

Education-Family Physician Corner

Severe Asymptomatic Hypertensive: Considerations for Out-patient Practice

Basem Abbas Al Ubaidi, MHPed, Arab Board Family Medicine, Irish Board, Family Medicine*

Physicians in clinical practice are likely to encounter patients with hypertensive crisis, such as systolic blood pressure of 180 mmHg or greater, or diastolic blood pressure of 110 mmHg or greater; physicians need to distinguish between hypertensive emergency from severely asymptomatic hypertension (classified as hypertensive urgency or severe uncontrolled hypertension).

Severe asymptomatic hypertension should be treated progressively with continuous follow-up over weeks to months to reach the anticipated blood pressure target.

Bahrain Med Bull 2014; 36(2):98-100

INTRODUCTION

Hypertension remains an important risk factor for high morbidity and mortality for heart disease and stroke; currently, the global hypertension prevalence is increasing from 40% to 50% in 2025¹⁻³.

Mortality in the Middle East could be attributed mainly to chronic, non-communicable diseases (NCD), such as cardiovascular disease, diabetes, and high blood pressure. NCDs are associated with prevalence of serious risk factors (e.g. obesity, physical inactivity, high salt and energy-dense food). Most hypertension patients remain undiagnosed, while patients with end organ damage (heart diseases, stroke, blindness, and renal disease) could be prevented by adequate blood pressure control⁴⁻⁸.

Hypertensive crises include both hypertensive emergencies and severe asymptomatic hypertension; hypertensive crisis means sustained elevation of systolic blood pressure of more than 179 mmHg or diastolic blood pressure more than 119 mmHg. If a patient presents with symptomatic, end-organ damage, it means hypertensive emergency, if not, it means severe asymptomatic hypertension; it could be categorized as hypertensive urgency or severe uncontrolled hypertension⁹. Presence of risk factors for progressive end-organ damage (e.g. history of congestive heart failure, unstable angina, or preexisting renal insufficiency) is called hypertensive urgency; absence of these risk factors is called severe uncontrolled hypertension¹⁰.

Physicians in clinical practice are likely to encounter patients with hypertensive crisis, which sometimes reaches up to 25% of all patients presenting to emergency departments¹¹. One year and 5 year mortality rates following untreated hypertensive emergency were 80% and 100%.

Consequently, with adequate blood pressure treatment, those mortality rates will decrease to 25% and 50%¹².

* Consultant
Family Physician
Ministry of Health
Kingdom of Bahrain
Email: bahmed1@health.gov.bh

In 2007, the prevalence of hypertension among Bahrainis was 40% in males and 33.7% in females¹³. Moosa et al found an increase in the prevalence of common risk factors for hypertension in Bahrain, see figure 1.

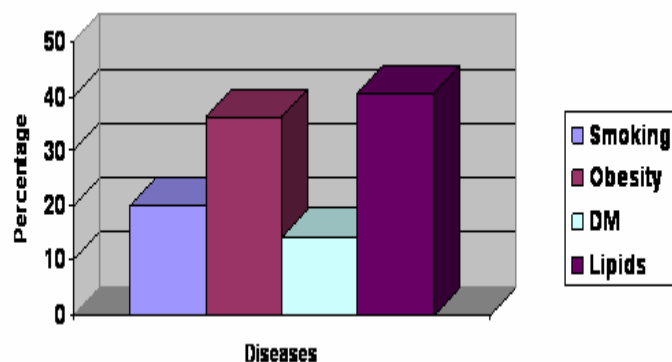


Figure 1: Leading Risk Factors for Hypertension in Bahrain¹⁴

In 2012, NCD was the leading cause of mortality in Bahrain. It reached to one-third of all-cause mortality¹⁵.

Al-Banny et al found that the prevalence of hypertension emergency was 35% in females and 65% in males; consequently, most middle aged patients (45-65 years) were affected¹⁶. There was statistical significance associated with shortness of breath and neurological deficit in hypertensive emergency; headache and blurring of vision in hypertensive urgency. Chmiela et al found smoking, high body mass index (BMI) and patients on single therapy were strong independent risk factors for hypertensive crisis¹⁷.

The following patient is an example of everyday practice in family medicine. Pre-employment people are presenting asymptotically for screening of possible chronic diseases. This patient was chosen to highlight the importance of the following:

- Physician should confirm diagnosis of severe uncontrolled hypertension.
- Physician should stratify patient's risk factors.
- Physician should encourage patient for better lifestyle modification.
- Physician should choose proper evidence-based antihypertensive suitable for patient's condition.

