

Adherence of Health-Care Providers to Hypertension Management Guidelines in Khartoum, Sudan, 2020

Ali Awadallah Saeed, Lamees Abdelrhman¹, Lamiaa Saad¹, Marah Omran¹, Inas Osman¹

Department of Pharmacology and Therapeutics, Pharmacy Program, Napata College, ¹Department of Pharmacology, Faculty of Clinical and Industrial Pharmacy, National University, Khartoum, Sudan

Abstract

Introduction: Hypertension has the highest prevalence among the major non-communicable diseases in Sudan (prevalence 27.6%) due to high amount of salt intake in foods, lack of exercise, obesity, stress, smoking, and increase in age. Different guidelines have been proposed from time to time to increase the number of patients with controlled blood pressure. It is a well-established fact that poor disease control is largely related to the poor patient compliance to medical advice and medications. However, the other important aspect of the same problem is the physician's adherence to evidence-based management of hypertension, but, unfortunately, this has not been studied adequately. **Objective:** The objective is to investigate adherence practices of health care providers to the use of clinical practice guidelines in Khartoum, Sudan. **Materials and Methods:** An observational cross-sectional study was carried out from February to April 2020 among health-care providers which include prescribing doctors and community pharmacists in Khartoum locality. Data were collected using electronic delivery validated questionnaire. **Results:** A total of 200 health-care professionals (HCPs) voluntary participated, 51% were pharmacists, while 49% were prescribing doctors. As overall 86.125% of participated health-care provider aware about hypertension as a health problem as a mean of their correct responses. In the area of measurement and management of a new case of hypertension, the mean of the responses (mean of correct answers) which follow guidelines was 55.75%. In the area of selection of anti-hypertensive treatment in comorbid conditions the mean responses of correct responses was 58.88%. **Conclusions:** Our study observed that the majority of HCP adhere to guidelines for hypertension in Khartoum locality. The study showed a lack of knowledge among HCPs in managing hypertension in patients with the comorbid condition.

Keywords: Adherence, hypertension, management

INTRODUCTION

Hypertension has the highest prevalence among the major non-communicable diseases in Sudan (prevalence 27.6%) due to high amount of salt intake in foods, lack of exercise, obesity, stress, smoking, and increase in age.^[1]

Reduction of both sugar and salt intake is an important and cost-effective way for reducing hypertension and the risk of cardiovascular (CV) diseases and should be advocated by the health authorities and the public in Sudan.^[1] Noncommunicable diseases represent a new frontier in the fight to improve global health.^[2]

Hypertension accounts for 1.3% of the outpatient visits; it is represented as one of the 10 leading diseases treated in health facilities (outpatients) and also one of the 10 leading causes of deaths in Sudan.^[3] More than two-thirds of patients require

2 or more antihypertensive medications for optimal control.^[4] The cause of systemic hypertension in the majority of people is unknown (essential hypertension), with a complex interplay between genetic and environmental influences. A small number of people with hypertension have an identifiable underlying cause (secondary hypertension). The main objective of the treatment of essential hypertension is represented by long-term reduction of CV risk.^[5]

Different guidelines have been proposed from time to time to increase the number of patients with controlled blood

Address for correspondence: Dr. Ali Awadallah Saeed, Department of Pharmacology and Therapeutics, Pharmacy Program, Napata College, Khartoum, Sudan.
E-mail: alimhsd@gmail.com

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pressure (BP). These recommendations have proved their cost-effectiveness in several worldwide studies. It is a well-established fact that poor disease control is largely related to the poor patient compliance to medical advice and medications. However, the other important aspect of the same problem is the physician's adherence to evidence-based management of hypertension, but, unfortunately, this has not been studied adequately.^[6,7]

Literature review

Saleh and *et al.* conducted study to examine the adherence practices of PHCPs to hypertension management guidelines using Joint National Committee's Seventh Report (JNC-7) on hypertension guidelines in Aljof region of the Kingdom of Saudi Arabia. The study observed that the majority of them adhere the JNC-7 guidelines for hypertension in Aljof region of Saudi Arabia and showed a lack of knowledge among PHCPs in managing hypertension in patients with the comorbid condition.^[7]

Hiba *et al.* concluded that overall adherence of doctors to hypertension treatment guidelines was very low. The study highlights how a gap in clinical governance contributes to low adherence to clinical guidelines. Establishing regular clinical audit, issuing regulations to enforce the use of updated guidelines, along with introducing training programs in hospitals and continuous assessment to the practicing doctors.^[8]

Although there are no well-established methodologies to assess physician's adherence to guidelines for the management of hypertension, a substantial number of studies that have been done in different countries have found that physicians do not adhere to the recommended guidelines-as reflected on the poor control of hypertension. Many studies in different countries have shown the lack of detailed knowledge of hypertension guidelines by the physicians and prescription of more expensive drugs without evidence of efficacy.^[7] Therefore, health-care providers must focus on evidence-based, cost-effective treatment, and follow recommended guidelines while prescribing anti-hypertensive treatment.

