

Knowledge and Practice Concerning Hypertensive Patients towards Stroke Risk Factors and Symptoms in Albaha City

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Abstract

Background: Stroke is the second direct cause of death worldwide with hypertension, a transient ischemic attack or previous stroke, advanced age, diabetes, dyslipidemia, smoking and atrial fibrillation being the main risk factors. Of these, hypertension is the most prevalent and treatable risk factor for strokes.

Aim: To assess the knowledge of and practice concerning risk factors and symptoms of stroke among hypertensive patients in Albaha City.

Methods: This cross-sectional study included hypertensive patients attending five major primary care centres at Albaha city during winter season of 2018; these were randomly selected and were given a self-administered questionnaire to assess their knowledge of and practices regarding stroke risk factors and warning symptoms.

Results: Three hundred and two hypertensive patients were categorized according to their age groups, gender, educational level and employment. They showed highly significant levels of awareness and practice about risk factors and symptoms of stroke (p-value < 0.001). Non-employed, poorly educated older males were aware to a highly significant degree of stroke risk factors and warning symptoms in comparison to the corresponding category (p-value < 0.001) while younger, highly educated, employed males showed a significantly higher level of practice than the others (p-value < 0.001).

Conclusion: This study reflects the need for awareness campaigns to raise the level of knowledge and improve practices regarding strokes among hypertensive patients in Albaha city.

Key Words: Knowledge, Practice, Hypertension, Stroke.

Introduction

Stroke is a major cause of death worldwide and the principal cause of mortality in developing countries (Farooq et al., 2012). Proper diagnosis of the initial symptoms of a stroke, together with urgent management, can mitigate both disability and death (Musuka et al., 2015).

Diabetes, hypertension, hyperlipidemia, atrial fibrillation, aneurysms, arterio-venous malformation, and smoking are all known risk factors for stroke (Arboix, 2015).

When conventional measures and activities are followed, based on understanding of the disease's risk factors, stroke prevention is both proven and effective. (Murray et al., 2018). The awareness of individuals and the community about stroke risk factors and how to manage early symptoms of a stroke has a significant impact on stroke prevention. The major preventative actions can save a person's life if taken early (Abate et al., 2019).

Hypertension is a major risk factor for cardiovascular disease, the most important cause of morbidity and mortality all over the world (Turin et al., 2016). Recent guidelines for the management of cases of hypertension depend upon first-rate monitoring at primary health care centers (Men et al., 2017) and the self-monitoring of blood pressure at home, considered to be cornerstone predictors of end organ damage. These practices need to be combined with proper diagnostic procedures for hypertension and follow-up, while promoting the active partnership of hypertensive patients in their own care by improving of their knowledge and practices (Hodgkinson et al., 2019).

Hypertension has regularly been highlighted as a key modifiable risk factor for strokes (Turin et al., 2016) and the development of stroke knowledge among hypertensive patients is an important procedure in establishing an effective and concentrated health promotion program designed to prevent strokes (Dar et al., 2019).

This work aims to assess the knowledge of and practices concerning risk factors and symptoms of stroke among hypertensive patients in Albaha city.

Patients and Methods

During the winter season of 2018, a cross-sectional study involved the hypertensive patients attending the randomly selected major five primary care centers within Albaha city to achieve their monthly treatment and perform a regular follow up investigations every 6 months. This study included all accepted hypertensive patients to an informed consent according to the ethical committee of Albaha University Faculty of Medicine guide, explaining the purpose and procedure of the study.

They were of adults from both sexes, aged between 30 and 69 years old, with treated hypertension, with or without a co-morbid disease except stroke. They were subjected to a self-administered questionnaire in Arabic language assessing their knowledge and practice towards the stroke risk factors and warning symptoms. The participants' knowledge of risk factors and symptoms of stroke was assessed using a structured scoring system of "one" for accurate answers and "zero" for incorrect answers on the used questionnaire. The answer practise score was graded on a scale of "three" for the most correct, "two" for acceptable, and "one" for the least right.