A thirty-year-old housemaid attended the clinic for pre-employment screening. The blood pressure (BP) readings were 210/123; the reading was confirmed with mercury device monitoring.

The patient had no significant history of chronic disease; she had negative signs and symptoms of end-organ damage (shortness of breath, chest pain, numbness/weakness back pain and difficulty in vision or speech). There was no history of using drug inducing Hypertension, see table 1.

Table 1: Drug Induced Hypertention¹⁸

Prescription: ADHD medications (e.g. Methylphenidate), antidepressants (e.g. Venlafaxine, Bupropion, Desipramine), calcineurin inhibitors (e.g. Cyclosporine, Tacrolimus), corticosteroids, estrogens, midodrine, NSAIDs (e.g. ASA, Ibuprofen, Naproxen, Diclofenac, Celecoxib), testosterone, triptans
Non-Prescription: decongestants (e.g. Pseudoephedrine, Phenylephrine), NSAIDs (Ibuprofen, Naproxen), topical ASA or Diclofenac
Herbal: black licorice root, Ginkgo Biloba, St. John's Wort
Recreational: stimulants (e.g. amphetamines like crystal meth or ecstasy), anabolic steroids, caffeine, cocaine, phencyclidine. Energy drinks containing taurine, guarana root, yerba mate, Glucuronolactone, etc.

Measurement of this patient's cardiovascular risk factor based on the National Cholesterol Education Program (NCEP) risk calculator was below 1% of cardiovascular (CVS) event in the next 10 years¹⁹.

Patient's examination revealed no significance; only her body mass index (BMI) was 27. Other potential causes of secondary hypertension had been excluded. This patient is a case of uncontrolled severe hypertensive (without end-organ damage, no risk factor for CVS)¹⁰.

The patient was managed by reassurance of the nature of her disease; she was advised to use the 'DASH' (Dietary Approaches to Stop Hypertension). The diet includes three servings of low-fat dairy foods and eight to ten servings of fruits and vegetables, which was shown to lower the blood pressure and may have another lifesaving benefit and protection against heart disease^{20,21}.

Severe uncontrolled hypertensive is not an emergency and its management is less aggressive; our overall goal of management was to reduce her BP by 25% over 24-48 to keep her BP below 195/110mmHg. The patient was sent home on Thiazide plus ACE inhibitor²².

Patient's blood glucose, electrolytes, TSH, CBC, ECG, urinalysis, renal function were normal.

If a patient presented with severe asymptomatic hypertensive crisis with comorbid conditions, we should consider the use of long-term BP lowering agents, see table 2.

Table 2: Drug Considerations for Long-Term BP Lowering in Severe Asymptomatic Hypertensive^{23, 24}

Comorbid Conditions	Initial Therapy Options
Heart Failure	ACE Inhibitor (or ARB), Beta Blocker (bisoprolol, carvedilol) , Aldosterone Antagonist (spironolactone) ; Thiazide
Post-Myocardial Infarction	ACE Inhibitor (or ARB), Beta Blocker
Isolated Systolic Hypertension	Thiazide, Calcium Channel Blocker; ACE Inhibitor or ARB
Diabetes	ACE Inhibitor (or ARB), Cardio Selective Beta Blocker (if age ≤ 60), Thiazide, Calcium Channel Blocker
Chronic Kidney Disease	ACE Inhibitor (or ARB)

But if a patient presented with hypertensive urgency, we should consider the use of short-term BP lowering agents for a short time followed by long-term BP lowering agents, see table 3.

Table 3: Drug Considerations for Short-Term BP Lowering in Hypertensive Urgency^{23, 24}