Non-communicable Diseases Directorate of Federal Ministry of Health and Sudan Society of hypertension published in 2012 Sudan Hypertension Guidelines.

Objectives

General objective

To investigate adherence practices of health-care providers to the use of clinical practice guidelines in Khartoum, Sudan.

Specific objectives

- To assess adherence practices of prescribing doctors to the use of clinical practice guidelines in Khartoum, Sudan
- To assess adherence practices of prescribing doctors to the use of clinical practice guidelines in Khartoum, Sudan
- To assess opinion of health-care providers regarding hypertension as a health problem

- To assess the measurement and management of a new cases of hypertension by health care providers.

MATERIALS AND METHODS

An observational cross-sectional study was carried out from February to April 2020 among health care providers which include prescribing doctors and community pharmacists in Khartoum using a stratified random sample method. Data were collected using electronic delivery validated questionnaire which had four sections. The first section explored demographic characteristics and practice information of the health professional.

The second section studied the opinion of participated health-care providers regarding hypertension as a health problem. The third section examined the measurement and management of a new case of hypertension.

The fourth section assessed the physicians' choice of anti-hypertensive drug class in comorbid conditions. Statistical Package for Social Sciences (SPSS) version 15 (IBM SPSS Inc., Chicago, IL) was used for data entry and analysis.

RESULTS

Demographic data

Two hundred health-care providers participated in our study (103 pharmacists and 97 prescribing doctors) in Khartoum locality, 41% from health professional in the study were male while the others were female. Most of the participants were between 20 and 40 years (93%), while only (7%) were between 41 and 60 years. 65% from the participants had bachelors, followed by master degree (18%), PhD holders were 7% and 10% of participants did not answer. Most of the participants have experience of ≤ 10 years 74.5%, while 25.5% have been working for more than 10 years. 51% of participants are pharmacists, while 49% were prescribing doctors. 54% from the participants work at hospitals, while 36% work at pharmacies and 10% at clinics.

Opinion of participated health care provider regarding hypertension as a health problem

The majority of health-care providers (99%) stated that hypertension is a common health problem, 92.5% interested in the involvement of patient family in the management of hypertensive patients, 96.5% stated that more attention should be paid to hypertensive patients, 91.5% think that lifestyle modifications counseling should be for all patients with hypertension, 87.5% were comfortable in dealing with hypertensive patients, 92.5% of participants think that screening programs for hypertension are favorable to improve early care of hypertensive patients, 63.5% were trained adequately to manage hypertensive patients while 36.5% were not and 66% of participants think that hypertension causes patients in excessive anger and anxiety, while (34%) did not.

About 86.125% of participated health-care provider stated that hypertension as a health problem as a mean of their responses.

Measurement and management of a new case of hypertension

52% of participant's measure BP of patients in sitting position and other positions, while 48% measure it in sitting position only as shown in Figure 1.

53% of participants think that >140/90 is the right BP measurement to diagnose a diabetic patient with hypertension, while 39.5% think 130/80 is the right measurement of B. P to diagnose diabetic patients with hypertension.

For nondiabetic individuals, 55% of participants think that >140/90 is the right BP measurement to diagnose hypertension, while 34% think 130/80 is the right measurement.

For a definitive diagnosis with hypertension, 41% think that three times are enough, 32% think two times, and 23% think four measurements are needed for a definitive diagnosis as shown in Figure 2.

In area of patient's education about hypertension, 55% from health-care providers always educate their patients, while

24% often educate them and 21% sometimes educate them as shown in Figure 3.

For newly diagnosed patients with hypertension, most of the participants (78.5%) prescribe/dispense one drug for patients, 18.5% prescribe/dispense two drugs.

In the area of measurement and management of a new case of hypertension, the mean of the responses (mean of correct answers) was 55.75%.

Anti-hypertensive treatment in co-morbid conditions

For hypertensive pregnant women, 73% of participants select methyldopa, while 11% chose ACE inhibitors and 10% chose beta blockers as shown in Figure 4.

For diabetic nephropathy patients with hypertension, 57% of participants chose ACE inhibitors, while 16% chose calcium channel blocker and 15% chose diuretics. For hypertensive patients with peripheral vascular diseases, 37.5% of participants chose ACE inhibitors, while 28% chose calcium channel blocker, 17.5% chose diuretics and 17% chose beta blockers.

