

Personalized blood pressure treatment more effective, study finds

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Patients treated with blood pressure-lowering drugs can experience much greater improvements from a change of medication than from doubling the dose of their current medication. This is shown by a new study from

Uppsala University, published in the *Journal of the American Medical Association (JAMA)*. In this study, 280 patients tested four different blood pressure-lowering drugs over the course of a year.

"The effect of a change of medication can be twice as great as the effect of doubling the dose of the patient's current medication. It was clear in our study that certain [patients](#) achieved lower blood pressure from one drug than from another. This effect is large enough to be clinically relevant," says Johan Sundström, cardiologist and Professor of Epidemiology at Uppsala University, who is the first author of the study.

Most Swedes develop high blood pressure sooner or later; more than two million Swedes have high blood pressure at the present time. Only a fifth of them have managed to bring their blood pressure under control through [drug therapy](#), and some studies suggest that only half of them take their blood pressure medication as intended.

Could this be because the efficacy and side-effects of the drugs differ from individual to individual? Given the great diversity of blood pressure drugs, there is a serious risk that patients will not receive the optimal drug at the first attempt, and that this will result in poor blood pressure lowering and unnecessary side-effects.

A new study at Uppsala University investigated whether there is an optimal blood pressure drug for each individual, and therefore a potential for personalized blood pressure treatment. The study involved 280 patients. All these individuals tested four different blood pressure drugs, one after the other, at several different times over a total period of one year. The researchers saw that the effect of the treatment varied widely from individual to individual and that it was clear that certain patients achieved [lower blood pressure](#) from one drug than from another.

The study's findings challenge the strategy recommended in current

treatment guidelines, in which four drug groups are recommended equally warmly for all patients with [high blood pressure](#).

"If we personalize each patient's [medication](#), we can achieve a better effect than if we choose a drug from one of these four drug groups at random. Our study shows that given the right blood pressure drug, the patient can lower their [blood pressure](#) and as a result can probably obtain better protection against future cardiovascular diseases more quickly," Sundström says.

More information: Sundström J et al, Heterogeneity in blood pressure response to 4 antihypertensive drugs: a randomized clinical trial, *JAMA* (2023). [DOI: 10.1001/jama.2023.3322](https://doi.org/10.1001/jama.2023.3322)

Robert M. Carey, Is Personalized Antihypertensive Drug Selection Feasible?, *JAMA* (2023). DOI: 10.1001/jama.2023.3704 , jamanetwork.com/journals/jama/fullarticle/2803541

Provided by Uppsala University

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