Knowledge and Adherence of Primary Health Care Physicians to Hypertension Management Guidelines in Family Health Facilities, Tanta Gharbia

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

Original Research Article

ABSTRACT

Background: Hypertension is a long-term condition in which the blood pressure in arteries is persistently elevated higher than 130 over 80 millimeters of mercury. Hypertension as an office systolic blood pressure and/or Diastolic Blood Pressure; which is equivalent to a 24-hours average ambulatory blood pressure management (AMBPM $\geq$ 130/80 mmHg) or home blood pressure measurements (HBPM) average $\geq$135/85 mmHg.
Aim: To assess knowledge of physicians in the family health facilities in Tanta City, Gharbia Governorate regarding hypertension and its management, adherence of family physicians and to detect barriers which interfere with their adherence to the guidelines if any.
Methods: This is a cross sectional study. It was conducted in Family Health Units of the two main health administration sectors in Tanta City (The first administration sector includes16 units and the second one includes nine units) Tanta, Egypt. The target population of the study was all physicians working in Tanta Family Health Facilities (n=120). This study started from September 2019 and completed in June 2021.
Results: Out of physicians, 47 (39.2%) doctors read and implemented guidelines, 37 (30.8%) of physicians heard about it but never had a copy of guidelines and 36 (30%) of them had one but

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never read the content. More than two thirds 82 (68.3%) of physicians received training about the guidelines but only 68 (56.7%) used these guidelines for management of the patients. The highest percent of physicians had Fair knowledge level (67.5%) about guidelines. Regarding knowledge sub items, definition of guidelines followed by referral criteria and investigations had the highest rank of knowledge level among physicians while treatment, had the lowest rank level. The highest percent of physicians were partially adherent to guidelines (60%). Regarding adherence sub items, measurement of blood pressure followed by history taking had the highest rank among physicians followed by investigation, while treatment and clinical examination had the lowest rank.

Conclusion: PHC physicians were found to have a lack of awareness of specific HTN management guidelines as well as inadequately documented practise adherence.

1. INTRODUCTION

Hypertension is known as "the silent killer" because, unlike many other medical illnesses, patients with high blood pressure can go years without experiencing any symptoms before suffering a catastrophic adverse event such as a myocardial infarction or stroke [1]. In primary care clinic, the family physicians have important role in controlling hypertension as they can identity those at high risk. Ensure regular monitoring of health status: provide an uninterrupted appropriate and affordable treatment supply, identifying those at high risk by screening [2].; The aim of the present study was: 1-To assess knowledge of physicians in the family health facilities in Tanta City, Gharbia Governorate regarding hypertension and its management according to National Hypertension Guidelines 2014, 2-To assess adherence of family physicians to The National Hypertension guidelines and 3-To detect barriers which interfere with their adherence to the guidelines if any.

2. SUBJECTS AND METHODS

This is a cross sectional one. Setting in Family Health Units of the two main health administration sectors in Tanta City (The first administration sector includes16 units and the second one include nine units) Tanta, Egypt. This study started from September 2019 and completed in June 2021.

2.1 Tools for Data Collection

Tool (I): A predesigned self-administered questionnaire sheet and checklist was quoted from the Egyptian National Hypertension guidelines 2014.

II-The Check list

The practice and adherence of the physicians was assessed by direct observation of the researcher of daily activities during the conduction of outpatient visits, especially if a new hypertension case was detected.

2.2 Statistical Analysis of Data

Statistical analysis was done by SPSS v26 (IBM Inc., Chicago, IL, USA). Quantitative variables were presented as mean and standard deviation (SD) and compared between the two groups utilizing ANOVA (F) test. Qualitative variables were presented as frequency and percentage (%) and were analyzed utilizing the Chi-square test. A two tailed P value < 0.05 was considered statistically significant. Linear Correlation coefficient (r) :

It was used for detection of correlation between two quantitative variables in one group.

