

Volume 12, 15 June 2012

Publisher: Igitur publishing

URL: <http://www.ijic.org>

URN:NBN:NL:UI:10-1-113058 / ijic2012-78

Copyright: 

Conference abstract

A randomised controlled trial of the use of telemonitoring in the management of high blood pressure

Brian McKinstry, University of Edinburgh, United Kingdom

Janet Hanley, Edinburgh Napier University, United Kingdom

Mary Paterson, University of Edinburgh, United Kingdom

Sarah Wild, University of Edinburgh, United Kingdom

Claudia Pagliari, University of Edinburgh, United Kingdom

Ashma Krishnan, University of Edinburgh, United Kingdom

Andrew Stoddart, University of Edinburgh, United Kingdom

Steff Lewis, University of Edinburgh, United Kingdom

Paul Padfield, University of Edinburgh, United Kingdom

Correspondence to: Brian McKinstry, E-mail: brian.mckinstry@ed.ac.uk

Abstract

Background: High blood pressure is the main reversible risk factor for cardiovascular disease, however, it is difficult to control despite the availability of powerful antihypertensive medications. Self-monitoring of blood pressure alone is no more effective than routine care. This study assessed whether telemetrically supervised self-monitoring in people with poorly controlled hypertension resulted in better blood pressure control compared with usual care.

Methods: This randomised controlled trial was undertaken in 20 general practices in the Scotland. Patients aged >18 years were eligible for enrolment if they had a day-time ambulatory blood pressure (ABPM) of $\geq 135/85$ mmHg and $\leq 210/135$ mmHg and were able to consent. Participants were randomly assigned in a 1:1 ratio to telemonitoring consisting of self-monitoring of blood pressure combined with telemonitoring of home blood pressure measurements by their primary care team or to usual care. Randomisation was done by use of a central web-based system and minimised for age, sex, general practice, use of three or more hypertension drugs and self-monitoring history. Neither participants nor investigators were blinded to group assignment but outcome assessment was blinded. The primary endpoint was average daytime systolic blood pressure at 6 months measured by ambulatory monitoring.

Findings: Four hundred and one participants were randomly assigned to telemonitoring (n=200) or control (n=201), of whom 359 (90%—monitored, n=182; control, n=177) were included in the primary analysis. The difference in mean daytime ambulatory systolic blood pressure at 6 months between the two groups (control minus monitored) was 4.27 mmHg (95% CI 2.0–6.5; p=0.0002), adjusted for baseline systolic blood pressure and minimisation factors. Mean daytime blood pressure fell in both groups, from 146.0 to 140.0 in the monitored group and 146.5 to 144.3 in the control group.

Conclusion: Telemetrically supervised self-monitoring of hypertension results in clinically significant reductions in blood pressure in a group that had previously been difficult to control. It is an important, relatively inexpensive method of managing hypertension in primary care.

Keywords

hypertension, telehealth, randomised controlled trial
