

Evidence for pharmacist care in the management of hypertension

Valérie Santschi, PharmD, PhD; Ross T. Tsuyuki, BSc(Pharm), PharmD, MSc; Gilles Paradis, MD, MSc

Introduction

Hypertension is a major risk factor for cardiovascular diseases and mortality, affecting about 20% to 30% of North American adults.^{1,2} Although treatment of hypertension can substantially reduce this risk,³ hypertension in primary care remains underdetected, undertreated and poorly controlled.^{2,4,5} For example, despite substantial improvement, half of North American-treated patients with hypertension remain uncontrolled.^{2,4,5}

Innovative models of care are therefore needed to improve patient outcomes, particularly in light of the heavy workload and shortage of family physicians in most health care systems. Some authors advocate a greater use of community-based models of care⁶ with the involvement of nonphysician clinicians, such as pharmacists and nurses, as a promising avenue to improve hypertension care and, more broadly, chronic disease management.⁷⁻⁹

Given their accessibility and drug therapy expertise, pharmacists are a logical choice and a valuable asset to improve hypertension management—alone or via team-based care.^{7,10-13} Indeed, there have been many trials of pharmacist care. We recently combined and updated 2 systematic reviews and meta-analyses of randomized controlled trials evaluating the effect of pharmacist interventions—alone or as part of collaborative care—on blood pressure outcomes among outpatients.^{12,14} Details about the type of pharmacist intervention (including description and frequency), the involvement of other health care professionals within collaborative care setting, the care setting and the characteristics of participants were also examined.¹⁴

The research methods (search strategy, study selection and data extraction) are given in detail in the original publication.¹⁴

Results of the systematic review with meta-analysis

General characteristics of the studies

Thirty-nine randomized controlled trials (RCTs) of pharmacist interventions involving a total of 14,224 outpatients were identified.¹⁴ Most studies ($n = 25$) were conducted in the United States and Canada; 4 studies were conducted in Europe and 10 studies in Australia, Asia and South America. Most interventions were implemented in a community setting: that is, outpatient clinics, primary care physicians' offices and community pharmacies.

Characteristics of interventions

In most studies ($n = 23$), the pharmacist led the interventions. In the other studies ($n = 16$), the pharmacist intervened in close collaboration (team-based care) with physicians (predominantly), nurses or dietitians. Among these 16 studies, only 1 study conducted in Canada examined a community pharmacist and nurse team working collaboratively with patients and primary care physicians.¹¹

The type of pharmacist interventions included the following:

1. Patient education and counseling about lifestyle, medication and patient medication adherence (35 studies)
2. Feedback to health care professionals (including drug-related problem identification; recommendation to

- primary care physician for medication change, team meeting and development of treatment plan) (35 studies)
3. Medication management (including drug monitoring with adjustment or change in medication) (34 studies)
 4. Measurement of blood pressure (13 studies)
 5. Use of a reminder system, such as telephone contact, web services, home visits or adherence aids (12 studies)
 6. Health care professional education, such as training programs

Effect on blood pressure

Pharmacist interventions showed greater reduction in systolic blood pressure of -7.6 mmHg (95% confidence interval [CI] -9.0 to -6.3 mmHg) and in diastolic blood pressure of -3.9 mmHg (95% CI -5.1 to -2.8 mmHg) compared with usual care (i.e., care not involving pharmacist intervention). Interventions led by the pharmacist and conducted at least monthly tended to be more effective. Furthermore, a slightly better effect was noted if the intervention was provided in community pharmacies; however, the difference did not reach statistical significance. Nevertheless, substantial heterogeneity was found in the effect of pharmacist interventions on blood pressure. Indeed, interventions had differential effects on blood pressure—from very large to modest or no effect—and the reasons for this heterogeneity could not be clearly identified.

Overall, the study quality was moderate, with considerable variation in quality between studies. Sixteen studies were considered of relatively high quality. Although some publication bias was detected, further examination suggested that it did not have a large impact on the overall findings.

Discussion

Based on this large systematic review of 39 randomized controlled trials, pharmacist care significantly reduces both systolic and diastolic blood pressure by about $8/4$ mmHg. Placed in an outcomes perspective, this would reduce the risk of stroke by about 30% and myocardial infarction by 20%.¹⁵

Most of the reviewed studies evaluating pharmacist interventions on blood pressure were conducted in the United States and Canada, reflecting an advanced and more successfully implemented role of the pharmacist in these

health care systems compared with other nations' health care systems. Remuneration for services or financial incentives, adequate training for pharmacists and availability of tools for communication between patients and health care professionals can facilitate effective pharmacist interventions. However, these factors were rarely described in the identified studies. Additional research on interventions should be conducted by considering these factors to identify the most efficient, feasible and cost-effective interventions to improve hypertension care among outpatients.

International recommendations and implications for pharmacists in Canada

The 2012 US Preventive Services Task Force recommends team-based care as an effective intervention to improve the quality of hypertension management based on strong evidence of effectiveness.^{16,17} The Canadian Hypertension Education Program (CHEP) also advocates the involvement of pharmacists in hypertension care.¹⁸ The latest edition of the European Society of Hypertension (ESH) and the European Society of Cardiology (ESC) hypertension guidelines highlight pharmacist interventions and a team-based approach for the management of hypertension.¹⁹

In the Canadian context, the potential role of the pharmacist in improving hypertension care has not gone unnoticed. Indeed, engagement of pharmacists is a priority for Hypertension Canada, CHEP, the Hypertension Advisory Committee and the Canadian Pharmacists Association (CPhA). Hypertension care by pharmacists has been identified as the model condition by the Healthcare Innovation Working group of the Premier's meeting of the Council of the Federation (Janet Cooper, Professional and Membership Affairs, CPhA, personal communication, September 2014). To address this need, Hypertension Canada has recently launched an online professional education program (see <https://www.hypertension.ca/en/professional/pep-online>) and is working with CPhA to develop a certification program in hypertension for pharmacists.

Conclusion

Pharmacist care for outpatients with hypertension improves blood pressure, and this is supported by our large systematic review with

meta-analysis—the highest level of evidence available. Pharmacist interventions significantly reduced both systolic and diastolic blood pressure by providing patient education, by writing recommendations to physicians and by managing medication. Indeed, the evidence for pharmacist care in hypertension is overwhelming—what

we need to do now is implement it on a wider scale. Further research is needed to help evaluate strategies to implement the most cost-effective and least time-consuming pharmacist interventions for improving management of hypertension in various health care systems in Canada and abroad. ■

From La Source School of Nursing Sciences (Santschi), University of Applied Sciences Western Switzerland, Lausanne, and the Service of Nephrology (Santschi), Lausanne University Hospital, Lausanne, Switzerland; the Faculty of Medicine and Dentistry (Tsuyuki), University of Alberta, Edmonton, Alberta; and the Department of Epidemiology (Paradis), Biostatistics, and Occupational Health, McGill University, Montreal, Quebec. Contact v.santschi@ecolelasource.ch.

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