changes were
not aware that they were hypertensives (Table I).

Table I: Duration of Hypertension in Patients with (Group B) and without (Group A) Fundus Changes.

Duration	*Group A*	*%*	*Group B*	*%*
<6 months	2	7.70	6	20.00
6 months-1 year	2	7.70	0	0.00
1 year-2 years	2	7.70	1	3.30
2 years-3 years	4	15.40	2	6.70
3 years-4 years	0	0	2	6.70
4 years-5 years	0	0	2	6.70
5 years-6 years	0	0	0	0.00
6 years-7 years	4	15.40	6	20.00
8 years-9 years	0	0	0	0.00
10 years and above	6	23.05	3	10.00
Unaware of existence of hypertension	6	23.05	8	26.60
Total	26	100	30	100

Sex distribution of cases according to grading of hypertensive fundus changes revealed that the females (40%) had more severe grade of fundus changes than males. There was, however, no sex predilection for the complications. Branch Retinal Vein Occlusion (23.30%) was the most commonly encountered ocular complication of systemic hypertension (Table II).

Table II: Sex Distribution of Cases According to Grading of Hypertensive Fundus Changes.

Number of Cases (n=30)				
Keith-Wagener-Barker Grading	*Males*	*%*	*Females*	*%*
Grade I	0	0	0	0
Grade II	3	10.00	2	6.70
Grade III	3	10.00	7	23.30
Grade IV	0	0	3	10.00
Total	6	20.00	12	40.00
Ocular complications of hypertension				
Central Retinal Vein Occlusion	2	6.70	0	0
Branch Retinal Vein Occlusion	1	3.30	6	20.00
Central Retinal Artery Occlusion	1	3.30	0	0
Macroaneurysm	2	6.70	0	0

Total	6	20.00	6	20.00

Out of 30 cases 13 (43.3%) females had uncontrolled hypertension (Table III).

Table III: Comparison of Status of Hypertension in Males and Females with Fundus Changes.

	Males		*Females*		*Total*
	Controlled	*Uncontrolled*	*Controlled*	*Uncontrolled*	
Number of cases	5	7	5	13	30
%	16.7	23.3	16.7	43.3	100

Diminution of visual acuity (40%) and a headache (36.7%) were common presenting features of hypertensive patients with fundus changes (Table IV).

Table IV: Presenting Features of Hypertensive Patients with Fundus Changes.

Presenting features	*No. of Patients*	*%*
Diminution of visual acuity	12	40
Headache	11	36.7
Bachache	2	6.7
Subconjunctival Haemorrhage	1	3.3
Pterygium	1	3.3
Presbyopia	3	10
Total	30	100

Discussion

It has been found that 23.05% of hypertensive patients without fundus changes and 26.60% with fundus changes were not aware prior to examination (in Eye OPD) that they were hypertensives. Ophthalmoscopy can be a useful method of suspecting systemic hypertension though there is no pathognomonic fundus feature in most of the cases. However, focal intraretinal periarteriolar transudates (FIPTs) have been described as specific for malignant arterial hypertension.[1] No such lesions were identified in this study. Keeping in mind the difficulty in recognizing such lesions, a simple way of measuring blood pressure routinely during eye examination of susceptible individuals is crucial to detect arterial hypertension.

So far as the duration of hypertension is concerned, 20% of patients with hypertension of less than 6 months duration and 10% of them with hypertension of more than 10 years duration constituted the group of hypertensive patients with fundus changes. Tables II and III show that more females had uncontrolled systemic hypertension and more of them had severe grade of fundus changes. It is, therefore, understood that the duration of hypertension does not play as much role as the uncontrolled blood pressure does for the development of fundus changes.

Branch retinal vein occlusion was the most commonly encountered ocular complication of systemic hypertension. It can be expected that appropriate blood pressure control could prevent the complications.

Sixty percent of patients with fundus changes of hypertension were females (Table II). As mentioned earlier, 43.3% of them had uncontrolled hypertension (Table III). This can be explained with the assumption that female health is neglected in most of the families. It, therefore, emphasizes the need of activities to increase public awareness on systemic hypertension related ocular complications particularly among the females.

Diminution of visual acuity and a headache were the presenting features in 40% and 36.7% of cases respectively. This finding suggests that suspicion of systemic hypertension should arise especially in patients with these complaints.

Conclusion

A significant number of patients have been for the first time detected to have systemic hypertension on routine eye examination. Duration of hypertension does not play a vital role in the development
of hypertensive fundus changes. Branch retinal vein occlusion is the most common ocular complication of systemic hypertension. Diminution of visual acuity and a headache are the common complaints of hypertensive patients with fundus changes.

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