3. RESULTS

Table (1) show definition followed by referral criteria and investigation had the highest rank of Knowledge among physicians while treatment, had the lowest rank measurement of blood pressure followed by history taking had the highest rank among physicians followed by investigation while treatment and clinical examination had the lowest rank.

Table (2) show relationship between total knowledge level of the studied physicians regarding HTN guidelines in family health facilities and response to HTN guidelines. There was high statistically significant relationship between total knowledge level and awareness about guidelines (p<0.001) and received training about the guidelines (p<0.001). Good knowledge level represented the highest percentage out of

Table 1. Knowledge sub items scores and ranks of the studied physicians regarding HTN guidelines in Family Health Units

Knowledge subitems (Each item was scored 0-1)	Number of questions Score	Range Mean ± SD	Mean ± Number questions	SD/ of	Rank
A- Definition	24 (0-24)	(12-24) 19.35 ± 4.11	0.81 ± 0.17		1
B- Investigations	2 (0-2)	(0-2) 1.46 ± 0.67	0.73 ± 0.34		3
C- Treatment	13 (0-13)	(4-12) 8.52 ± 2.18	0.66 ± 0.17		4
D- Referral criteria	2 (0-2)	(0-2) 1.54 ± 0.44	0.77 ± 0.22		2
Total	41 (0-41)	(16-41) 25.10 ± 7.73			
Adherence subitems (Each item was scored 0-2)	Number of questions score	Range Mean ± SD	Mean ± Number questions	SD/ of	Rank
A- History taking	4 (0-8)	(3-8) 5.04 ± 1.1	1.26 ± 0.28		2
B- Clinical examination C-	5 (0-10)	(2-10) 5.8 ± 1.12	1.16 ± 0.22		4
D- Measurement of blood pressure	8 (0-16)	(6-16) 11.51 ± 2.88	1.44 ± 0.36		1
E- Investigations	4 (0-8)	(2-8) 4.93 ± 0.57	1.23 ± 0.14		3
F- Treatment	2 (0-4)	(0-4) 1.96 ± 0.72	0.98 ± 0.36		6
G- Follow up	2 (0-4)	(0-4) 2.08 ± 0.66	1.04 ± 0.33		5
Total	25 (0-50)	(9-48) 22.70 ± 5.48	0.91 ± 0.22		

Table 2. Correlation between knowledge level of the studied physicians regarding HTN guidelines in family health facilities and response to HTN guidelines

Hypertension guide lines	Total knowledge level (n= 120)			X^2 Test P
	Poor Knowledge (n=17)	Fair Knowledge (n=81)	Good Knowledge (n=22)	
Awareness about guidelines				
Heard but never had a copy	2 (5.4%)	31 (83.7%)	4 (10.8%)	33.7[#] 0.0001*
Had one but never read the content	13 (36.1%)	22 (61.1%)	1 (2.7%)	
Has read and implemented it	2 (4.2%)	28 (59.5%)	17 (36.1%)	
Received training about the guidelines				
No	13 (34.2%)	23 (60.5%)	2 (5.2%)	21.35[#]
Yes	4 (4.8%)	58 (70.7%)	20 (24.3%)	0.0001*

* Significant
 # Monte Carlo test (MC)

Table 3. Correlation between total knowledge score and total adherence score

Adherence score	Total knowledge score	
Adherence sub-items	R	P
History taking	0.426	0.0001*
Clinical examination	0.243	0.056
Measurement of blood pressure	0.541	0.0001*
Investigations	0.381	0.001*
Treatment	0.276	0.019*
Follow up	0.248	0.031*
Total Adherence score	0.365	0.001*

r= Pearson's correlation coefficient

those read and implement guidelines (36.1%) in comparison to others, (P=.0001), good knowledge level represented the highest percentage out of those received training about guidelines (24.3%), (p=0.0001).

