

Systolic and diastolic blood pressures predict risk of different cardiovascular diseases

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Raised systolic and diastolic blood pressures may have different effects on different types of cardiovascular diseases and at different ages, according to new research involving 1.25 million patients from primary care practices in England published in a special themed issue of *The Lancet*. The issue is published ahead of ahead of Hypertension 2014, the Joint Meeting of the European Society of Hypertension (ESH) and International Society of Hypertension (ISH), to be held in Athens, Greece, June 13-16, 2014.

The new findings suggest that individuals with higher systolic blood pressures have a greater risk of intracerebral haemorrhage (stroke caused by bleeding within the brain tissue), subarachnoid haemorrhage (the deadliest form of stroke), and stable angina, whereas raised [diastolic blood pressure](#) is a better indicator of [abdominal aortic aneurysm](#) risk.

"Our findings do not support the widely held assumptions that systolic and diastolic pressure have similar strong associations with the occurrence of all cardiovascular diseases across a wide age range", explains lead investigator Dr Eleni Rapsomaniki from The Farr Institute for Health Informatics Research, London, UK.

The study is the first to explore the effects of blood pressure on the risk of 12 different [cardiovascular conditions](#) in various age groups as a first presentation of [cardiovascular disease](#).

Researchers examined blood pressure data using the electronic health

records of 1.25 million patients without cardiovascular disease, aged 30 years and older, who were followed for a median 5.2 years to record the first cardiovascular event. They also calculated the lifetime risks of developing specific cardiovascular diseases linked with high blood pressure at age 30 through to 80 years of age.

The findings show that despite modern therapy, the lifetime burden of hypertension remains substantial. For example, in a 30 year old with hypertension (blood pressure $\geq 140/90$ mm Hg), the lifetime risk of developing cardiovascular disease was 63% compared with 46% in an individual with healthy blood pressure, and they developed cardiovascular disease 5 years earlier. Stable and unstable angina accounted for almost half of the loss of time free from cardiovascular disease at this age, whereas heart failure contributed to nearly a fifth of the years lost in individuals 80 years and older.

According to Dr Rapsomaniki, "With lifetime risks this high, the need for new blood pressure lowering strategies is paramount. Our estimates provide vital new information that can be used to improve patient counselling and decision making for people with hypertension, which are currently based mainly on the risks of heart attack and stroke, and will help to focus guidelines and doctors to the cardiovascular conditions that might be more common and in which screening and treatments are more likely to have an effect."*

Writing in a linked Comment, Professor Thomas Kahan from the Karolinska Institutet in Stockholm, Sweden says, "Although the efficacy of antihypertensive drug therapy is undisputed, observational studies suggest that few patients reach target blood pressure. Several steps therefore need to be taken to improve antihypertensive treatment and control: the assessment of global cardiovascular risk in individual patients; improving caregiver organisation, support, and education; increasing drug compliance and treatment persistence to prescribed

treatment; expanding the use of home blood pressure monitoring and 24 h ambulatory [blood pressure](#) monitoring; considering secondary forms of hypertension in difficult-to-treat patients; and referring patients with remaining uncontrolled hypertension to a specialist [hypertension](#) centre."

More information: Paper:

[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(14\)60685-1/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)60685-1/abstract)

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