Enhancing hypertension awareness and management in the elderly: Lessons learned from the Airdrie Community Hypertension Awareness and Management Program (A-CHAMP)

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BACKGROUND: High blood pressure (BP) is an established and modifiable cardiovascular risk factor; however, awareness and management of this primarily asymptomatic disease remains suboptimal.
OBJECTIVES: The Airdrie Community Hypertension Awareness and Management Program (A-CHAMP) was a community-based BP program for seniors designed to improve public and health care provider awareness and management of hypertension.
METHODS: Volunteer peer health educators (VPHEs) were recruited from the community and trained to manage BP screening sessions in local pharmacies. Airdrie (Alberta) residents 65 years of age and older were invited by their family physicians (FPs) to attend the A-CHAMP sessions. VPHEs identified participants' cardiovascular risk factors, assessed BP with a validated automated device and implemented a management algorithm. Participants with BP higher than 159/99 mmHg were directed to their pharmacists and FPs. All participants with elevated BP at the initial A-CHAMP session were invited to return to a follow-up session four to six months later.
RESULTS: Thirty VPHEs were recruited and trained. All 15 FPs and all six pharmacies in Airdrie participated. VPHEs assessed 406 seniors (approximately 40% of Airdrie seniors) during the three-month program. One hundred forty-eight participants (36.5%) had elevated BP at their first session. Of these, 71% returned for the follow-up session four to six months later. The mean (± SD) systolic BP decreased by 16.9±17.2 mmHg ($P<0.05$, n=105) compared with their first visit, and 56% of participants (59 of 105) reached Canadian targets for BP.
CONCLUSIONS: A-CHAMP raised awareness, and identified and managed seniors with hypertension. At follow-up, BP showed statistically and clinically significant and sustained improvement. Participating health care providers and VPHEs indicated that A-CHAMP was effective and feasible in improving awareness and control of hypertension.

Key Words: *Blood pressure; Hypertension*

Une meilleure sensibilisation à l'hypertension et à sa prise en charge chez les aînés : Leçons tirées du programme A-CHAMP (pour *Airdrie Community Hypertension Awareness and Management Program*)

HISTORIQUE : L'hypertension artérielle (HTA) est un facteur de risque cardiovasculaire reconnu et modifiable. Par contre, la sensibilisation à ce problème pour ainsi dire asymptomatique et sa prise en charge laissent encore à désirer.
OBJECTIF : Le programme A-CHAMP (pour *Airdrie Community Hypertension Awareness and Management Program*) est un programme sur l'HTA basé dans la communauté et à l'intention des aînés qui visait à améliorer la sensibilisation du grand public et des professionnels de la santé au problème de l'hypertension et à l'importance de sa prise en charge.
MÉTHODES : Des pairs volontaires ont été recrutés dans la communauté et formés pour pouvoir tenir des séances de dépistage de l'HTA dans les pharmacies locales. Les résidents d'Airdrie (Alberta) de 65 ans et plus ont été invités par leur médecin de famille (MF) à se présenter aux séances A-CHAMP. Les pairs volontaires ont relevé les facteurs de risque cardiovasculaire des participants, mesuré leur TA au moyen d'un appareil automatique validé et appliqué un algorithme thérapeutique. Les participants dont la TA était supérieure à 159/99 mm Hg ont été orientés vers leurs pharmaciens et MF. Tous les participants dont la TA était élevée lors de la première séance A-CHAMP étaient invités à se présenter de nouveau pour un suivi, quatre à six mois plus tard.
RÉSULTATS : Trente pairs volontaires ont ainsi été recrutés et formés. Les 15 MF et les six pharmacies d'Airdrie ont participé au programme. Les pairs volontaires ont vérifié la TA de 406 personnes âgées (environ 40 % des aînés d'Airdrie) au cours de ce programme de trois mois. Cent quarante-huit participants (36,5 %) avaient une TA élevée lors de leur première séance. Parmi eux, 71 % sont retournés pour leur suivi, quatre à six mois plus tard. Leur TA systolique moyenne (± É.-T.) avait diminué de 16,9±17,2 mm Hg ($P<0,05$, n=105) comparativement à leur première visite et 56 % des participants (59 sur 105) ont ainsi atteint l'objectif de TA visé selon les directives canadiennes.
CONCLUSION : Le programme A-CHAMP a sensibilisé les personnes âgées à l'hypertension et a permis sa reconnaissance et sa prise en charge. Au moment du suivi, l'amélioration de la TA était statistiquement et cliniquement significative et soutenue. La participation des professionnels de la santé et des pairs volontaires a confirmé l'efficacité et la faisabilité du programme A-CHAMP dans le but de mieux faire connaître et traiter l'hypertension.

