CLINICAL RESEARCH STUDY

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Improving Medication Adherence in Patients with Hypertension: A Randomized Trial

Ulla Hedegaard, MS,[a,b] Lene Juel Kjeldsen, MS, PhD,[c] Anton Pottegård, MS, PhD,[a] Jan Erik Henriksen, MD, PhD,[d] Jess Lambrechtsen, MD, PhD,[e] Jørgen Hangaard, MD, PhD,[e] Jesper Hallas, MD, DMSci[a]

[a]Clinical Pharmacology, Department of Public Health, University of Southern Denmark, Odense, Denmark; [b]Clinical Pharmacy Department, Hospital Pharmacy of Funen, Odense University Hospital, Odense, Denmark; [c]The Danish Research Unit for Hospital Pharmacy, Copenhagen, Denmark; [d]Department of Endocrinology, Odense University Hospital, Odense, Denmark; [e]Department of Internal Medicine, Odense University Hospital - Svendborg, Svendborg, Denmark.

ABSTRACT

BACKGROUND AND PURPOSE: In patients with hypertension, medication adherence is often suboptimal, thereby increasing the risk of ischemic heart disease and stroke. In a randomized trial, we investigated the effectiveness of a multifaceted pharmacist intervention in a hospital setting to improve medication adherence in hypertensive patients. Motivational interviewing was a key element of the intervention.

METHODS: Patients (n = 532) were recruited from 3 hospital outpatient clinics and randomized to usual care or a 6-month pharmacist intervention comprising collaborative care, medication review, and tailored adherence counseling including motivational interviewing and telephone follow-ups. The primary outcome was composite medication possession ratio (MPR) to antihypertensive and lipid-lowering agents, at 1-year follow-up, assessed by analyzing pharmacy records. Secondary outcomes at 12 months included persistence to medications, blood pressure, hospital admission, and a combined clinical endpoint of cardiovascular death, stroke, or acute myocardial infarction.

RESULTS: At 12 months, 20.3% of the patients in the intervention group (n = 231) were nonadherent (MPR <0.80), compared with 30.2% in the control group (n = 285) (risk difference −9.8; 95% confidence interval [CI], −17.3, −2.4) and median MPR (interquartile range) was 0.93 (0.82-0.99) and 0.91 (0.76-0.98), respectively, $P = .02$. The combined clinical endpoint was reached by 1.3% in the intervention group and 3.1% in the control group (relative risk 0.41; 95% CI, 0.11-1.50). No significant differences were found for persistence, blood pressure, or hospital admission.

CONCLUSIONS: A multifaceted pharmacist intervention in a hospital setting led to a sustained improvement in medication adherence for patients with hypertension. The intervention had no significant impact on blood pressure and secondary clinical outcomes.

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Requests for reprints should be addressed to Ulla Hedegaard, MS, Clinical Pharmacology, Department of Public Health, University of Southern Denmark, J.B. Winsløws Vej 19.2, DK-5000 Odense C, Denmark.

E-mail address: uhedegaard@health.sdu.dk

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Treatment of hypertension and dyslipidemia significantly reduces the risk of cardiovascular events and stroke,[1] but poor adherence and nonpersistence to antihypertensive and lipid-lowering agents are common and associated with severe health consequences for patients[2] and substantial costs for society.[3,4]

Interventions for improving medication adherence have been intensively studied for decades,[5-7] but even complex interventions have shown only modest effect.[7] One likely explanation is that nonadherence is multifactorial, thus making a fully effective intervention difficult to achieve.[8] The field of adherence research has therefore moved toward new strategies with individualized rather than standardized adherence interventions[9,10] and team-based care, for example, integrating a clinical pharmacist with particular focus on patients' drug-related problems and adherence behavior.[11-13] One approach with growing evidence for improving medication adherence is counseling based on motivational interviewing.[14]

CLINICAL SIGNIFICANCE

- A 6-month, multifaceted pharmacist intervention in a hospital setting improved adherence to medication for patients with hypertension for at least 12 months.
- The intervention comprised collaborative care, medication review, and adherence counseling including motivational interviewing and telephone follow-ups.
- The improvement in adherence was not associated with a statistically significant impact on clinical outcomes, and cost and effectiveness studies are warranted before routine implementation.

Pharmacist interventions have focused mostly on primary care,[6,12] and only a few researchers have studied motivational interviewing as a tool to improve adherence in hypertension patients in secondary care.[15-17] The aim of this randomized, controlled trial was thus to assess whether a multifaceted pharmacist intervention including collaborative care and motivational interviewing would improve medication adherence, persistence, and clinical outcomes in hypertensive patients treated in secondary care.

METHODS

Study Design, Setting, and Participants

This randomized, controlled trial was conducted at Odense University Hospital, Denmark. Patients with hypertension were included from one cardiology and 2 endocrinology outpatient clinics from December 2012 to July 2013. Patients were followed until 1 year after the first visit at the outpatient clinics.

Patients were eligible if they were 18 years or older and were prescribed at least one antihypertensive agent. Patients were excluded if they lived in a care home, received dose-dispensed medicine from a pharmacy, had medicine dispensed by a home nurse, had terminal illness, had conditions that precluded patient interview (eg, dementia), or lived outside the Region of Southern Denmark (RSD).

The eligible patients were randomized to an intervention group or a control group. The randomization process was performed by the clinical trial group at the hospital pharmacy. Because control subjects required very limited resources, the most rational use of resources to achieve a given statistical precision entailed a skewed randomization. Hence, a 4:5 allocation ratio and computer-generated randomization block sizes of 9 were used. Allocation was concealed in numbered opaque envelopes. Eligible patients were identified from the list of scheduled visits electronically generated 2 weeks before outpatient clinic days.

Patients randomized to the intervention group were mailed written information and an invitation to participate in the study. At the outpatient clinic, the pharmacist provided oral information and if the patient wished to participate, informed consent was obtained. Patients randomized to the control group were not contacted or informed about the study. The study protocol was approved by the Regional Scientific Ethical Committees for Southern Denmark and the Danish Data Protection Agency and registered at ClinicalTrial.gov as NCT01742923.

Usual Care

Both groups received usual care, which included 2-4 outpatient consultations with physicians or nurses per year. At the consultations, a broad range of risk factors, including lifestyle and adherence, were addressed. Blood pressure (BP), blood glucose, and lipid profiles were measured, and adjustments of the medications were made. Clinical pharmacists were not involved in usual care.

Clinical Pharmacist Intervention

The intervention group received usual care and a pharmacist intervention consisting of 3 elements: 1) a medication review focused on identifying drug-related problems for antihypertensive or lipid-lowering agents followed by advice to the physician in charge; 2) a patient interview; 3) 2 or more follow-up telephone calls to the patient within the first 6 months after inclusion.

The dialogue in the interview was based on principles of motivational interviewing.[18] To ensure standardization and to guide the pharmacist in assessing and addressing the various reasons for nonadherence, we used a medication adherence questionnaire validated in Danish users and filled out before the interview,[19] and an adapted version of the