Cardiovascular diseases (CVDs) include a range of disorders affecting the head (e.g. stroke), belly (aneurism) and legs (peripheral arterial disease), and result in a significant burden on the health of patients and on health services.

Because different CVDs are strongly related, it has been widely assumed that blood pressure has similar associations with different CVDs, and as such CVDs are frequently treated as a single ‘family’ of diseases.

Researchers at The Farr Institute studied how high blood pressure is associated with the risk of developing 12 different CVDs across a wide age range and a wider range of blood pressure values. They analysed data from 1.25 million patients aged 30 years and over from 225 general practices in England and linked these data to patients’ electronic hospital and death records. The linkage of health records provided researchers with a unique opportunity to study the patient pathway from health to milder forms of cardiovascular disease through to major CVD events and death.

The study showed that despite availability of modern preventive medication, the lifetime burden associated with raised blood pressure remains high, and is not limited to the elderly. Contrary to previous beliefs, researchers found that the effect of high blood pressure was not the same for different types of CVD.

For example, systolic blood pressure was strongly related with onset of stroke and stable angina but only weakly related with risk of developing abdominal aortic aneurysm. The study also challenged previous assumptions that the effect of raised systolic blood pressure is the same as raised diastolic blood pressure.

These findings are important because they can help improve strategies for preventing CVDs. Results can also help inform the design of future clinical trials. For example, heart failure and peripheral arterial disease were observed to be common first presentations of CVD, but they are included less frequently as outcomes in blood pressure-lowering trials, which tend to focus on reducing the occurrence of heart attack and stroke.

For more information about cardiovascular diseases visit: www.nhs.uk/Conditions/cardiovascular-disease

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