Drug	Dose	Advantage	Contraindications (CI)/ Adverse Effects (AE)/ Drug Interactions (DI)/ Comments
Captopril (CAPOTEN) 6.25, 12.5, 25, 50, 100 mg tablets	Acute Dose: 12.5 mg oral/sublingual (repeat 1-2 times at a 30-60min interval) Max: 150mg TID for hypertension Onset: 10-15 minutes (sublingual); 15-30 minutes (oral) Peak Effect: 1 hour (sublingual); 1-2 hours (oral) Duration: 4-8 hours	Benefits for cerebral auto regulation and blood flow. Favorable effect on regional myocardial perfusion. Reduces pre and afterload. No fluid retention. Suitable to be used in chronic management of HF and scleroderma.	CI: bilateral renal artery stenosis; immune-mediated diseases; pregnancy. AE: cough, rash, dizzy, fatigue, angioedema, increase K+, abnormal taste DI: Diuretic K+ sparing, NSAID, Bactrim, Spironolactone. Caution in volume depleted patients and high renin states (patients on diuretics) If >65 years old, consider a low starting dose and titrate. For chronic therapy switch to an ACE-I requiring less frequent dosing is often advantageous.
Clonidine (CATAPRES) 0.1, 0.2, 0.3 mg tablets	Acute Dose: 0.1-0.2 mg orally (can repeat 1-2 hours) Maximum: 0.6-0.8 orally mg/day for acute use Onset: 30-60 minutes Peak Effect: 2-4 hours Duration: 3-12 hours	Decreases heart rate (in about 4% of patients). No increase in myocardial oxygen consumption.	CI: 2nd/3rd degree heart block; caution in HF (due to potential decrease cardiac output). AE: Sedation (up to 50%); orthostatic hypotension; dramatic decrease cerebral blood flow DI: cyclosporine, mirtazapine, TCAs, beta blockers ↑rebound hypertension ↑risk of falls Decrease dose if: >65 years old.
Labetalol (TRANDATE) 100, 200 mg tablets; 5mg/mL vial	Acute Dose: 200-400 mg orally (can repeat 6-12 hours PRN) Maximum: 1200 mg/day orally for hypertension	Favorable cardiac and possible central nervous system effects. Mixed alpha/beta antagonist Used in pregnancy.	CI: HF; reactive airway disease; 2nd/3rd degree heart block AE: fatigue, insomnia, decrease HR, impotence, decrease exercise tolerance, dizzy, cold extremity, bronchospasm , mask & delay symptoms of hypoglycemia, decrease HDL

	Onset: variable (30-120 minutes) Peak Effect: 3-4 hours Duration: 8-12 hours		DI : anti-diabetics; CCB s; clonidine; digoxin; fluconazole, insulin, NSAIDS; phenobarbital, cimetidine. Beta blockers, in general, may have decreased efficacy in the elderly.
--	---	--	---

Rapidly lowering blood pressure in the primary care should be avoided because it is usually unnecessary in asymptomatic patients and may be harmful²⁵.

Repeated follow-up and observation are essential in severe uncontrolled hypertension to reach desired blood pressure goals. The physician should monitor the blood pressure reduction, evaluate signs of hypertension or hypotension, enforce lifestyle interventions and assess the medication adherence or side effect. The blood pressure of the patient showed gradual decrease in the next consecutive weeks, see table 4.

Table 4: Blood Pressure Measurement over one Month Follow-Up²⁶

Day	1 st visit	2 nd visit (3 rd day)	3 rd visit (7 th day)	4 th visit (2 nd week)	5 th visit (4 th Week)
BP	220/123	190/105	180/100	170/ 100	130/ 80

CONCLUSION

Physician should distinguish severe asymptomatic hypertension from hypertensive emergency.

Physician should evaluate patient's cardiovascular risk factors and treat patient less aggressively with fewer risk factors.

Physician should initiate oral medication in patients with severe asymptomatic hypertension before patient discharge.

Physician should not expect patient's blood pressure to decrease to the desired level during the initial visit.

Potential conflicts of interest: None.

Competing interest: None. **Sponsorship:** None.

Submission date: 17 March 2014. **Acceptance date:** 7 April 2014.

Ethical approval: Approved by North Muharraq Health Center, MOH, Bahrain.

