Abstract

OBJECTIVES: To estimate age-, sex- and region-specific associations of blood pressure with cardiovascular diseases.

DESIGN: Relative risk estimates and 95% confidence intervals were calculated from Cox models, stratified by sex and cohort, and adjusted for age at risk on individual participant data from 37 cohort studies. Repeat measurements of blood pressure were used to adjust for regression dilution bias.

SETTING: Studies included in the Asia Pacific Cohort Studies Collaboration from Australia, mainland China, Hong Kong, Japan, New Zealand, Singapore, South Korea, and Taiwan.

PARTICIPANTS: A total of 425 325 study participants.

MAIN OUTCOMES MEASURES: Stroke, ischaemic heart disease, total cardiovascular death.

RESULTS: During over 3 million person-years of follow-up, 5178 strokes, 3047 ischaemic heart disease events and 6899 cardiovascular deaths were observed. Continuous log-linear associations were seen between systolic blood pressure and the risks of all three endpoints down to at least 115 mmHg. In the age groups < 60, 60-69, and ≥ 70 years, a 10 mmHg lower usual systolic blood pressure was associated with 54% (95% CI 53-56%), 36% (34-38%) and 25% (22-28%) lower stroke risk, and 46% (43-49%), 24% (21-28%) and 16% (13-20%) lower ischaemic heart disease risk, respectively. All associations were similar in men and women. Blood pressure was at least as strongly associated with cardiovascular events in Asian populations compared to Australasian populations.

CONCLUSIONS: About half of the world's cardiovascular burden is predicted to occur in the Asia Pacific region. Blood pressure is an important determinant of this burden, with considerable potential benefit of blood pressure lowering down to levels of at least 115 mmHg systolic blood pressure.