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Research Article

Pharmacist intervention for blood pressure control: medication intensification and adherence

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Abstract

The objective of this study was to describe medication adherence and medication intensification in a physician–pharmacist collaborative management (PPCM) model compared with usual care. This study was a prospective, cluster, randomized study in 32 primary care offices from 15 states. The primary outcomes were medication adherence and anti–hypertensive medication changes during the first 9 months of the intervention. The 9–month visit was completed by 539 patients, 345 of which received the intervention. There was no significant difference between intervention and usual care patients in regards to medication adherence at 9 months. Intervention patients received significantly more medication changes (4.9 vs.1.1; $P = .0003$) and had significantly increased use of diuretics and aldosterone antagonists when compared with usual care ($P = .01$).The PPCM model increased medication intensification; however, no significant change in medication adherence was detected. PPCM models will need to develop non–adherence identification and intervention methods to further improve the potency of the care team. J Am Soc Hypertens 2015;9(7):569–578.

Keywords: Collaboration; hypertension; team-based care.

Introduction

Hypertension has been diagnosed in one of every three American adults.[1] Fortunately, advancements in disease awareness and the advent of newer anti–hypertensive agents have led to increased blood pressure (BP) control rates.[2] An evaluation from the National Health and Nutrition Examination Survey (NHANES) found that BP control increased from 27% in 1988–1994 to 50% in 2007–2008.[3] Although these results show a major improvement, BP is still uncontrolled in 50% of the US population with hypertension.[1,3]

Although the reasons that BP control rates remain suboptimal are complex and multifactorial, the lack of adequate adherence to prescribed medication regimens appears to play an important role. Adherence to pharmacotherapy averages only 50% for chronic illnesses.[4] Further, low medication adherence increases risk for adverse cardiovascular (CV) events (eg, heart failure, myocardial infarction, stroke).[5–8] For example, in a study of outpatients with established coronary heart disease, non–adherent patients, defined as following prescribed medication directions less than 75% of the time, were found to be 2.3 times more likely to have a CV event when compared with their adherent counterparts.[8] Patients from minority populations have higher than average rates of non–adherence and CV events,[9,10] making them an important priority for treatment

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improvement efforts. Accountability for medication adherence is shared by patients, clinicians, their health care team, and the health care system as a whole.[11] The World Health Organization has stated that ''increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments.''[4]

Poor patient adherence and limited access to care are well–cited causes for poor BP control.[12] However, most uncontrolled hypertensive patients have access to health care and have been found to have frequent contact with physicians.[13] Additionally, BP can remain poorly controlled despite up to six physician visits per year.[14,15] Oliveria et al found that patient factors (eg, adherence) were not the most common reason for inadequate BP control.[15] The primary barrier was related to physicians who seemed satisfied with BP values that were not at recommended goals. Practitioner clinical inertia is a significant factor in poor control rates. Medication intensification has proven effective in controlling hypertension, regardless of poor medication adherence.[16]

Team–based care that includes the patient, primary care provider, and other healthcare professionals has been recommended as a strategy to improve BP control.[17] One of these care models, the physician–pharmacist collaborative management (PPCM) model, is a process by which pharmacists work directly with patients' primary care physicians to optimize therapy and supply patient education. The PPCM model has been shown to increase overall BP control and decrease mean BP when compared with usual care models.[18,19] Studies have found that improved BP control following PPCM resulted from improved medication adherence and regimen intensification.[20,21] However, specific mechanisms for improved BP control with PPCM have not been well–described based on randomized, multi–centered effectiveness trials that included large minority populations.[22,23]

The Collaboration Among Pharmacist and Physicians to Improve Outcomes Now (CAPTION) trial, was an effectiveness study to implement PPCM for patients with uncontrolled hypertension. All medical offices had clinical pharmacists embedded in the office who were encouraged to provide proven aspects of the PPCM model to improve BP control. The objective of this study was to describe medication adherence and medication intensification in the PPCM intervention compared with usual care.

Methods

The background study design, baseline data, and main results from the CAPTION trial have previously been reported.[24–26] Briefly, CAPTION was a 5–year, prospective, cluster–randomized, multi–center clinical trial in 32 medical offices from 15 states in the US. Offices were stratified based on the structure of pharmacy services and percent minority patients.[24,27] Offices were then randomized to one of three arms: usual BP care, a 9–month BP intervention, or a 24–month BP intervention. The two intervention arms were designed to be identical for the first 9 months so the a priori analysis plan was to combine the two intervention arms at 9 months and compare them with the usual care.

The primary outcomes of the present sub–study were planned a priori and included medication adherence and anti–hypertensive medication changes during the first 9 months of the intervention.

Physician and Pharmacist Training

All offices had clinical pharmacists on staff (mean, 1.9).[28] Most pharmacists had a PharmD degree (96%) and a postdoctoral residency or fellowship (78%), and covered clinic hours an average of 75% of the time. Seventy percent of offices had clinical pharmacy services for over 5 years.[28]

Providers in offices randomized to the BP intervention arms received training in three main areas: (1) dissemination of the seventh report of the Joint National Committee, pertinent primary literature, and treatment aids[18,22]; (2) strategies to overcome clinical inertia and patient barriers to achieving BP control; and (3) suggested methods of communication and collaboration between physicians and pharmacists. Regional training programs for one pharmacist and one physician investigator from each medical office were conducted. The regional training sessions were led by a physician/pharmacist team from one community–based Family Medicine program that successfully implemented the intervention model in a previous study.[5] These individuals addressed important issues for study offices, encouraged physicians to improve participation, instilled confidence and enthusiasm in team members, and addressed common barriers to treatment implementation and BP control and how they can be overcome. The training sessions discussed strategies to effectively implement the PPCM intervention and focused on strategies found to be most effective to overcome clinical inertia, adverse drug reactions, and poor medication adherence.

Patient Recruitment

The Institutional Review Board for each office approved this study. Patients were included if they: (1) were English or Spanish speaking males or females, over 18 years of age with a diagnosis of hypertension; (2) had uncontrolled BP defined as $\geq$140 mm Hg SBP or $\geq$90 mm Hg DBP for patients with uncomplicated hypertension, or $\geq$130 mm Hg SBP or $\geq$80 mm Hg DBP for patients with diabetes or chronic kidney disease; and (3) received care from one of the participating clinics. In addition, for the purpose of this article, to address medication adherence, only those patients with at least one anti–hypertensive medication at baseline were included in the present analysis.