Table (3) show correlation between total knowledge score and adherence scores. There was a statistically significant correlation between total knowledge score and all Adherence sub items score as history taking(r= 0.426, p<0.001), measurement of blood pressure (r= 0.541, p<0.001), Investigations (r= 0.381, p=0.001), treatment (r= 0.276, p=0.019) and follow up (r= 0.248, p=0.031) except clinical examination that showed non statistical significant correlation (r= 0.243, p=0.056) There was high statistically significant correlation between total knowledge score and total adherence score (r= 0.365, p=0.001).

4. DISCUSSION

Hypertension (HTN) is a serious public health concern around the world, and it is the leading cause of mortality and disability. This disorder affects about 30–40% of the adult population in the developed countries. Despite the availability of a number of safe, effective, and tolerable medicines, HTN treatment remains inadequate. The prevalence of hypertension patients among Egyptian adults (≥ 25years old) was estimated to be 26.3 percent. HTN is worsened by the presence of other cardiovascular risk factors in 60% of patients, resulting in increased cardiovascular morbidity and death [3]. The present study results were supported by study of Shnaimer & Gosadi, 2020 as they reported that the number of correct answers measuring knowledge on various topics is between 18% and 94%, with an average total score of 7.9/16. However, when it came to the frequency and percentage of correct answers for different topics taken from the Suadia Hypertension

Management Guidelines (SHMGs) and the mean score for knowledge, the topics with the most correct answers were the frequency of HTN screening among adults aged 40 and up, safe HTN management options during pregnancy, and HTN patient follow-up frequency. The questions with the fewest right responses dealt with HTN care following surgery, normal blood pressure levels in children, and the impact of weight loss on blood pressure control [4]. Most physicians lack extensive knowledge of hypertension guidelines and tend to prescribe more expensive medications without proof of efficacy, according to studies on their prescribing patterns [5]. In the study of Ahmad et al, 2018, the mean number of correct answers was 7.96 ± 1.82 (range 5–11). On the basis of criterion used for adequate awareness, 19 (73.07%) doctors had adequate knowledge of CPG (Clinical Practice Guidelines on Management of Hypertension) 2008 recommendations. Only three doctors correctly answered all 11 questions [6].

Alfaleh et al., 2015 found that all of the participating physicians were aware that hypertension is a common health problem, that 85 percent of physicians in PHC centres could manage hypertension, and that the majority of them believed they were adequately trained to manage patients with hypertension. Hypertension causes patients to be anxious and concerned in 83 percent of cases [7]. The current study results were supported by study of Adedeji et al, 2015 conducted in Bojanala district, North-West Province, South Africa where they found adherence to measurement aspects of the guidelines of hypertension was high (99.8%) [8].

Shnaimer and Gosadi, 2020, found that practises with good adherence levels were linked to the management of hypertension during pregnancy and blood pressure measurement for adult clinic patients. Despite this, just seven clinicians (2%)

reported sticking to the reassessment interval for patients with uncontrolled blood pressure. Similarly, only 18 physicians [6%] were adherent to the SHMG's recommendation concerning sharing lifestyle advice to limit salt intake [4].

However, in the study of Al-Ali et al, [9] conducted in Egypt, indicated that FPs (family physicians) did not fully adhere to all hypertension guidelines despite that 92.1% of them agreed to apply. Only 49.1% of the participants were very familiar with WHO/ISH guidelines and only 23.7% always follow them. In agreement with that, in a survey (2002) done by Burnnier on Canadian physicians, only 52% reported that they used guidelines at least once a month, and more than 25% expressed concerns about the source of the guidelines, their rigidity, and the fear that physicians might lose their sense of professional autonomy if they followed the guidelines [8,10].

