Review Article

An Overview on Hypertension: Management Approach and Follow Up in Primary Health Care Center

Mohammed Mihmas B Alqahtani[1]*, Abdullah Faisal Islam[2], Ghadeer Abbas Katib[2], Lujain Faisal Islam[2], Abdullah Abdulmohsen Alhaddab[3], Hamad Yasser Alhassoun[3], Hawra Salman Alqattan[4], Anoud Abdulrahman Ahmad[5], Majed Muidh O Albogami[6], Sarah Alsalhi[7], Anwar Mohammed Al Hadhari[8], Abdullah Odhayb Alruwaili[9]

[1]Faculty of Medicine, Bisah University, Bisah, KSA. [2]Faculty of Medicine, Ibn Sina National College of Medicine, Jeddah, KSA. [3]Faculty of Medicine, King Saud University, Riyadh, KSA. [4]Faculty of Medicine, Almaarefa University, Riyadh, KSA. [5]Rabigh General Hospital, Rabigh, KSA. [6]Primary Health Care, Taif, KSA. [7]King Fahad General Hospital, Jeddah, KSA. [8]Faculty of Medicine, Northern Border University, Arar, KSA. [9]Emergency Department, King Abdulaziz Specialist Hospital, Aljouf, KSA.

Abstract

Hypertension is one of the most common chronic diseases on earth. This condition works viciously on developing other lethal complications silently. The prevalence of hypertension among Saudi adults is close to 15%, hence it warrants a great deal of focus when it comes to early diagnosis and further management. We investigated the literature reviewing diagnosis of hypertension, risk factors, management, guidelines, and follow-up of this disease. PubMed database was used for the selection of articles, gathered papers had undergone a thorough review. Given a diagnosis of hypertension to a patient held more than what the eyes meet. This diagnosis gives a label to the patient who should carry it with them for the rest of their lives, thus it should be diagnosed carefully and accurately. This disease burden would be taken by the patient, their families, and the governmental bodies that provide health care. So strict measures should be taken in the diagnosis steps. Moreover, the family physician should be aware of the outline management of hypertension with the variability of different cases.

Keywords: Hypertension, Blood pressure, Target BP, CCB, Monotherapy, Follow-up, HTN

Introduction

Hypertension is one of the most evident chronic diseases that precipitate a lot of complications that hinder the overall patients' quality of life. As this disease, usually, not curable but yet manageable, a strict plan should be tailored to each patient according to their needs. This includes pharmacological medication and other lifestyle modifications along with regular follow-up visits to the family practitioner to ensure the effectiveness of the management and to detect the complication, if any, in the early stages. Hypertension is the top contributor to overall death and disability worldwide. Moreover, it is the most common preventable risk factor for chronic kidney disease, cardiovascular disease (including stroke, myocardial infarction, coronary heart disease, and others), and cognitive impairment [1].

In Saudi Arabia, one study investigated the prevalence of Saudis, possible risk factors, and the population's awareness of their diagnoses [2]. 15.2% of Saudis were hypertensive, but only 57.8% of hypertensive Saudis were undiagnosed. The researchers found multiple risk factors are significantly associated with hypertension, those consist of obesity, male gender, diabetes, increased age, and hypercholesterolemia [2]. As the prevalence is considerably high, efforts should be paid to enhance the outcome of patient management and prevent further morbidity and mortality.

Materials and Methods

PubMed database was used for the selection process of relevant articles, and the following keys used in the mesh ((“Hypertension"[Mesh]) AND (“Diagnosis"[Mesh] OR "Management"[Mesh] OR "Follow up"[Mesh] OR "Guidelines"[Mesh])). For the inclusion criteria, the articles were selected based on including one of the following: Hypertension or hypertension risk factors, management, diagnosis, follow-up. Exclusion criteria were all other articles that did not meet the criteria by not having any of the inclusion criteria results' in their topic.

Review

Diagnosis

Address for correspondence: Mohammed Mihmas B Alqahtani, Faculty of Medicine, Bisah University, Bisah, KSA. aass145145@gmail.com

How to cite this article: Alqahtani MMB, Islam AF, Katib GA, Islam LF, Alhaddab AA, Alhassoun HY, et al. An Overview on Hypertension: Management Approach and Follow Up in Primary Health Care Center. Arch Pharm Pract. 2021;12(3):110-2. https://doi.org/10.51847/1IOWeXJu2o

One critical aspect of dealing with hypertension is to correctly identify and diagnose the patients. This can go in either of the two directions, over-diagnosing or under-diagnosing. While the first will increase the burden on the healthcare system without any visible cost-effective results, the latter will result in poorer outcomes for the patients with worse prognoses due to increased morbidity and mortality [3]. Hence, accurate assessment should be obtained, according to hypertension Canada's guideline developed by the Canadian Hypertension Education Program (CHEP) published in 2020, a series of steps should be taken to ensure the accuracy of the diagnosis. It starts with suspicion whether in home, pharmacy, or incidental finding in physician's office. Once the suspicion is raised, a dedicated visit to the doctor is warranted for further assessment. Methods in use for diagnosing hypertension are AOBP, automated office blood pressure (with the patient, privately, unattended), ABPM, ambulatory blood pressure measurement, HBPM, home blood pressure measurement, OBPM, office blood pressure measurement (measurements are taken at a doctor's office using an electronic upper arm device with the of presence physician) [4, 5]. See **Figure 1** for a flowchart of diagnostic steps.