The Statistical Program SPSS for Windows version 23.0 software was used for data entry and analysis. Quantitative data were presented by mean \pm standard deviation, while qualitative data were presented by frequency distribution. Statistical significance was set at p-value < 0.05. Comparative analysis between the mean values of two non-parametric scores was done using Mann-Whitney U Test

Results

Table(1): General characteristics of the hypertensive patients studied in Albaha city

General characteristics		Study group (n = 203)	
		No	%
Age category	30 - 49 years	96	47.3
	50 - 69 years	107	52.7
Gender	Male	122	60.1
	Female	81	39.9
Education	Elementary school	27	13.3
	Intermediate school	21	10.3
	High school	26	12.8
	Diploma	20	9.9
	Bachelor	93	45.8
	Master	11	5.4
Employment	Doctorate	5	2.5
	Employed	112	55.2
	Non-employed	91	44.8

This study involved 203 hypertensive patients attending the five major primary care centers within Albaha city with the group being categorized according to their age, gender, education and employment. They were aged between 30 - 69 years old; their mean age was 39.8 ± 7.8 years. Participants aged 50 years or over accounted for 52.7% and males were more numerous than females at a ratio of approximately 3 to 2. The educational level ranged from elementary school up to doctorate level, and individuals who had a Bachelor's degree were in the majority at 45.8%. The employed patients represented 55.2% (Table 1).

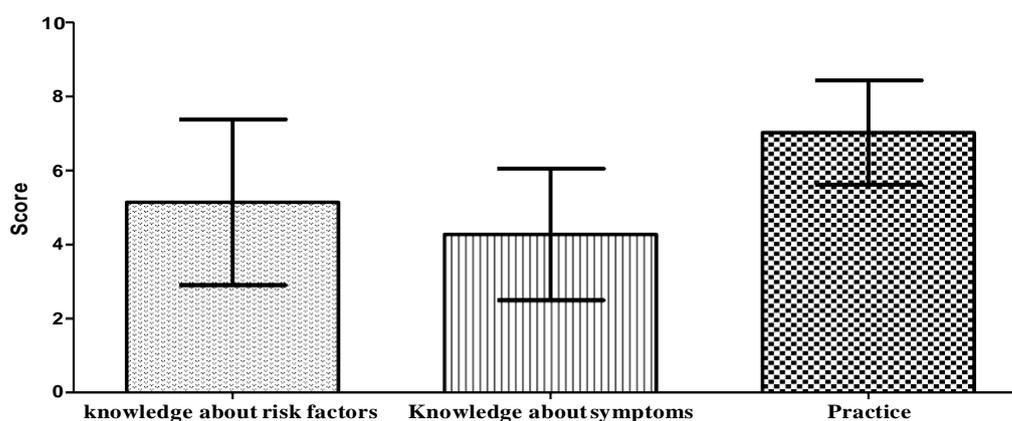
Table (2): Distribution of knowledge and practice items concerning stroke among hypertensive patients in Albaha City.

Awareness and practice items	Study group (n = 203)	
	Correct No (%)	Incorrect No (%)
Risk factors of stroke		
Stroke is a cerebral disease	189 (93.1%)	14 (6.9%)
Stroke could cause sudden death	128 (63.1%)	75 (36.9%)
Stroke could be treated	71 (35%)	132 (65%)
Hypertension and smoking are the most common risk factors for stroke	78 (38.4%)	125 (61.6%)
Alcohol consumption is a risk factor for stroke	92 (45.3%)	111 (54.7%)
Untreated DM is a common risk factor for stroke	99 (48.8%)	104 (51.2%)
Ischemic heart disease is a risk factor for stroke	98 (48.3%)	105 (51.7%)
Males have a higher incidence of stroke than females	99 (48.8%)	104 (51.2%)
High cholesterol and obesity are risk factors for stroke	116 (57.1%)	87 (42.9%)
Atrial fibrillation and vascular rupture are risk	73 (36%)	160 (64%)

factors for stroke		
Symptoms of a stroke		
Sudden confusion or trouble in speaking	117 (57.6%)	86 (42.4%)
Numbness or weakness of face, arm or leg	71 (35%)	132 (65%)
Sudden trouble during seeing in one or both eyes	76 (37.4%)	127 (62.6%)
Sudden trouble in walking, dizziness or loss of balance	90 (44.3%)	113 (55.7%)
Headache with no known cause	102 (50.2%)	101 (49.8%)
Stroke is a preventable disease	119 (58.6%)	84 (41.4%)
Do you think you will die as a result of a stroke?	154 (75.9%)	49 (24.1%)
Could you advise hypertensive people to control the risk factors of stroke before its occurrence?	137 (67.5%)	66 (32.5%)
Practices concerning strokes		
What would you do if you noted a patient having signs of sudden trouble walking or seeing?	170 (83.7%)	33 (16.3%)
What is your best option for a stroke?	148 (72.9%)	55 (27.1%)
Most useful method for recovery?	145 (71.4%)	58 (28.6%)

