

Major improvements in the control of hypertension in Canada

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Impressive advances in the treatment of hypertension during the last half century have led to the ability to lower blood pressure effectively and with relatively minor adverse effects. However, the broad use of such treatments has been less than optimal. Fortunately, the picture is changing. The report by McAlister and associates in this issue of *CMAJ* points to the remarkable progress that has been made during a relatively brief period in controlling hypertension in Canada.¹

The study compares blood pressure and self-reported health data from three Canadian population-based surveys of community-dwelling adults conducted in 1986–1992, 2006, and 2007–2009. The surveys showed that there was much improvement between 1992 and 2009 in terms of the awareness (from 56.9% to 82.5%) and treatment (from 34.6% to 79.0%) of hypertension. Furthermore, more than 90% of people who knew that they had hypertension were receiving treatment in 2009, a very high percentage when compared with previous results from Canada and other countries.²

In addition, McAlister and colleagues report a striking improvement in the rate of control of hypertension, from 13.2% in 1992 to 64.6% in 2009. Though this result is impressive, some caveats should be considered regarding the size of the actual changes in the rate of control. In particular, the method for measuring blood pressure was modified from the initial survey, which used a mercury sphygmomanometer, to the two later surveys, which used an electronic oscillometric monitor (the BpTRU device). As McAlis-

ter and coauthors and others have suggested, the BpTRU monitor gives lower values than the standard sphygmomanometer.³ Thus, the values for blood pressure as measured by the BpTRU device were adjusted using a linear regression equation⁴ so that they could be compared with readings from a sphygmomanometer. However, this correction factor was developed using data from a relatively small sample population, and it is unclear how accurately the equation corrects for differences in measurement over a wide range of values. The actual improvement in the rates of control for blood pressure may therefore have been somewhat less than what was reported. Attempts to compare data obtained with the BpTRU device with the data published in studies on the incidence or prevalence of hypertension in other countries may face a similar difficulty. Nevertheless, the changes reported by McAlister and colleagues are remarkable, and any concern about potential bias in measurements should not detract from the impressive gains that have been made.

The average systolic blood pressure among Canadians whose hypertension was being treated was lower in the 2006 and 2007–2009 study cohorts than in the 1992 study cohort, which is a further indicator of the benefits of treatment. These changes in blood pressure probably contributed to the substantial reduction in cardiovascular disease outcomes, particularly stroke and congestive heart failure, that were seen during these periods. The reported level of mean systolic blood pressure compares very favourably with the published data from other countries; however, because of possible differences in the definition of hypertension, the presence or absence of adjustments for age, the nature of the populations surveyed and varied measurement techniques, such comparisons can be misleading.

The treatment of any disease depends on recognition of the disease. Programs aimed at increasing a population's awareness of hypertension have tended to lag in the past few years, with emphasis being placed on treatment rather than recognition. Interestingly, the marked increase in the rate of treatment of hypertension

KEY POINTS

- Between 1992 and 2009, remarkable progress was made in the awareness and treatment of hypertension in Canada.
- The reduction in the average systolic blood pressure during this period probably contributed to the substantial decrease in cardiovascular disease outcomes, particularly stroke and congestive heart failure, that were also seen during this time.
- The establishment of the Canadian Hypertension Education Program in the late 1990s may have helped improve the control of hypertension in Canada in subsequent years.

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over the study period was associated with a similar increase in the percentage of people who became aware of their condition. Programs aimed at educating both the public and clinicians and that emphasize the importance of awareness should remain a critical component of initiatives to control hypertension. Since most people see a physician at least once yearly, the routine measurement of blood pressure on such visits is an important way of increasing the levels of awareness and treatment.

The establishment of the Canadian Hypertension Education Program in the late 1990s may have helped improve the control of hypertension in Canada in subsequent years. The program brought together a variety of health care-related organizations, medical societies and clinical specialties to develop guidelines for managing hypertension and for implementing changes that would help achieve the program's goals.⁴ A similar approach was taken in the United States in 1976, which has led to periodic reports from a joint national committee that updated the guidelines for managing hypertension based primarily on available evidence.⁵ Despite the apparent success of guidelines for treating hypertension, dyslipidemias, congestive heart failure and diabetes, their use has been criticized by some specialists and members of the academic community as being too prescriptive. However, one should realize that the guidelines for managing hypertension involve broad recommendations that are targeted particularly at primary care clinicians who typically see large numbers of patients with hypertension in their practices.

The current Canadian data compare very favourably with figures for the US, where a rate of control of about 50% was recently reported.⁶ Because of the somewhat different approaches used in the US National Health and Nutrition Surveys and the Canadian studies, the significance of the reported differences between countries is uncertain. However, the results from both countries are more favourable than the available data from other nations or regions of the world. Congratulations are in order to the medical societies, federal agencies, public health and community organizations, pharmaceutical firms and physicians and other clinicians whose work made such an achievement possible.

However, much more remains to be done. Many people still have uncontrolled hypertension. With the aging of the population, the prevalence of hypertension will likely increase unless effective measures to prevent its occurrence are instituted. A population-wide adoption of healthier lifestyles that includes reducing the intake of salt, increasing physical activity and managing

weight cannot be implemented without some difficult changes in our society. Although some recent progress has been made in this regard,⁷ improvement has been slow, and the efforts need to be intensified.

References

1. McAlister FA, Wilkins K, Joffres M, et al. Changes in the rates of awareness, treatment and control of hypertension in Canada over the past two decades. *CMAJ* 2011;183:1007-13.
2. Pereira M, Lunet N, Azevedo A, et al. Differences in prevalence, awareness, treatment, and control of hypertension between developing and developed countries. *J Hypertens* 2009; 27:963-75.
3. Myers MG, McInnis NH, Fodor GJ, et al. Comparison between an automated and manual sphygmomanometer in a population survey. *Am J Hypertens* 2008;21:280-3.
4. McAlister FA, Feldman RD, Wyard K, et al.; Campbell NRC for the CHEP Outcomes Research Task Force. The impact of the Canadian Hypertension Education Program in its first decade. *Eur Heart J* 2009;30:1434-39.
5. Chobanian AV, Bakris GL, Black HR, et al.; the National High Blood Pressure Education Program Coordinating Committee. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA* 2003;289:2560-72.
6. Egan BM, Zhao Y, Axon RN. US trends in prevalence, awareness, treatment, and control of hypertension, 1988–2008. *JAMA* 2010;303:2043-50.
7. Chobanian AV. Shattuck Lecture. The hypertension paradox — more uncontrolled disease despite improved therapy. *N Engl J Med* 2009;361:878-87.

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