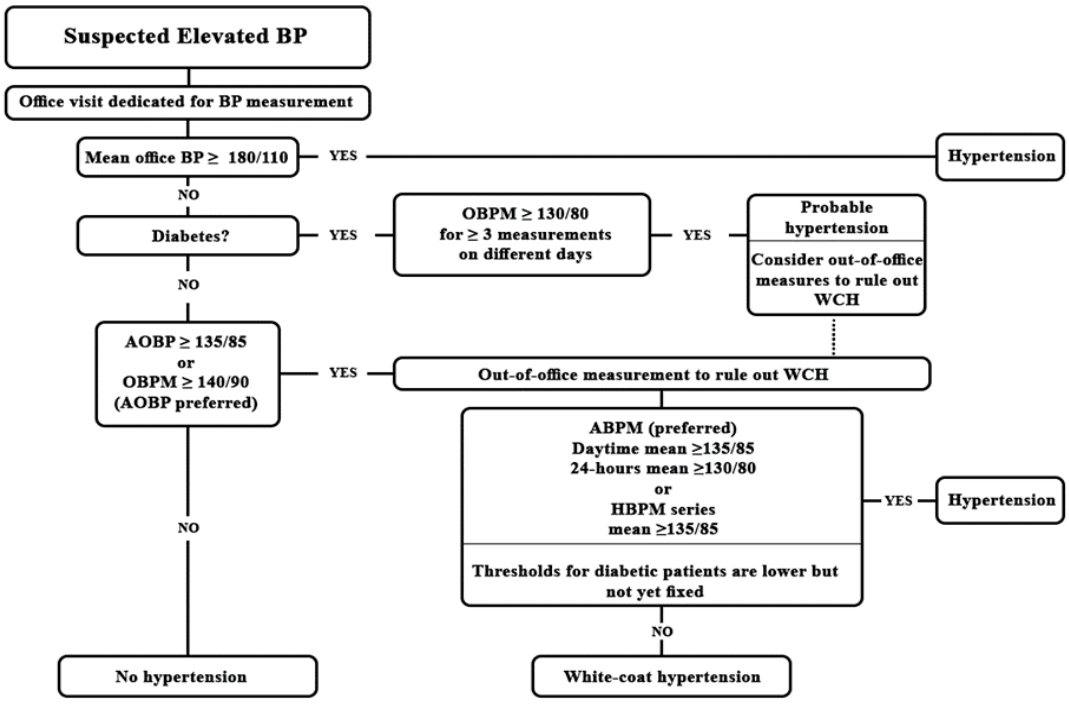

Figure 1. Hypertension diagnostic algorithm excerpted from CHEP. All blood pressure measurement values are reported as mmHg. BP, blood pressure; OPBM, office blood pressure measurement; WCH, white-coat hypertension; AOBP, automated office blood pressure, ABPM, ambulatory blood pressure measurement; HBPM, home blood pressure measurement

Management

Managing hypertension entertains both pharmacological choices along with serious lifestyle modifications. The two pillars will result in better controlling of blood pressure and lowering the risk of complications. Physical exercise promotes lowering the blood pressure greatly, 30-60 minutes of moderate-intensity dynamic/ aerobic exercise (eg, walking, cycling, jogging, or swimming) for 4-7 days per week [6]. Diet is a cornerstone in controlling a patient's blood pressure, DASH (Dietary Approaches to Stop Hypertension) comprises fruits and vegetables, whole-grain foods high in dietary fiber, and plant-based protein low in saturated fat and cholesterol [7]. Both diet and exercise play a major role in keeping the patient's weight within the normal limit and decreasing it if there is an excess [8].

Introducing pharmacological medications, usually, is an inevitable step. But starting the medications depends heavily on many factors determined by the patient's overall health condition, see **Table 1** [4]. Different medications play roles in decreasing blood pressure, every drug works with its unique underlying mechanism to retain the physiological equilibrium status. The most common drug in use is diuretics (e.g., thiazide), calcium channel blockers (CCB), beta-blockers, angiotensin-converting enzyme inhibitors (ACEi), and angiotensin receptors blockers (ARBs) among other drugs. The use of a single agent or multiple agents at once is indicated in certain cases to achieve the therapeutic goal [4, 9].

The holy grill in using any pharmacological agent is to use the minimum dose to achieve the highest effectiveness with the lowest side effect. For those who solely suffer from

hypertension with no other comorbidities, the suggested medication to be used as a first-line is to use any of the previously mentioned options if failed then a combination of two medications should be tried after maximizing the dose of monotherapy. Some preferences arise in choosing the medication based on the patient race (Afro-American starts with CCB), diabetic patients and kidney injury starts ACEi, cardiovascular disease patients can use either ACEi, B-blockers, or CCB, people with heart failure can make use of combined therapy as first-line management by taking diuretic as stable one arm and combined it with other pharmacological agent [4, 10].

