

Home-based telemonitoring and control by patients with hypertension results in greater falls in blood pressure

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Patients with hypertension who monitor their blood pressure at home and adjust their medication according to pre-agreed rules can experience greater falls in blood pressure than patients receiving conventional care. The findings of the TASMINH2 trial are reported in an Article published Online First and in an upcoming *Lancet*, written by Professor Richard J McManus, Primary Care Clinical Sciences, University of Birmingham, UK, and colleagues.

While other studies have assessed telemonitoring and self-adjustment of medication for hypertension separately, TASMINH2 is the first to test the two together and the first to assess self-adjustment on a large scale. Patients assigned to the intervention group were asked to attend two training sessions run by the research team to learn how to use their automated sphygmomanometer ([blood pressure](#) monitor), and how to transmit blood pressure readings to the research team by means of an automated modem device. The modem was connected to the sphygmomanometer and plugged into a normal telephone socket like an answerphone.

Patients made two self-measurements each morning with a 5-min interval, and the second reading was the one acted upon. A traffic light system was used by participants to code these readings as green (below target but above safety limit), amber (above target but within safety limits) and red (outside of safety limits). A month was deemed to be

"above target" if the readings on four or more days were above target. Drug-adjustment (titration) schedules consisting of two changes or increases in medication were agreed between participants in the intervention group and their family doctor at a review visit after training, and included the option of blood tests where required for monitoring angiotensin-converting enzyme (ACE) inhibitors. The family doctor received no specific instruction from the research team about suitable medication changes other than receiving the guidelines from the UK National Institute for Health and Clinical Excellence (NICE) guidelines on blood pressure.

If patients had two consecutive months of readings above target, they were instructed to make medication changes in accordance with the titration schedule by requesting a new prescription without seeing their family doctor. After each set of two changes had been implemented, patients returned to their family doctor for a further titration schedule if blood pressure remained above target. Monthly summaries of each patient's blood pressure readings were sent to their family doctor. Patients with internet access could view their own readings via a dedicated internet site.

Patients in the control group were asked to attend for a review by their family doctor. No specific instructions were given to the clinicians about the content of this visit other than to review blood pressure medication. Thereafter, care was at the discretion of the family doctor.

Target blood pressures for home readings were based on the then current NICE guidelines for hypertension and diabetes, adjusted down by 10/5 mm Hg in accordance with the recommendations of the British Hypertension Society (on the basis that home readings tend to be lower than those taken by a doctor in the local surgery). Home targets were therefore 130/85 mm Hg for patients without diabetes and 130/75 mm Hg for

patients with diabetes.

In this randomised controlled trial, 527 patients were randomly assigned to self-management (n=263) or control (n=264), of whom 480 (91%; self-management 234 patients and control 246) were included in the primary analysis. Mean systolic blood pressure decreased by 12•9 mm Hg from baseline to 6 months in the self-management group, and by 9•2 mm Hg (6•7-11•8) in the control group (a difference between groups of 3•7 mm Hg). After 12 months, systolic blood pressure had decreased by 17•6 mm Hg in the self-management group and by 12•2 mm Hg in the control group (a difference between groups of 5•4 mm Hg). Frequency of most side-effects did not differ between groups, apart from leg swelling (self-management 32% of patients and control 22%).

The authors say: "Self-management of hypertension resulted in significant and worthwhile reductions in blood pressure that were maintained at 6 months and 12 months compared with usual care. These findings seem to be the result of an increase in the number of antihypertensive drugs prescribed according to a simple titration plan. Thus, self-management represents an important new addition to the control of hypertension in primary care."

They add: "Self-management will not be suitable for all patients*. However, even if only 20% of individuals with hypertension self-managed their disorder, this proportion would still represent around 4% of the UK population—ie, more than 2 million individuals."

In an accompanying Comment, Dr Gbenga Ogedegbe, Center for Healthful Behavior Change, New York University School of Medicine, USA, says: "Although findings of the TASMINH2 trial suggest that self-titration of antihypertensive drugs has come of age in terms of its feasibility, safety, and efficacy, its widespread dissemination into primary care practices might be premature until these findings are

replicated by other investigators, especially in low-income, low-literate patients who receive care in low-resource, non-academic settings. While we await the findings from two studies that are currently investigating these issues, the future of telemonitoring plus self-titration as a practice-based strategy for management of patients with uncontrolled hypertension is not far off on the horizon."

Provided by Lancet

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