

CHALLENGES OF HYPERTENSION MANAGEMENT IN THE FRAIL VERY ELDERLY WITH MULTIPLE CO-MORBIDITIES



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Abstract

Managing hypertension in frail, very elderly patients with multiple co-morbidities can be challenging. This article outlines the challenges of managing hypertension in this group, and illustrates an approach to setting an appropriate blood pressure target based on information from practice guidelines and clinical trials.

Résumé

La prise en charge de l'hypertension chez les patients très âgés, fragiles et présentant de multiples comorbidités, peut représenter un défi substantiel. Cet article décrit les défis de la prise en charge de l'hypertension dans ce groupe particulier de personnes âgées. Il illustre également comment définir des cibles appropriées de tension artérielle en se basant sur les informations issues des lignes directrices de pratique et d'études cliniques.

Managing hypertension in frail, very elderly patients with multiple co-morbidities can be challenging. (Frailty denotes a multidimensional syndrome of loss of reserves [energy, physical ability, cognition, health] that gives rise to vulnerability.¹) The Canadian population is aging. By 2036, seniors will account for more than a quarter of the Canadian population. Up to 81% of seniors living in the community have at least one chronic condition and 33% have three or more chronic conditions.² What is the optimal blood pressure target for very elderly patients (defined as aged 80 or older) who are frail and have multiple co-morbidities? The current Canadian and American hypertension guidelines do not have specific recommendations for this patient population.^{3,4} As a result, they are often treated according to the same targets as those used for younger patients. Only recently have a couple of large randomized studies been published that shed light on the management of this group of clinically complex and vulnerable patients.

Case Description

D.S. was an 83-year-old Caucasian male with a complex medical history including hypertension, type 2 diabetes, dyslipidemia, coronary artery disease, osteoarthritis of the knees and hips, and primary atrioventricular block. He had no documented drug allergies. D.S. walked with a

four-wheeled walker and lived alone in an apartment building.

His medications were aspirin 81 mg PO daily, atenolol 100 mg PO daily, amlodipine 5mg PO daily, ramipril 10 mg PO daily, hydrochlorothiazide 25mg PO daily, nitroglycerine 0.6 mg/h patch (1 patch daily), pioglitazone 30 mg PO daily, metformin 1,000 mg PO twice daily, gliclazide 30 mg each morning, Senokot 1 tablet PO daily, ferrous gluconate 300 mg PO three times daily, and calcium carbonate 625 mg PO three times daily.

D.S. came to the clinic reporting several months of fatigue and dizziness. On further clarification, he felt lightheaded mostly when getting out of bed in the morning. He routinely checked his blood pressure at home, but could not recall the readings.

Based on the medical record, this patient's blood pressure readings from previous clinic visits were 122/80 (2 months prior) and 111/68 (3 months prior). His blood pressure reading the day of his visit was 100/56, and his heart rate was 62 bpm. Common causes of fatigue and lightheadedness, such as hypoglycemia, hypothyroidism, and anemia were investigated and ruled out. The patient had recently seen his cardiologist and had had an echocardiogram showing normal left ventricular and valvular function. A recent nuclear stress test had also demonstrated no ischemic changes.

It was concluded that his symptoms of fatigue and lightheadedness were likely a result of low blood pressure. Hydrochlorothiazide was discontinued as this was felt to be the safest option, one that would also not compromise the management of his other co-morbidities. D.S. returned to the clinic 2 weeks later for follow-up. His blood pressure had increased to 136/72. His lightheadedness and fatigue had both resolved.

Discussion

Elderly patients with multiple co-morbidities are increasingly seen and managed in primary care settings.² Although the Canadian Hypertension Education Program (CHEP) guidelines recommend a blood pressure target of 130/80 for patients with diabetes,³ it has not specifically addressed the question of a blood pressure target in the frail, very old patient who has hypertension and diabetes.

A review of the medical literature was undertaken using Ovid MEDLINE. We searched from 1996 to the third week of July in 2012, using the MeSH headings *hypertension, aged (80 and over)* and *co-morbidity*.

Until recently, the benefit of lowering blood pressure in the elderly had been considered controversial. While some studies showed a reduction in mortality, others demonstrated an increased risk of death.⁵ None of the randomized hypertensive studies had enrolled enough patients aged 80 or older to provide a definitive answer about the value of drug therapy in this group.⁶ Previous guidelines had suggested initiating antihypertensive therapy when systolic blood pressure (SBP) was greater than 160, diastolic blood pressure (DBP) was greater than 105, or there was target organ damage.⁵

The HYVET (Hypertension in the Very Elderly Trial) was designed to help clarify some of the controversy above.⁷ This large randomized study included 3,845 patients who were 80 years old and over and whose SBP was 160 or more. The optimal blood pressure target was determined to be 150/80 as it was associated with a reduced risk of death from stroke, death from any cause, and heart failure. In addition, it was found that when blood pressure is severely lowered, ischemic strokes may result.

Although D.S. was over 80 years old, his frailty and multiple co-morbidities made the application of this target blood pressure not so straightforward. For example, most patients in the HYVET were

relatively healthy and did not have multiple co-morbidities. Only 7% of the study subjects had diabetes, in addition to hypertension.

The ACCORD-BP (Action to Control Cardiovascular Risk in Diabetes – Blood Pressure) study showed that in diabetic patients (mean age of 62), targeting an SBP of less than 120, as compared with less than 140, did not reduce the rate of a composite outcome of fatal and nonfatal major cardiovascular events, but instead produced an increase in adverse effects, such as hypotension, bradycardia or arrhythmia, and hyperkalemia.⁸ Patients in the intensive therapy group also demonstrated a higher incidence of creatinine rise. The ACCORD-BP study implies that overtreating hypertension in the diabetic patient can have negative effects and that an SBP target of 140 as opposed to the 130 target set by the CHEP guidelines may be appropriate for patients in their 60s.

A recent study demonstrated that the relationship between hypertension and mortality varied depending on level of frailty as measured by walking speed.⁹ Whereas in faster walkers a high systolic BP was associated with higher mortality, in more frail adults with lower walking speeds neither systolic or diastolic hypertension was associated with a higher mortality. This supports the idea that a higher BP target may be more appropriate for the very elderly, frail patient. In the future, measures of frailty might help us determine the appropriate aggressiveness of blood pressure treatment in the elderly. Extrapolating from the results of these well-designed studies, the decision was made to set our patient's SBP target to more than 130 but less than 150 and to monitor his symptoms.

Conclusion

D.S. represents a group of patients who are frail, very old, and medically complex who are increasingly seen and managed in primary care settings. While most of the clinical practice guidelines mention elderly patients, few of them adequately discuss the management of this clinically complex and vulnerable population. Furthermore, most randomized trials exclude the elderly, especially those of advanced age or with co-morbidities.⁴

This case report demonstrates the challenges of managing hypertension in this group and illustrates an approach to setting an appropriate blood pressure target based on information from practice guidelines and clinical trials.

This article was peer reviewed.

Conflict of interest: None declared.

Key Points

- *The current Canadian and American hypertension guidelines do not have specific recommendations on the optimal blood pressure target and the management thereof in frail very elderly patients.*
- *An increasing number of such patients are being managed in primary care settings.*
- *Using a case report, we examined two recent large randomized studies, HYVET and ACCORD-BP, that explored the most optimal blood pressure targets in the elderly.*
- *Based on the analysis of the studies, we set the systolic blood pressure target in our frail, very old patient to more than 130 but less than 150.*
- *In the future, measures of frailty may be useful in guiding blood pressure targets in the very elderly.*

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