Case report

Drug-related Postural Hypotension: to Withdraw or Not to Withdraw (A Case Series)

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Abstract

Orthostatic hypotension is a common presentation in the primary care setting. Concise management is important as it can lead to falls, particularly in the elderly and can lead to significant morbidity and mortality. Its management presents as a challenge as there are differing guidelines on managing these patients. This case report illustrates two cases of drug-related orthostatic hypotension with similar presentation, however both were managed differently.

Keywords: Orthostatic hypotension, primary care, drug-related, management

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Introduction

Orthostatic hypotension may be cardiovascular and / or neurodegenerative in origin. It is defined as a persistent drop in systolic of more than 20 mmHg and or diastolic blood pressure of more than 10 mmHg upon standing[1]. It may be asymptomatic but its most common symptoms include light-headedness, dizziness, blurred vision, weakness or syncope.

This case report looks at two cases of orthostatic hypotension presented to the primary care clinic with the complaint of dizziness. It summarizes how these two patients initially presented, and how they were managed differently despite having the same underlying issue.

Management includes acquiring a detailed history, performing thorough physical examination and adjustment of the treatment regimens. The management of postural hypotension is absolutely necessary to avoid the possibility of falls secondary to postural hypotension which can lead to significant morbidity especially in the elderly age group. Despite limited resources available in the primary care setting, these two cases were managed well and their issues were subsequently resolved.

Case summary

Case 1:

Mr. H, a 59–year-old man presented with a month history of giddiness on standing. He has underlying hypertension and ischaemic heart disease of which angioplasty was performed three years ago. There were no symptoms of angina or dyspnoea on exertion, paroxysmal nocturnal dyspnoea, orthopnoea, pedal oedema or palpitations prior to this. He was on Cozaar Plus ® (losartan 100mg and hydrochlorothiazide 25mg) and amlodipine 5mg, both were taken as daily doses and at the same time.

The giddiness usually starts about two hours after the anti-hypertensives were taken. Due to the giddiness, he encountered many near fall episodes and this has caused him to be less active than before. Mr. H's home blood pressure monitoring (HBPM) revealed a pre-breakfast blood pressure readings ranging between 136-158/72-80 mmHg while pre-dinner blood pressure readings were 112-128/67-78 mmHg. Repeated examination

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of his blood pressure in the clinic revealed a significant drop in his systolic reading from 143 to 115 mmHg (a difference of 28 mmHg) from sitting to standing. Diastolic blood pressured dropped slightly from 78 to 74mmHg.

To overcome this postural drop, Mr. H agreed to adjust his anti-hypertensives. As his blood pressure monitoring was normotensive, diuretics were omitted and the other two anti-hypertensives, losartan and amlodipine were continued the same. Since then, Mr. H had no longer postural related giddiness. His HBPM showed a pre-breakfast and pre-dinner range of 124-144/72-82 mmHg and 116-126/64-76 mmHg, respectively. Measurement of his blood pressure in sitting and standing after two minutes showed no significant drop in both systolic and diastolic readings. His blood pressure remained normotensive at each of his follow up and he is no longer experiencing giddiness or near fall episode due to postural hypotension.

Case 2:

Mr. D, a 73-year-old man came for his routine diabetes and hypertension follow up. He complaint of giddiness for the past few years, especially upon standing up. He was previously treated with prochlorperazine for this problem. Further history noted the symptom usually peaks around lunch. He is on atenolol 100mg daily, perindopril 8mg daily, amlodipine 5mg daily, metformin 500 mg twice daily and diamicron 40mg twice daily. His cardiovascular systems examination was unremarkable. Resting electrocardiogram was normal while random blood sugar measurements was 6.7mmol/L. Again abnormalities in BP measurements were noted (even without intake of anti-hypertensives) which is summarised in Table 1.

Table 1. Blood pressure measurement pre-intervention (Case 2)

Blood Pressure	SBP (mmHg)	DBP (mmHg)
First occasion		
• Sitting (A)	144	75
• Standing 2min (B)	118	68
• Difference (B-A)	-26	-7
Second occasion		
• Sitting (A)	140	76
• Standing 2min (B)	114	70
• Difference (B-A)	-26	-6

SBP: systolic blood pressure; DBP: diastolic blood pressure

The diagnosis of postural hypotension was made at this point of time. A different strategy was adopted in this case. Mr. D was asked to reduce all his ant-hypertensives doses to half of his current dose and was asked to do HBPM for the next two days. He was also prescribed with prochlorperazine 5mg daily. Upon review three days later, there was significant improvement in patient's symptoms and there was no longer any significant drop in his sitting and standing blood pressure as illustrated in Table 2.

Table 2. Blood pressure measurement on first follow-up (Case 2)

Blood Pressure	SBP (mmHg)	DBP (mmHg)
First occasion		
• Sitting (A)	138	74
• Standing 2min (B)	128	69
• Difference (B-A)	-10	-5
Second occasion		
• Sitting (A)	140	74
• Standing 2min (B)	130	70
• Difference (B-A)	-10	-4

SBP: systolic blood pressure; DBP: diastolic blood pressure

Even though there was no more postural drop in the BP, however he is still having intermittent giddiness. Hence, further adjustment on his anti-hypertensives were made. Timing of the medications were adjusted as follow: oral amlodipine 2.5mg and perindopril 4mg to be taken in the morning and oral atenolol 25mg to be taken at night. Mr. D was then seen three days later. HBPM was as following: pre breakfast ranging from 126-134/70-76 mmHg and pre dinner 132-137/73-78 mmHg. BP measurement in the clinic (without medication intake) is summarised in Table 3.