Table (2) shows the distribution of knowledge about risk factors and symptoms of a stroke among the study group. The majority of participants correctly identified stroke as a cerebral disorder manifested by a headache of unknown cause, as well as abrupt confusion or difficulty in speaking, which can lead to sudden death owing to hypercholesterolemia and obesity. On the other hand, other risk factors of a stroke were unknown by more than half of the participants. Symptoms of a stroke, like numbness or weakness in the face or extremities, sudden troubles affecting walking and seeing in one or both eyes were known to a minority of hypertensive patients (<50%). The practices relating to stroke ranged between 71.4% up to 83.7%.

Figure (1): Knowledge and practice scores concerning risk factors and symptoms of stroke among hypertensive patients in Albaha city.



The knowledge score about risk factors of stroke among the participating patients ranged from “1-10” with a mean value of 5.14 ± 2.24 , while the knowledge scores regarding symptoms of stroke ranged from zero to “8”; the mean value was

4.27±1.78. The mean value of the practice scores was 7.02±1.41 and ranged from (3-8).(See Figure 1.)

Table (3): Knowledge and practice scores regarding stroke among different categories of hypertensive patients in Albaha city.

Items		Knowledge score about risk factors	p-value	Knowledge score about symptoms	p-value	Practice score	p-value
Age category	Young (n=96)	5.88±2.35	<0.001	4.86±1.73	<0.001	7.34±1.18	0.003
	Old (n=107)	4.48±1.91		3.73±1.65		6.73±1.55	
Gender	Male (n=122)	4.2±1.7	<0.001	4.86±1.73	<0.001	7.19±1.31	0.016
	Female (n=81)	6.5±2.3		4.88±1.9		6.77±1.53	
Education level	High (n=109)	5.72±2.26	<0.001	4.7±1.69	<0.001	7.57±0.93	<0.001
	Low (n=94)	4.47±2		3.77±1.76		6.38±1.61	
Employment	Employed (n=112)	5.6±2.4	<0.001	4.69±1.78	<0.001	7.42±1.14	<0.001
	Non-employed (n=91)	4.57±1.8		3.75±1.65		6.53±1.56	

The hypertensive patients were categorized according to their age groups, gender, educational level and employment. Employed, highly educated younger females were aware to a highly significant degree of stroke risk factors and warning symptoms in comparison to the corresponding category (p-value < 0.001). The mean score regarding practice was significantly higher in males in comparison to females (p-value < 0.05) while younger, highly educated employed patients showed a significantly higher practice score than the resembling group (p-value < 0.01).

Discussion

Uncontrolled and prolonged elevation of systolic blood pressure is a major risk factor of stroke in hypertensive patients, even if antihypertensive therapy is used (Men et al., 2017). Moreover, knowledge of hypertensive complications, including stroke risk factors and symptoms, differs significantly among hypertensive patients (Murray et al., 2018).

This work demonstrated that the participants were not well informed about the risk factors and symptoms of stroke. Although the majority of hypertensive patients recognized the definitions of a stroke (93.1%) and some risk factors, including hypercholesterolaemia and obesity (57.1%), the level of their knowledge was less than

acceptable regarding the major risk factors, such as uncontrolled hypertension, diabetes mellitus, atrial fibrillation, ischemic heart diseases, alcohol consumption and increased risk in males rather than females (<50%).

These findings coincide with data documented by **Abate et al. (2019)** who reported that more than three quarters of hypertensive Ethiopian patients did not know about any risk factors and symptoms of a stroke. Physical inactivity was the most generally known risk factor for stroke (21.6 percent), while hypertension was the least well-known risk factor (3.6 percent). The most prevalent warning symptom of a stroke known to the responders was sudden weakness on one side of the body (36 percent). Additionally, these data are in approximate agreement with the data reported by **Basfar et al. (2016)** who found, in a community-based study in Jeddah, that most participants (87%) recognized stroke definitions but only one third had solid knowledge regarding the risk factors and symptoms of stroke. In another larger study from a different region of Saudi Arabia, only 64% were able to define stroke correctly (**Alaqeel et al., 2014**).

