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Advanced hypertensive retinopathy and hypertension complications in the primary care setting: retrospective cross-sectional study

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Introduction

Poorly controlled hypertension (HT) causes damage to the retinal microcirculation, which is important in cardiovascular risk stratification. Studies have shown that hypertensive retinopathy (HTR) changes can be reliably documented by retinal photographs. International agencies had recognized retinopathy as hypertensive target end organ damage.

Objectives

1. To examine the epidemiology of advanced hypertensive retinopathy in the primary care setting; 2. To assess patient predictive characteristics associated with advanced HTR; 3. To assess the association of advanced HTR with other HT complications.

Methodology

This is a retrospective cross-sectional 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, duration of hypertension, co-morbidities and biochemical parameters were retrieved. All retinal photographs were reviewed by 2 family physicians independently according to Wong and Mitchell classification. Hypertension complications or end organ damages are confirmed according to ESH-ESC 2007 guideline. Patient's predictive characteristics associated with advanced hypertensive retinopathy, and the association of hypertensive retinopathy and other hypertension complications were examined.

Result

256 (34.3%) male and 491 female (65.7%) hypertensive patients were included, with mean (SD) age of 59.2 (8.6) years old. The average duration of hypertension was 7.2 years, while 49.8% and 41.2% were taking one and two antihypertensive medications respectively. The leading associated comorbidity was dyslipidaemia (53.3%). The mean (SD) blood pressure was 128.2 (11.5)/75.3 (7.7) mmHg. Among 1491 retinal photographs (744 right eye and 747 left eye), 24.9%, 62.6% and 12.5% were

classified as normal, mild and moderate hypertensive retinopathy. No malignant retinopathy was reported. The three commonest retinal signs included 650 (43.6%) generalized or focal arteriolar narrowing, 168 (11.3%) hard exudates and 166 (11.1%) opacity (copper or silver wiring) of arteriolar wall. 130 patients (17.4%) were concluded to have advanced HTR. Advanced patient age, longer duration of hypertension, taking more antihypertensive agents were statistically significant associated with advanced HTR. Multivariate analyses revealed that patient age statistically significant associated with advanced HTR. The OR (95% CI) was 1.04 (1.02-1.06, P=0.001). Three leading hypertension complication or target organ damage were advanced HTR (17.4%), heart disease (7.1%) and cerebrovascular disease (3.9%). In conclusion, 17.4% hypertensive patients in a primary care clinic of Hong Kong had advanced hypertensive retinopathy, which was the commonest target organ damage for hypertensive patients. Multivariate analysis revealed that patient age was the only factor significantly associated with advanced hypertensive retinopathy.