

ESH abstract

Title:

The association between blood pressure and multimorbidity in incident hypertension: a cohort study

Topic:

EPIDEMIOLOGY OF HYPERTENSION AND METABOLIC DISORDERS
(or AGEING or BLOOD PRESSURE VARIABILITY)

Objective

Investigate the trends and association between blood pressure (BP) and a) number of comorbidities, and b) specific comorbidities, in incident hypertension

Design and Method

We used a random 10% sample of the UK Clinical Practice Research Datalink (CPRD), a population-based general practice dataset covering approximately 7% of the UK population and linked to Hospital Episode Statistics (HES). We identified patients diagnosed with incident hypertension in primary care between 2000 to 2014. We examined 22 comorbidities, classified into six categories: cardiometabolic, respiratory, mental illness, musculoskeletal, cancer, haematological. We used linear regression at annual timepoints up to 10 years after diagnosis of hypertension, to estimate the mean difference in systolic and diastolic BP and 95% confidence intervals (CI). The exposure was number of comorbidities, specific comorbidity and disease category. We adjusted for age, sex, socioeconomic status, ethnicity, antihypertensive medications, year of hypertension diagnosis, cholesterol, body mass index and smoking status.

Results

We identified 32,484 patients with incident hypertension. In patients diagnosed with hypertension, systolic blood pressure (SBP) was lower in patients with a higher number of comorbidities, compared to those with only hypertension. At 1 year after hypertension diagnosis, the SBP in patients with one comorbidity was 0.63 (95% CI 0.05 to 1.21) less, and in those with 5 or more comorbidities, was 4.73 (3.39-6.06) less than patients with hypertension alone. This pattern was maintained over time from 1 to 10 years after diagnosis. The greatest difference in SBP was seen in those with cardiometabolic conditions. Diastolic blood pressure (DBP) showed similar patterns and trends to SBP.

Conclusions

There is an inverse relationship between number of comorbidities and BP in incident hypertension. Patients with five or more comorbidities have SBP about 5mmHg less than those without any comorbidities, and this difference is maintained over time. The greatest reductions in BP were seen in those with cardiometabolic conditions. Further research into

reasons behind the association between comorbidities and BP is needed to improve hypertension management in primary care.