Table 3. Blood pressure measurement on second follow-up (Case 2)

Blood Pressure	SBP (mmHg)	DBP (mmHg)
First occasion		
• Sitting (A)	128	72
• Standing 2min (B)	124	69
• Difference (B-A)	-4	-3
Second occasion		
• Sitting (A)	130	70
• Standing 2min (B)	126	70
• Difference (B-A)	-4	0

SBP: systolic blood pressure; DBP: diastolic blood pressure

By this visit, his giddiness has resolved. His subsequent follow up three months later also showed no evidence of postural hypotension. He is currently stable on the same anti-hypertensives regime.

Discussion

These two cases demonstrates how a common presentation of giddiness could be a presentation of orthostatic hypotension (OH). It may occur in any age group but more common in elderly. The prevalence of OH varies widely worldwide, from 5% to 34%[2]. This differences in prevalence is associated with different population demography and study protocols[3]. There is a long list of aetiologies related to OH. This includes volume depletion, medication or disorder of cardiovascular, or endocrine system. However, the commoner causes of postural hypotension is iatrogenic whereby drugs like psychotropic, alcohol and anti-hypertensives are the common causes of postural hypotension especially in the elderly[4]. Anti-hypertensives known to cause postural hypotension includes diuretics, calcium channel blocker, beta blockers, methyldopa and nitrates[5].

Thorough assessment must be conducted to avoid mismanagement of the presenting issue. These two cases showed both of these patients were on polypharmacy medications. Thus getting detailed medication list, including both prescription or non-prescription drugs, is somewhat very important to identify the possible cause of postural hypotension. Measurement of lying/sitting and standing blood pressure should be routinely done to all patients who are at risk of postural hypotension such as elderly, hypertensive patients and those on polypharmacy treatments[6].

Generally, treatment of orthostatic hypotension depends on the underlying cause and it should be aimed to improve the functional status and also the symptom that the patient's experienced[6]. Some may benefit from pharmacological treatment but some may not. Education about this condition and the aim of the treatment is important and should be well informed to all patients suffering from OH. In these cases, the cause of OH seems to be due to be iatrogenic. The treatment of postural hypotension secondary to drugs can be very challenging. It requires a complete drug review, adjustment of medications and frequent appointments. The decision to withdraw, withhold, dose reduction or timing adjustment of the anti-hypertensives must be made after considering all aspects. Close monitoring must ensued in order to avoid worsening of the OH or BP control.

Other than adjusting the medications, patients may also benefit from diet modification (increase salt and water intake) and physical activities such as avoid standing for long period, doing isometric exercise, wearing elastic stockings and sleep with slight elevated head[1]. However, some may need medication therapy such as fludrocortisone or midodrine to help alleviate the symptom.

An interesting study showed that while postural hypotension can be dose-dependent when using anti-hypertensive drugs, using natural herbs may not produce similar effects[7,8].

Conclusion

Giddiness is a common presentation of orthostatic hypotension. Inappropriate management of this condition predisposes the patient to fall and may results to significant morbidity and mortality. Therefore it is very important to investigate the cause of OH and treat accordingly. The cause may be the same but the treatment may need to be personalized as long as the aim to improve the symptom, functional status and also harm prevention is achieved.

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Conflict of Interest

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References

1. Ricci F, De Caterina R, Fedorowski A. OrthostaticHypotension: Epidemiology, Prognosis, and Treatment. J Am Coll Cardiol. 2015;66(7):848–60.doi: 10.1016/j.jacc.2015.06.1084.
2. Zhu QO, Tan CSG, Tan HL, Wong RG, Joshi CS, Cuttilan RA, et al. Orthostatic hypotension: prevalence and associated risk factors among the ambulatory elderly in an Asian population. Singapore Med J. 2016;57(8):444–51. doi: 10.11622/smedj.2016135.
3. Low PA. Prevalence of orthostatic hypotension. Clin Auton Res Off J Clin Auton Res Soc. 2008;18Suppl 1:8–13. doi: 10.1007/s10286-007-1001-3.
4. Hakala SM, Tilvis RS. How stable is postural hypotension in the general aged population? Arch Gerontol Geriatr. 1996;23(2):129–38. Available from:https://www.ncbi.nlm.nih.gov/pubmed/15374157.
5. Sathyapalan T, Aye MM, Atkin SL. Postural hypotension. BMJ. 2011;342:d3128. doi: 10.1136/bmj.d3128.
6. Shibao C, Lipsitz LA, Biaggioni I. Evaluation and treatment of orthostatic hypotension. J Am Soc Hypertens JASH. 2013;7(4):317–24. doi: 10.1016/j.jash.2013.04.006.
7. Borhanuddin M. Study of Antihypertensive effects of Ocimum sanctum. Bangladesh Journal of Medical Science. 2016;15(3):357-361.
8. Sohail T, Saleem N, Imran H, Yaqeen Z, urRehman A, Jamil K, Rauf M. Nutritional and toxicological analysis of phoenix dactylifera (date palm) powder used as a drink. Bangladesh Journal of Medical Science. 2018;17(2):263-269