

Blood pressure control: missed opportunity or potential Holy Grail?

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Blood pressure control is a key public health challenge in terms of patient morbidity and mortality from stroke and cardiovascular events and associated healthcare costs. Extensive epidemiological data have strengthened the well-recognised relationship between blood pressure and cardiovascular disease risk and have confirmed the importance of blood pressure as a determinant of risk.(1) However, blood pressure goals are achieved in only 25-40% of the patients who take antihypertensive drug treatment,(2) which is something that has remained unchanged for the last 40 years.(3) This situation may worsen with the recent publication of new lower blood pressure targets(4) which is particularly concerning as hypertension is the leading risk factor for global disease burden.(5)

In this issue, Mills and colleagues report a meta-analysis that assessed the comparative effectiveness of eight implementation strategies for blood pressure control.(6) They reviewed randomized controlled trials lasting at least six months that compared the effect of implementation strategies versus usual care on blood pressure reduction in adults with hypertension. Multilevel, multicomponent strategies, such as team-based care with medication titration by a non-physician clinician, team-based care with medication titration by a physician, and multilevel strategies without team-based care led to reductions in systolic blood pressure of around 7, 6, and 5 mmHg, respectively. Patient-level strategies resulted in systolic blood pressure (SBP) reductions of around 4 mmHg for health coaching and around 3 mmHg for home BP monitoring. Similar trends were observed for diastolic blood pressure (DBP) reduction. Although there were sparse data from low- and middle-income countries, few trials of some implementation strategies such as provider training, and evidence of possible publication bias, it would appear that multilevel, multicomponent strategies, followed by patient-level strategies, are effective and ought to be used to improve blood pressure control.

The message of the current review is similar to that of the seminal Hypertension and Detection Follow-up Program (HDFP) study nearly 40 years ago where an organized system of regular review allied to vigorous antihypertensive drug therapy was shown to reduce blood pressure as well as all-cause mortality(7). The message could not have been clearer with reductions in blood pressure (10 mmHg SBP, 5mmHg DBP) associated with a significant reduction in all-cause mortality (6.4% versus 7.8%, absolute risk reduction [ARR]1.4%).

So why has there been no improvement in our ability to control blood pressure over the last 40 years? The answer seems to lie in the “swamp” that is everyday clinical practice where unreliable blood pressure measurement and polypharmacy with associated patient morbidity seems to challenge adherence at every turn and can create a complicit therapeutic nihilism between patient and healthcare provider.

Observational data seems to support this by demonstrating that new antihypertensive drug therapy is initiated in only 19.5% of episodes of care, despite documented uncontrolled hypertension.(8)

For those of us working in primary care where the majority of blood pressure diagnosis and management occurs, there are encouraging signs that we can rise to the challenge of blood pressure control. Improvements in diagnosis and monitoring have emerged due to the increased use of 24 hour ambulatory blood pressure monitoring coupled with the increased use of financial incentives and reimbursement strategies to encourage use among healthcare providers. The effectiveness of self-monitoring reported by Mills and colleagues is greater when used as a component of multicomponent strategies (up to 6mmHg SBP (9). This is important in light of the fact that self-monitoring is now practiced by up to two thirds of the hypertension population in the US and Europe(10).

Mills and colleagues findings also suggest the superiority of non-physician-led care.(6) We need to facilitate involvement of our non-physician colleagues in helping us control our patients' blood pressure particularly as the most recent guidelines emphasise the importance of a team-based care approach for all adults with hypertension.(4) Yet, doing so will require ceding of control, training of non-physician staff, and development of clear treatment algorithms.

Technologies such as mobile devices for monitoring and transmitting blood pressure measurements over the internet are being increasingly embraced across the globe despite technological challenges and concerns regarding privacy and have triggered many substantial and widespread behaviour changes and better self-management of chronic disease(9). Technology has the potential to enable individuals to take ownership of their own health and healthcare. In addition, technology can provide a space in which patient and healthcare provider can discuss and negotiate a management plan. The flexibility and inherent motivational ability of newer technologies have the potential improve the ability of patients to cope with the vagaries of normal life to facilitate sustained behaviour change. When patients dis-engage from care, mobile platforms mean that the potential for re-engagement is only a "click" or a "swipe" away. Having quality information at their fingertips offers patients tools to improve their blood pressure control particularly now that the usefulness of out-of-office BP measurements for diagnosis and management in conjunction with telehealth counselling has been recommended.(4)

In the context of improved diagnosis and self-monitoring; better practice organization, adoption of team-based care as the norm, and technologies to facilitate care; we finally have the tools to rise to the challenge of improved blood

pressure control. Only time will tell if we will meet that challenge after 40 years of trying.

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Competing interests

We have read and understood the Annals of Internal Medicine policy on declaration of interests and declare the following interests: none.

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