Blood pressure and cardiovascular diseases in the Asia Pacific region : Asia Pacific Cohort Studies Collaboration

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Background

The clinical and public health benefits of prolonged blood pressure lowering can be estimated with age-, sex- and region-specific associations of blood pressure with cardiovascular diseases. There are comparatively few such data for the Asia Pacific region.

Methods

The Asia Pacific Cohort Studies Collaboration involved 37 cohort studies from Australia, mainland China, Hong Kong, Japan, New Zealand, Singapore, South Korea, and Taiwan. Individual data from 425,251 participants were used to calculate relative risk estimates and 95% confidence intervals from Cox models, stratified by age, sex, and cohort. Repeat measurements of blood pressure were used to adjust for regression dilution bias.

Findings

During 3,016,157 person-years of follow-up, 4,355 strokes, 2,888 ischaemic heart disease events and 7,251 cardiovascular deaths were observed. Continuous associations were seen between systolic blood pressure and the risks of stroke, ischaemic heart disease and cardiovascular death down to at least 115 mmHg. Overall, in the age groups <60, 60-69, and >70 years, a 10mmHg lower usual systolic blood pressure was associated with 55% (95% CI 53-56%), 44% (41-46%) and 28% (25-31%) lower stroke risk, and 45% (42-48%), 30% (25-34%) and 18% (14-22%) lower ischaemic heart disease risk, respectively. Other major types of cardiovascular death were also strongly associated with blood pressure. Overall, associations were very similar in men and women. Blood pressure was particularly strongly associated with cardiovascular death in Asian populations compared to Australasian populations [10mmHg lower systolic blood pressure associated with 31% (29-32%) lower risk in Asia and 25% (22-27%) lower risk in Australasia], in part due to a higher proportion of strokes in Asia.

Interpretation

About half of the worlds cardiovascular burden is predicted to occur in the Asia Pacific region in the next few decades. These data indicate that blood pressure is a particularly important determinant of this burden, with considerable potential benefit of blood pressure lowering down to levels of about 115 mmHg systolic blood pressure.