Epidemiological study of hypertensive retinopathy in the primary care setting: Retrospective review of retinal photographs
Chiang LK, Yau MKC, Ng LV
Family Medicine and General Outpatient Department, Kwong Wah Hospital

Keywords:
Hypertension
Retinopathy
Retinal photograph

Introduction
Hypertension (HT) remains a key risk factor for cardiovascular disease, the largest cause of morbidity and mortality worldwide. Poorly controlled systemic hypertension causes damage to the retinal microcirculation. Recognition of hypertensive retinopathy may be important in cardiovascular risk stratification of hypertensive patients. Several studies have shown that retinal microvascular changes can be reliably documented by retinal photographs. International agencies had recognized retinopathy as hypertensive target end organ damage. This study aims at examine the prevalence and severity of hypertensive retinopathy among those screened hypertensive patients.

Objectives
1. To estimate the prevalence and grading of hypertensive retinopathy in the primary care setting; 2. To examine the patient characteristics associated with hypertensive retinopathy 3. To examine the association of hypertensive retinopathy and other hypertensive complications.

Methodology
This is a retrospective case series review involving all hypertensive patients who had retinal photographs done during the period from January 2010 to December 2013. Patients with comorbidity of diabetes mellitus were excluded. Relevant data, namely smoking status, years of diagnosis of hypertension, co-morbidities and biochemical parameters were retrieved. All retinal photographs were reviewed by 2 family physicians according to Wong and Mitchell classification. Patient’s predictive characteristics associated with hypertensive retinopathy, and the association of hypertensive retinopathy and other hypertensive complications were examined.
Result
278 (35.2%) male and 511 female (64.8%) hypertensive patients were included, with mean (SD) age of 60 (9) years old. The average duration of hypertension was 7.2 years, while 49.2% and 40.8% were taking one and two antihypertensive medications respectively. Three leading associated comorbidities included dyslipidaemia (54.0%), obesity (43.1%) and stroke (3.9%) respectively. The mean (SD) blood pressure was 128.4 (11.5)/75.2 (7.8) mmHg. 1573 retinal photographs (both right and left eye) were qualified for classification. 25.2%, 65.5% and 9.3% were classified as normal, mild and moderate hypertensive retinopathy. No severe retinopathy was reported. The three commonest retinal signs included 736 (46.8%) generalized or focal arteriolar narrowing, 135 (8.6%) opacity (copper wiring) of arteriolar wall and 127 (8.1%) hard exudates. No swelling of the optic disk was reported. Both of bivariate and multivariate regression did not confirm any factors statistically associated with hypertensive retinopathy. This case series revealed that 76% of hypertensive patients had hypertensive retinopathy. Further studies may be conducted to evaluate the relationship of hypertensive retinopathy and cardiovascular complications.