The majority of the physicians in the Gosadi, 2020 study were uninformed about numerous aspects of hypertension screening and dietary requirements for lowering blood pressure levels. This has been represented in their reported adherence to recommended guidelines, with the majority of doctors refusing to use prescribed SHMGs for illness prevention [11]. In 2015, Alfaleh et al. did a similar study in the Al-Jouf region of Saudi Arabia, measuring the adherence of 59 PHC physicians to the Joint National Committee's Seventh Report (JNC-7) on hypertension recommendations. Alfaleh's study did not take into account adherence to illness prevention. They did, however, question the doctors for their thoughts on developing hypertension screening programmes and offering patients lifestyle changes. The majority of physicians gave positive comments, demonstrating that they recognise the need of early identification and non-pharmacological blood pressure reduction. This idea is supported by their data, which show that the majority of physicians examine their patients and recommend lifestyle change therapies. However, only a small percentage of the physicians in their sample followed the recommended criteria [7]. Michak et al., 2004 reviewed research published between 1980 and 2004 that assessed prescription patterns, reviewed patients' medical records, and surveyed patients and physicians to determine adherence to practise guidelines. The authors came to the conclusion that there is a lot of variation in physicians' reported levels of adherence to hypertension guidelines, and that

pharmaceutical therapy is used more to measure adherence [12]. However, in Gosadi's study from 2020, they assessed the relationship between measured demographics and degree of knowledge and practise adherence and discovered that none of the higher levels of knowledge or practise adherence were statistically significant. This could be due to a lack of awareness about hypertension prevention or a lack of adherence to guidelines for illness screening and lifestyle counselling [11].

In addition, Al-Ali et al. [9] found that after repeated measurements, about two-thirds of FPs accurately identified the BP reading as hypertensive in the elderly. This is consistent with data from other research that used the WHO/ISH guidelines report's criteria of high blood pressure.

The data gathered looked to be extremely useful, as it shows that a considerable number of FPs are unfamiliar with the basic issues addressed in the 1999 WHO/ISH guidelines: The poor or limited rate of right answers to questions like defining the upper normality value of self-measured BP is linked to varying normalcy thresholds indicated in major hypertension guidelines [10,9]. They categorised doctors into two groups, medical officials and others (specialists and consultants), according to Ahmad et al., 2018. The results of Mann–Whitney test showed a significant difference (p, value < 0.001) between knowledge possessed by two groups. Group composed of specialists and consultants was identified to be more knowledgeable (mean rank = 18.25) as compared to medical officers' group (mean rank = 7.96) [6].

Furthermore, Shnaimer & Gosadi, 2020 discovered that age, gender, nationality, specialty, level of education, and years of practise had no statistical relationship with knowledge or practise adherence (P values >.05). Physicians who stated receiving HTN management guidelines from the Directory of Health through official channels had a better level of awareness about the SMHGs than those who did not. However, whether or not they got any guidance from the Directory of Health did not appear to be related to their level of adherence, which may indicate the presence of other factors influencing practice adherence. In our sample, the number of patients seen by physicians on a regular basis seemed to have an impact on reported adherence, with those who saw more than 35 patients daily reporting worse adherence

(P value =015). In addition, physicians who acknowledged attending hypertension management training sessions in the previous two years were more likely to indicate stronger adherence to guidelines than those who did not (P value .02) [4].

5. RECOMMENDATIONS

- Raising awareness of family physicians about HTN guidelines by making the copy about it available to all physicians and motivating them to read and use it in their work.
- Updating the National guidelines in order to be easier and not take time to increase adherence.
- Workshops about guidelines for more clearance and motivate them to more adherence to guidelines.
- Increase training opportunities for physicians and increase their knowledge about national guidelines.

6. CONCLUSION

A lack of knowledge about specific HTN management guidelines and inadequately reported practices' adherence were detected among PHC physicians.

CONSENT AND ETHICAL CONSIDERATION

- A written informed consent was obtained from all participants before inclusion in the study, explaining the value of the study, plus the procedures that was commenced.
- Approval from Ethical Committee of Tanta Faculty of Medicine was obtained before starting the study.
- Confidentiality and personal privacy was respected in all levels of the study.
- Participants are free to withdraw from the study at any time without any consequences.
- Collected data were not and will not be used for any purpose.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/82355