Elevated blood pressure, or hypertension, is a well established and modifiable risk factor for cardiovascular diseases, including stroke, ischemic heart disease and heart failure (1-9). Approximately 40% of Canadians have hypertension by the age of 55 years (1,3) and for those who do not have hypertension by age of 55 years, the residual lifetime risk of developing hypertension is 90% (8). Hypertension is largely asymptomatic, and over 40% of adults with hypertension are unaware of their condition (10,11). Although awareness is an initial

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and vital step toward optimal control, there are many people diagnosed with hypertension who do not achieve the recommended treatment targets. Indeed, only approximately 16% of Canadians with hypertension are adequately controlled (10).

Improving blood pressure control has been found to be one of the most cost-effective health interventions available (12). It is estimated that a 10% decrease in the prevalence of hypertension would save more than $430 million per year in Canada, but more importantly, it would have a major impact on reducing the incidence of cardiovascular and stroke-related morbidity and mortality (unpublished data). In addition, more than 85% of individuals with diabetes and hypertension are not treated to target blood pressure (13). Because such patients are at higher risk for cardiovascular events, special attention needs to be paid to this group to reach their blood pressure targets. Innovative, population-based community programs focusing on hypertension awareness and management are needed to address this significant diagnosis and treatment gap.

Community mobilization and the use of specially trained senior volunteer peer health educators (VPHEs), in collaboration with pharmacists, physicians and other health care professionals, may be an effective and feasible way of improving patient awareness and management of hypertension (14,15). The Cardiovascular Health Awareness Program (CHAP) (www.chapprogram.ca) (15,16) was a collaborative effort involving community family physicians, VPHEs and pharmacists aimed at raising awareness of hypertension in the senior population. This program was developed and pilot-tested in two Ontario communities by community pharmacies, and it provided assessments of blood pressure and education about hypertension and heart disease to residents 65 years of age and older (15).

Building on the successes and expanding on the scope of the CHAP program in Ontario, the primary objective of the Airdrie Community Hypertension Awareness and Management Program (A-CHAMP) was to further enhance the role of specially trained VPHEs and community pharmacists in facilitating a collaborative management program with family physicians and seniors in a mid-size rural community in Alberta.

METHODS

A community-based hypertension assessment and intervention program was designed for seniors in Airdrie, Alberta. Local VPHEs 55 years of age and older were recruited from the community. They attended two 2 h training sessions, which included education on hypertension and other modifiable cardiovascular risk factors, instruction on how to interpret blood pressure information, as well as screening sessions and hands-on training in blood pressure measurement using the automated BpTRU (see below) device (BpTRU Medical Devices, Canada).

Before the first A-CHAMP session, pharmacists from all six community pharmacies in Airdrie reviewed the contemporary Canadian Hypertension Education Program (CHEP) recommendations for hypertension management (17). All participating pharmacists completed the PHARMALearn hypertension course (18). This is a peer-reviewed, Web-based training program offered through the Office of Continuing Pharmacy Education in the Faculty of Pharmacy and Pharmaceutical Sciences of University of Alberta (Edmonton, Alberta). The PHARMALearn hypertension program uses the CHEP recommendations to review key points in the management of hypertension, including treatment targets and pharmacological therapy. Participants are provided with summaries of the most current relevant evidence to support hypertension treatment recommendations. Pharmacists then attended a special workshop with a clinical pharmacist and a hypertension specialist to review study procedures and the hypertension guidelines using an interactive case management format.

