

BP and cholesterol are associated with vascular mortality

Clinical question Are raised cholesterol levels and high blood pressure associated with an increase in vascular mortality?

Bottom line This study reinforces what we already know: higher cholesterol levels and blood pressure are each associated with an increased risk of vascular mortality. Be careful with these results; this kind of study does not tell us that lowering cholesterol levels and blood pressure will prevent deaths. For that, we would need an intervention trial.

Synopsis These intrepid authors pooled data on nearly 900,000 individual patients enrolled in 61 prospective cohort studies. In these studies, approximately 55,000 patients died. Only 150,000 of the patients had lipid levels available, of whom approximately 5,000 died. The authors evaluated the relationship between cholesterol level, blood pressure, age and gender on vascular mortality (ischaemic heart disease, stroke, and "other"). To reduce undue influence of a few outliers, they excluded patients with "astronomical" cholesterol readings. They do not report how many patients dropped out of the studies or the number of deaths from all causes. They do, however, report many relationships. On the whole, the authors found that the higher the cholesterol level, the greater the risk of vascular death.

They also report a nearly linear risk of vascular mortality that increases as the patient gets older, independent of gender. Blood pressure has a similar relationship and blood pressure and cholesterol have additive effects. In contrast with randomised trials that show statins may decrease stroke risk, lipid levels were weakly and inconsistently associated with stroke deaths. This reinforces the theory that statins may have beneficial effects independent of their effects on lipids.

Level of evidence 1a (systematic review, with homogeneity, of inception cohort studies)

Reference Prospective Studies Collaboration, Lewington S, Whitlock G, Clarke R, et al. Blood cholesterol and vascular mortality by age, sex, and blood pressure: a meta-analysis of individual data from 61 prospective studies with 55,000 vascular deaths. *Lancet* 2007;370:1829-1839.

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