

# 'Multiplicative' benefit of cholesterol and blood pressure-lowering on cardiovascular risk

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Long-term exposure to the combination of even modestly lower LDL cholesterol (LDL-C) and systolic blood pressure (SBP) has the potential to "dramatically reduce" a person's lifetime risk of cardiovascular disease, according to new findings reported at ESC Congress 2016.

The results, presented in a Hot Line session here, "demonstrate for the first time that LDL cholesterol and SBP have independent, multiplicative, and cumulative causal effects on the risk of [cardiovascular disease](#)," said the study's lead investigator Brian Ference MD, from Wayne State University School of Medicine, in Detroit.

"This suggests that a simple strategy that encourages long-term exposure to the combined reduction of both one mmol/L in LDL-C and 10 mmHg SBP has the potential to "largely eliminate" the [lifetime risk](#) of cardiovascular disease – with a reduction of up to 90 percent.

The study used genetic and [cardiovascular risk factor](#) data from 102,773 individuals who had participated in 14 prospective cohort or case-control studies.

Investigators calculated genetic scores for each patient based on inherited polymorphisms known to be associated of LDL-C or SBP and the number of alleles associated with raised LDL-C or SBP levels.

Participants were then divided into 4 groups: the reference group, a group with an LDL-C genetic score below the median (resulting in lower LDL-C), a group with a SBP genetic score below the median (resulting in lower SBP), and a group with both LDL-C and SBP genetic scores below the median (resulting in both lower LDL-C and lower SBP).

The researchers then looked at the cardiovascular risk associated with the different genetic scores, with the primary outcome being a composite of the first occurrence of either coronary death, non-fatal myocardial infarction (MI), non-fatal stroke, or coronary revascularization.

There were 14,368 primary outcome events among the subjects.

Compared to the reference group, subjects in the lower LDL-C group had 54.2% lower risk of the primary outcome (OR 0.458), those in the lower SBP group had 44.7% lower risk (OR 0.553), and those in the combined lower LDL-C and SBP group had 86.1% lower risk (OR 0.139).

"The results of our study confirm that cardiovascular disease is largely preventable and suggest that this prevention can be substantially simplified by focusing on programs that promote longterm exposure to the combination of both lower LDL and lower SBP," concluded Dr. Ference. He added that "further study is needed to identify who might benefit most from this type of early intervention."

Provided by European Society of Cardiology

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