Physicians and pharmacists attended a workshop during which they reviewed the goals of the program, and together refined the methodology to achieve the optimum collaborative communication and management plan.

Residents of Airdrie 65 years of age and older were eligible to participate in the present study if both their family physician and pharmacy were located in the city. Methods of recruitment of seniors in Airdrie to attend pharmacy-based hypertension awareness sessions included personalized invitation letters from primary care physicians, notices in pharmacies and community-wide advertisements. A similar strategy was used to successfully reach 40% of the senior population in two Ontario communities (15).

The A-CHAMP coordinator (DM), based in Airdrie, used the CHAP implementation guide (15) in mobilizing the community to implement A-CHAMP. Blood pressure information sessions were held in each of the six community pharmacies in Airdrie once per week for nine consecutive weeks between September and November 2005. At each session, specially trained VPHEs helped participants measure their blood pressure using the BpTRU device (model BPM 100:VSM; BpTRU Medical Devices). This device is specifically designed to accurately measure blood pressure in the absence of a health care professional and meets the British Hypertension Society (19), the CHEP (20) and the American Association of Medical Instrumentation (21,22) accuracy criteria. The devices were programmed to take six blood pressure measurements at 1 min intervals and display the average of the previous five measurements. The VPHEs used a standardized one-page form to record this blood pressure average and collect information on the participant's cardiovascular risk factors. Completed data forms were faxed to the central Clinforma data centre (23) using a fax-to-database system, which aggregated and cleaned the data, and identified new and returning seniors using demographic variables. All participants were provided with educational materials (the current Canada's Food Guide, Canada's physical activity guide, Health Canada's "Heart disease – info-sheet for seniors" and Heart and Stroke Foundation's "Be Heart Smart" [www.heartandstroke.ca]) and local resources about hypertension and modifiable risk factors for heart disease and stroke. Participants' blood pressure readings were compared with a referral algorithm (Table 1), which gave the VPHEs clear directions for appropriate referral and follow-up. These directions were developed based on the current CHEP recommendations and vetted by a panel of hypertension experts, as well as the local family physicians. The study coordinator (a registered nurse) and a hypertension specialist physician were on-call during the sessions to provide timely advice and notify the patient's physician, if needed. Both the study coordinator and the hypertension specialist carried a pager and, as such, were able to carry on their usual nonstudy activities throughout the duration of the study. Participants were encouraged to attend multiple A-CHAMP sessions at least one week apart between September and November to promote follow-up and further education.

Participants with an elevated blood pressure (defined in the algorithm [Table 1] as a blood pressure higher than 159/99 mmHg on their first visit or higher than 140/90 mmHg on their third visit, a minimum of two weeks after the first visit) were asked to make an appointment with their pharmacist and family physician. The VPHE could facilitate this meeting by approaching the pharmacist with the participant and/or phoning the family physician's office for an appointment. In addition to making appointments with the pharmacist and family physician, all participants with an elevated blood pressure at their first session were invited to attend a final follow-up session held four to six months later, in March 2006. At the end of the study, to close the information loop with family physicians, the Clinforma data centre compiled and sent aggregate reports of participants to each of the 15 family physicians identified by participants as their family physician. Participants were rank-ordered in terms of the most recent systolic blood pressure reading. Pharmacist assessment of participants with elevated blood pressure was divided into three components. First, pharmacists reviewed the participant's medication profile to rule out drug therapy adherence as a barrier to optimal management. The medication possession ratio, combined with patient self-report, was used to determine whether adherence to antihypertensive medications was

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