



Service Priorities and Programmes
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Effect of Blood Pressure on Clinical Outcomes in Chinese Patients with Type 2 Diabetes

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Introduction

Diabetic patients often co-exist with hypertension, which is associated with increased risk of diabetic complications.

Objectives

We investigated the effect of blood pressure on the development of macrovascular and microvascular complications in Hong Kong Chinese patients with type 2 diabetes.

Methodology

A total of 3453 participants with type 2 diabetes were recruited in the study. A comprehensive assessment including blood pressure measurement and biochemical evaluation were carried out for each participant and they were followed until death. All subjects were first divided into two groups, Normal Group (BP < 130/80 mmHg) and Hypertensive Group (BP ≥ 130/80 mmHg) according to their blood pressure taken during clinical assessment. Then further analysis was carried out by dividing subjects into 4 groups: 1) Normal (BP < 120/80 mmHg); 2) Pre-hypertension (BP = 120-139/80-89 mmHg); 3) Stage 1 hypertension (BP = 140–159/90–99 mmHg) and 4) Stage 2 hypertension (BP ≥ 160/100 mmHg) to assess the relationship between complications and severity of hypertension. Primary endpoints included: macrovascular complications defined as stroke and cardiovascular diseases as peripheral vascular disease (PVD), myocardial infarction (MI), angina and heart failure; microvascular complication as renal event defined as a reduction in eGFR by > 50%, progression of eGFR to stage 5, or dialysis. Secondary endpoints included aggregate of cardiovascular endpoints and vascular death; and all-cause mortality. Relative risks of endpoints were calculated by Poisson regression analysis.

Result

There was a 3 to 5 folded increase risk of diabetic complications, including vascular death and all-cause mortality, when blood pressure is greater than 130/80 mmHg. The association persisted after adjustment of sex, age, duration of diabetes, family history, smoking, alcohol drinking, BMI, WHR, HbA1C, FBG, TC, HDL, LDL, TG, plasma urea,

eGFR, ACR, use of ACEIs or ARBs and use of statins and fibrates. More importantly, aggressive control of blood pressure is not necessary for the reduction in risk of complications, as shown by the loss of significance in the subgroup of pre-hypertension. Diabetic patients with hypertension should be treated promptly to reduce the risk of diabetic complications. Treatment target should be <140/90 mmHg for all diabetic patients, or a more aggressive target of <130/80 mmHg for young individuals.