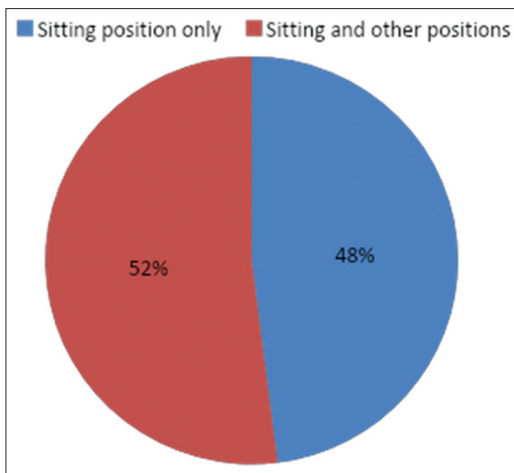


Figure 1: Positions which they used to measure blood pressure

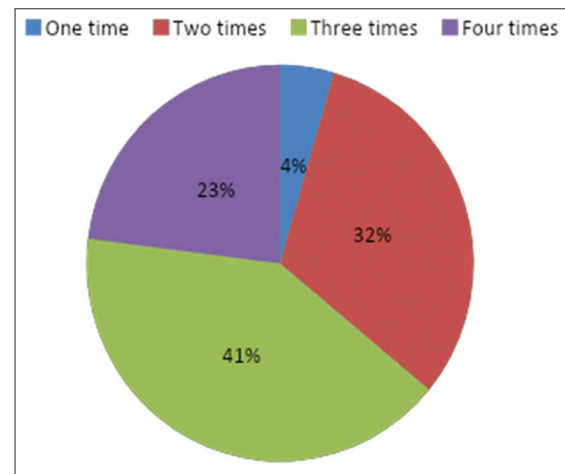


Figure 2: Represent number of blood pressure measurements needed for a definitive diagnosis of hypertension

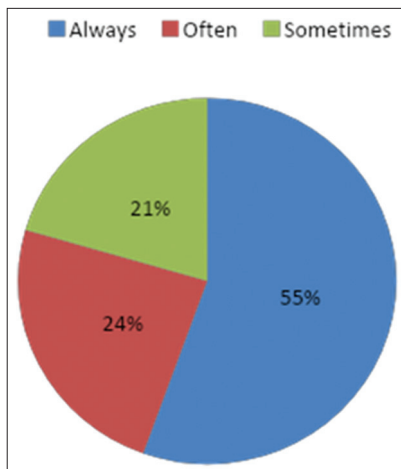


Figure 3: How often participants educate patients about hypertension

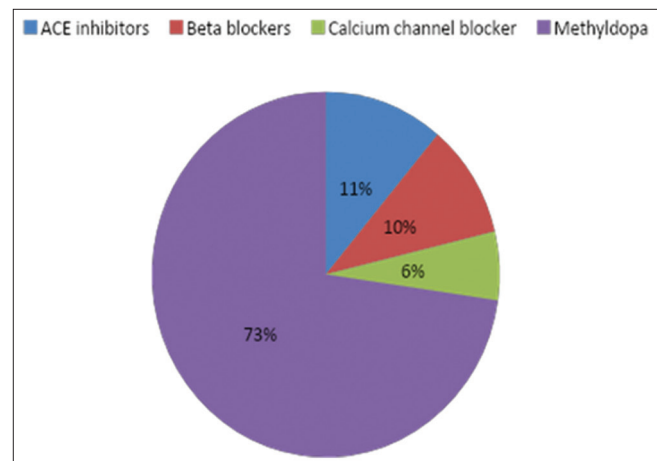


Figure 4: Hypertension drug of choice for pregnant women

Hypertensive patients with severe persistent bronchial asthma 68% of participants stated that beta blockers should be avoided, 19% think ACE inhibitors should be avoided, 7% think diuretics while 6% think of methyldopa.

In the area of selection of anti-hypertensive treatment in comorbid conditions, the mean responses of correct responses were 58.88%.

DISCUSSION

Hypertension is considered one of the common public health problems worldwide, and it is a major risk factor for stroke, MI, vascular disease, and chronic kidney disease. Different guidelines have been proposed from time to time to increase the number of patients with controlled BP. These recommendations have proved their cost-effectiveness in several worldwide studies. Our cross-sectional descriptive survey was directed to investigate adherence practices of health-care professionals (HCPs) to the use of clinical practice guidelines in Khartoum locality, Sudan.

Opinion of participated health care provider regarding hypertension as a health problem

The majority of health-care providers (99%) stated that hypertension is a common health problem, 92.5% of participants interested in the involvement of family in the management of hypertensive patient this is parallel to study conducted by Saleh *et al.*^[7] found that nearly all (98%) physicians were interested to involve the family in the management of hypertensive patients.

96.5% of participants stated that more attention should be paid to hypertensive patients.

