Prospects for novel therapeutic approaches to hypertension

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Hypertension is the most important risk factor for health globally, and a major factor underlying strokes, heart attacks and heart failure. We now have many medicines that are effective in treating high blood pressure (BP), and a wealth of evidence showing that even small BP reductions can substantially reduce cardiovascular risk. Although we have a large number of available medicines for the treatment of hypertension, these are not always well tolerated and there are real opportunities focused on endothelial dysfunction, arterial stiffness and renal injury (with proteinuria), and in high-risk patients, such as those with treatment-resistant hypertension (TRH) and diabetic kidney disease. These include endothelin antagonists, phosphodiesterase inhibitors and guanylate cyclase stimulators. In addition, with the recent evidence of benefits from spironolactone in TRH, and the many adverse effects of exposure to high levels of aldosterone, there may be grounds for more selective approaches to blocking its function. In addition, new drugs for lowering glucose in type-2 diabetes, seem to both lower BP and reduce cardiovascular risk, and might have wider value. One of the major problems with treatment of hypertension is poor adherence to treatment. This has helped to fuel the creation of devices that can control BP therapy independent of the patient, such as renal denervation and baroreceptor activation therapy, remodelling the carotid artery and the creation of arteriovenous shunts. Although initially very promising, and potentially attractive alternatives to medication, there are a number of reasons to think that these agents may have powerful placebo effects, and that to avoid misleading outcomes, clinical trials need to be randomised, blinded and use sham control procedures (see SYMPLICITY HTN-3). Currently, a number of studies are underway and the outcomes are awaited with interest. In summary, there are continued interesting developments in relation to new medicines and devices as effective and well tolerated therapeutic approaches to the treatment of hypertension. The challenges will be cost-effectiveness and added value beyond lowering of BP.