REFERENCES

1. Go AS, Mozaffarian D, Roger VL, et al. Heart Disease and Stroke Statistics--2013 Update: A Report from the American Heart Association. *Circulation* 2013; 127(1): e6-e245.
2. Mendis S, Puska P, Norrving B. Global Atlas on Cardiovascular Disease Prevention and Control. Geneva, Switzerland: World Health Organization. Available at: http://www.who.int/cardiovascular_diseases/resources/atlas/en/. Accessed on 6.04.2014.
3. Kearney PM, Whelton M, Reynolds K, et al. Global Burden of Hypertension: Analysis of Worldwide Data. *Lancet* 2005; 365 (9455):217–23.
4. Khakurel S, Agrawal RK, Hada R. Pattern of End Stage Renal Disease in a Tertiary Care Center. *JNMA J Nepal Med Assoc* 2009; 48(174):126-30.
5. Post WS, Hill MN, Dennison CR, et al. High Prevalence of Target Organ Damage in Young, African American Inner-City Men with Hypertension. *J Clin Hypertens* 2003; 5(1):24-30.
6. High Blood Pressure and the Role of Primary Health Care. World Health Statistics 2012. Available at: <http://www.emro.who.int/media/world-health-day/phc-factsheet-2013.html>. Accessed on 6.04.2014.
7. Cuspidi C, Lonati L, Sampieri L, et al. Prevalence of Target Organ Damage in Treated Hypertensive Patients: Different Impact of Clinic and Ambulatory Blood Pressure Control. *J Hypertens* 2000; 18(6):803-9.
8. Neal B, MacMahon S, Chapman N, et al. Effects of ACE Inhibitors, Calcium Antagonists, and Other Blood-Pressure-Lowering Drugs: Results of Prospectively Designed Overviews of Randomised Trials. Blood Pressure Lowering Treatment Trialists' Collaboration. *Lancet* 2000; 356(9246):1955–64.
9. Handler J. Hypertensive Urgency. *J Clin Hypertens (Greenwich)*. 2006; 8(1):61-4.
10. Shayne PH, Pitts SR. Severely Increased Blood Pressure in the Emergency Department. *Ann Emerg Med* 2003; 41(4):513–29.
11. Zampaglione B, Pascale C, Marchisio M, et al. Hypertensive Urgencies and Emergencies. Prevalence and Clinical Presentation. *Hypertension* 1996; 27(1):144–7.
12. Webster J, Petrie JC, Jeffers TA, et al. Accelerate Hypertension—Patterns of Mortality and Clinical Factors Affecting Outcome in Treated Patients. *Q J Med* 1993; 86(8): 485–93.
13. National Non-communicable Diseases Risk Factors Survey 2007. Available at: http://www.moh.gov.bh/pdf/publications/X_2812013135226.pdf. Accessed on 6.4.2014.
14. Moosa K, Ghareeb N, Al Sairafi M, et al. National Nutrition Survey for Adults Bahrainis Aged 19 Years and Above. http://www.moh.gov.bh/PDF/survey/nut_survey1.pdf. Accessed on 6.4.2014.
15. Health Statistics 2010. Summary Statistics. Available at: http://www.moh.gov.bh/PDF/Publications/statistics/HS2012/PDF/Chapters/CH01-summary_2012.pdf. Accessed on 6.04.2014.
16. Al-Banny R, Hussain AA. Hypertensive Crisis: Clinical Presentation, Comorbidities and Target Organ Involvement. *Saudi Med J* 2010; 31(8):916-20.
17. Chmiel C, Wang M, Senn O, et al. Uncontrolled Arterial Hypertension in Primary Care—Patient Characteristics and Associated Factors. *Swiss Med Wkly* 2012 30; 142:w13693.
18. Hardy YM, Jenkins AT. Hypertensive Crises: Urgencies and Emergencies. *US Pharm* 2011; 36(3): Epub.

19. Chobanian AV, Bakris GL, Black HR, et al. 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(19):2560-72.
20. Fung TT, Chiuve SE, McCullough ML, et al. Adherence to a DASH-Style Diet and Risk of Coronary Heart Disease and Stroke in Women. *Arch Intern Med* 2008; 168(7): 713-20.
21. Levitan EB, Wolk A, Mittleman MA. Consistency with the DASH Diet and Incidence of Heart Failure. *Arch Intern Med* 2009; 169(9): 851-7.
22. Hackam DG, Quinn RR, Ravani P, et al. The 2013 Canadian Hypertension Education Program Recommendations for Blood Pressure Measurement, Diagnosis, Assessment of Risk, Prevention, and Treatment of Hypertension. *Can J Cardiol* 2013; 29(5):528-42.
23. Varon J, Elliott WJ, Kaplan NM, et al. Management of Severe Asymptomatic Hypertension (Hypertensive Urgencies) in Adults 2012. Available at: http://www.uptodate.com/contents/management-of-severe-asymptomatic-hypertension-hypertensive-urgencies-in-adults?source=see_link. Accessed on 6.4.2014.
24. Marik PE, Varon J. Hypertensive Crises: Challenges and Management. *Chest* 2007; 131(6):1949-62.
25. Decker WW, Godwin SA, Hess EP, et al. Clinical Policy: Critical Issues in the Evaluation and Management of Adult Patients with Asymptomatic Hypertension in the Emergency Department. *Ann Emerg Med* 2006; 47(3):237-49.
26. Varon J, Marik PE. Clinical Review: The Management of Hypertensive Crises. *Crit Care* 2003; 7(5):374-84.