91.5% of participants think that lifestyle modifications counseling should be for all patients with hypertension. Similarly, Saleh *et al.*^[7] also found that 98% of participants were agreed this.

87.5% of participants were comfortable in dealing with hypertensive patients compared to 12.5% who were not comfortable, which is similar to Saleh *et al.*^[7] which found that 81% were comfortable.

92.5% of participants think that screening programs for hypertension are favorable to improve early care of hypertensive patients, Saleh *et al.*^[7] also found it in 92%.

63.5% from participants in the study were trained adequately to manage hypertensive patients while 36.5% were not and 66% of participants reported that hypertension lead to patient's excessive anger and anxiety, while (34%) did not, it was low compared to Saleh *et al.* study^[7] finding in that 80% reported that they were trained adequately, whereas 20% reported that they were not well trained and 83% reported that hypertension leads to patient's excessive anxiety and concern.

As overall 86.125% of participated health-care provider stated that hypertension as a health problem as a mean of their correct responses.

Measurement and management of a new case of hypertension

52% of participant's measure BP of patients in sitting position and other position, while 48% measure it in sitting position only this is not found in Saleh *et al.* study^[7] which found that the majority of the physician's 88% followed JNC-7 guidelines for the measurement of hypertension with respect to position which is sitting and sometimes other positions.

53% of participants think that >140/90 is the right BP measurement to diagnose a diabetic patient with hypertension, while 39.5% think 130/80 is the right measurement of B. P to diagnose diabetic patients with hypertension this is not found in Saleh *et al.* study^[7] which found that the 80% of physicians among diabetic patients was practiced correct recording (130/80).

55% of participants think that >140/90 is the right BP measurement to diagnose a non-diabetic patient with hypertension, while 34% think 130/80 is the right measurement this is not found in Saleh *et al.* study^[7] which found that the 80% of physicians among diabetic patients was practiced correct recording (140/90).

41% think that three times are enough for a definitive diagnosis with hypertension, while 32% think two times and 23% think four measurements are needed for a definitive diagnosis when compared to Saleh *et al.*'s study^[7] which found that 60% of physicians take three readings before labeling the patient as a case of hypertension.

55% from health-care providers in the study always educate their patients about hypertension, 78.5% from health-care providers prescribe/dispense one drug for newly diagnosed hypertensive patients, while 18.5% prescribe/dispense two drugs, when compared to Saleh *et al.* study^[7] which found that regular health education was imparted by 80% of physicians while 27% of physicians were prescribing two or more drugs to a new case of hypertension.

In the area of measurement and management of a new case of hypertension, the mean of the responses (mean of correct answers) was 55.75% which is low compared to Saleh *et al.* study^[7] was found to be 80%.

Anti-hypertensive treatment in comorbid conditions

For hypertensive pregnant women, 73% of participants correctly choice the centrally acting alpha-2 agonist methyldopa, while 11% chose ACE inhibitors and 10% chose beta blockers which is parallel to Saleh *et al.*'s study^[7] which found that 71% of the respondents correctly chose methyldopa.

For diabetic nephropathy patients with hypertension, 57% of participants correctly chose ACE inhibitors which is less than that found by Saleh *et al.*'s study^[7] (80% correctly chose it) while 16% chose calcium channel blocker and 15% chose diuretics.

For hypertensive patients with peripheral vascular diseases, only 28% chose correct medicine which is calcium channel

blocker which is less than Saleh *et al.*'s study^[7] (found 46% chose dihydropyridine calcium channel blockers).

Hypertensive patients with severe persistent bronchial asthma only 68% of participants stated that beta blockers should be avoided, 19% think ACE inhibitors should be avoided, 7% think diuretics while 6% think of methyldopa which is less than Saleh *et al.*'s study^[7] (found 74% correctly chose the drug to be avoided).

Hiba *et al.*^[8] concluded that overall adherence of doctors to hypertension treatment guidelines was very low.

In the area of selection of anti-hypertensive treatment in comorbid conditions, the mean responses of correct responses was 58.88% which is parallel to Saleh and *et al.* study^[7] (was 55.3% and for correctly prescribing drugs was 63%).

CONCLUSIONS

A total of 200 HCPs voluntary participated, 51% were pharmacists, while 49% were prescribing doctors, 86.125% of them aware about hypertension as a health problem.

Only 55.75% follow guidelines for the measurement and management of a new case of hypertension. The only concern being a lack of knowledge regarding integrated management of hypertension in patients with the comorbid condition only 58.88% had knowledge.

Recommendations

Future training of HCPs should focus on integrated management of hypertensive patients with the comorbid condition and establishing regular clinical audit, issuing regulations to enforce the use of updated guidelines, along

with introducing training programs in hospitals and continuous assessment to the practicing doctors.

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Conflicts of interest

There are no conflicts of interest.

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