Table 1. Blood pressure thresholds for initiation of pharmacological therapy and the desired targets

Population	BP threshold (mm Hg)	BP target (mm Hg)
Low risk (no sign of end organ damage)	SBP ≥160 DBP ≥100	SBP <140 DBP <90
High risk or/and cardiovascular disease	SBP ≥130	SBP <120
Diabetes mellitus	SBP ≥130 DBP ≥80	SBP <130 DBP <80
All others	SBP ≥140 DBP ≥90	SBP <140 DBP <90

BP, blood pressure; DBP, diastolic blood pressure; SBP, systolic blood pressure.

Follow up

Once the diagnosis of hypertension is established, the physician should schedule regular follow-up meetings to assess the patient's blood pressure and their response to the treatment. When the patient is introduced to new medications, they should be seen on monthly basis to ensure the effectiveness of the drug. This can be obtained by having two consecutive readings within the normal range. The intervals of regular follow-up range between three to six months in most cases, et it can be shortened to every one or two months in difficult cases with high blood pressure. The mainstay method of assessing blood pressure in follow-up meetings is OBPM (office blood pressure measurement) but ABPM (ambulatory blood pressure measurement) or HBPM (home blood pressure measurement) is recommended when suspicion of white coat syndrome is high [4].

The target blood pressure of under 130/80 mmHg is very appealing and desirable for its obvious positive influence over the cardiovascular system, yet it should be obtained with extreme caution to avoid the possible adverse effects of excessive treatment. So, initially, the target of controlled blood pressure is lower than 140/90 mmHg, once this condition is met, then a balance made between achieving lower than 130/80 mmHg and organ hypoperfusion should be addressed and be taken into consideration [11].

Conclusion

Hypertension is one of the most common chronic diseases with high prevalence across different populations. This disease comes with a package of different risk factors that can induce it, and hypertension itself can precipitate other diseases as a complication. The vigilant general practitioner should be well-rounded when it comes to the knowledge of dealing with such patients. Prescribing the correct pharmacological agent along with the proper lifestyle modifications tips is the most important to optimize the wellbeing of a patient's life.

ACKNOWLEDGMENTS: None
CONFLICT OF INTEREST: None
FINANCIAL SUPPORT: None
ETHICS STATEMENT: None

References

1. Forouzanfar MH, Afshin A, Alexander LT, Anderson HR, Bhutta ZA, Biryukov S, et al. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016;388(10053):1659-724. doi:10.1016/S0140-6736(16)31679-8
2. El Bcheraoui C, Memish ZA, Tuffaha M, Daoud F, Robinson M, Jaber S, et al. Hypertension and its associated risk factors in the kingdom of saudi arabia, 2013: a national survey. Int J Hypertens. 2014;2014:564679. doi:10.1155/2014/564679
3. Cloutier L, Daskalopoulou SS, Padwal RS, Lamarre-Cliche M, Bolli P, McLean D, et al. A New Algorithm for the Diagnosis of Hypertension in Canada. Can J Cardiol. 2015;31(5):620-30. doi:10.1016/j.cjca.2015.02.014
4. Rabi DM, McBrien KA, Sapir-Pichhadze R, Nakhla M, Ahmed SB, Dumanski SM, et al. Hypertension Canada's 2020 Comprehensive Guidelines for the Prevention, Diagnosis, Risk Assessment, and Treatment of Hypertension in Adults and Children. Can J Cardiol. 2020;36(5):596-624. doi:10.1016/j.cjca.2020.02.086
5. Veiga EV, Nogueira MS, Cárnio EC, Marques S, Lavrador MA, Moraes SA, et al. Assessment of the techniques of blood pressure measurement by health professionals. Arq Bras Cardiol. 2003;80(1):89-93. doi:10.1590/s0066-782x2003000100008
6. Pescatello LS, MacDonald HV, Lamberti L, Johnson BT. Exercise for Hypertension: A Prescription Update Integrating Existing Recommendations with Emerging Research. Curr Hypertens Rep. 2015;17(11):87. doi:10.1007/s11906-015-0600-y
7. Sacks FM, Svetkey LP, Vollmer WM, Appel LJ, Bray GA, Harsha D, et al. Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet. DASH-Sodium Collaborative Research Group. N Engl J Med. 2001;344(1):3-10. doi:10.1056/NEJM200101043440101
8. Cohen JB. Hypertension in Obesity and the Impact of Weight Loss. Curr Cardiol Rep. 2017;19(10):98. doi:10.1007/s11886-017-0912-4
9. Wright JM, Musini VM, Gill R. First-line drugs for hypertension. Cochrane database Syst Rev. 2018;4(4):CD001841. doi:10.1002/14651858.CD001841.pub3
10. Aronow WS. Antihypertensive drug therapy. Ann Transl Med. 2018;6(7):123. doi:10.21037/atm.2018.01.26
11. Park S. Ideal Target Blood Pressure in Hypertension. Korean Circ J. 2019;49(11):1002-9. doi:10.4070/kcj.2019.0261