On the other hand, **AlOtaibi et al. (2017)**, in a Saudi community-based study, found that about three quarters of participants chose hypertension as the most common cause of a stroke. Furthermore, in a Nigerian study involving patients attending a hypertension and diabetes clinic of a Specialist Hospital, participants with good knowledge of stroke (70.3%), parts of the body affected by a stroke (89.1%), symptoms of a stroke (87.0%), stroke risk factors (86.6%), and stroke prevention (86.6%) were found (90.8 %).

In this study, Participants had identified unexpected confusion or difficulty speaking, as well as a headache from an unexplained source, as the most prevalent warning symptoms, scoring 57.6 % and 50.2 %, respectively. Few patients reported other symptoms such as numbness or weakness of the face, arm, or leg; abrupt difficulty seeing in one or both eyes; and sudden difficulty walking, dizziness, or loss of balance (from 35% up to 44.3%).

This finding was also published by **AlOtaibi et al. (2017)**, who found that 64.5 % of respondents rated difficulties speaking and walking as the most severe stroke symptom. Furthermore, less than half of hypertension patients were aware of warning signs of a stroke, such as numbness or weakness in the face or extremities, sudden difficulties walking, and seeing in one or both eyes (**Arisegi et al., 2018**). **Donkor et al. (2014)**, on the other hand, discovered that numbness or paralysis was the most prevalent stroke warning sign reported by participants.

Employed, highly educated, younger females were aware to a highly significant degree of stroke risk factors and warning symptoms in comparison to the corresponding category. These results are supported by observations of **Abate et al. (2019)** who reported that hypertensive patients who are educated young people living in an urban area and who have a good monthly income were significantly associated with overall awareness of strokes.

The females in this study showed a highly significant level of awareness about stroke risk factors and warning symptoms in comparison to males. This finding was

also reported by **Basfar et al. (2016)** who found that young Saudi females (<30 years) correlated with higher levels of stroke knowledge.

Differences arose in the knowledge of symptoms of stroke among the hypertensive patients participating in this study who appreciated the efforts of healthcare physicians in paying attention to educating their patients on the risk factors and symptoms of stroke during clinic visits in primary health care centres.

The mean value concerning practice was higher than the knowledge scores of the patients involved in the study. This finding correlates with those of **Men et al. (2017)** who reported that primary health care visits constitute good practice among Chinese hypertensive patients and play an important role in preventing strokes. Moreover, attitudes towards stroke awareness were cheerful among the Saudi population in Riyadh (**AlOtaibi et al., 2017**).

The mean score regarding practice was significantly higher in males in comparison to females. Being a younger, highly educated, employed hypertensive patient correlated with a significantly higher practice score in comparison to the corresponding category.

Bacha and Abera (2019) confirmed these findings, reporting that highly educated, metropolitan guys had superior attitudes and self-care habits when it comes to hypertension patients.

On the other hand, **Arisegi et al. (2018)** observed that practices for stroke prevention were less than optimal among the group. Only nearly half of the respondents (50.2%) went to clinic follow-up visits on a regular basis; around two-thirds (66.5%) took prescribed hypertension or diabetic medication on a regular basis; and only a handful (16.7%) took prescribed heart disease medications on a regular basis. Moreover, **AlOtaibi et al. (2017)** found no significant difference in attitude towards stroke either among different age groups or between the sexes.

These results reveal that hypertensive patients are in need of health education about the risk factors and warning symptoms of strokes from their doctors or by way of community educational programs. There are limited resources for health education concerning strokes and hypertensive patients are unable to find places with existing facilities. However, strokes can be prevented through lifestyle and health promotion programs which can be offered simply in primary health care centers.

This work recommends creating a plan to raise the level of knowledge and improve practices concerning strokes in the community in general and targeting hypertensive patients in Albaha city in particular. This can be done by organizing awareness campaigns at suitable times in well-attended areas. Furthermore, if more attention is paid to the Internet and other media, these would be effective sources of information. Additionally, enhancing the role of health education in primary health care centers should be supported and maintained in an effective manner.

References

1. **Farooq MU, Bhatt A, Safdar A, Kassab MY, Majid A.** Stroke symptoms and risk factor awareness in high school children in Pakistan. *Int J Stroke.* 2012;7(8):E15. doi:10.1111/j.1747-4949.2012.00899.x
2. **Musuka TD, Wilton SB, Traboulsi M, Hill MD.** Diagnosis and management of acute ischemic stroke: speed is critical. *CMAJ.* 2015;187(12):887-893. doi:10.1503/cmaj.140355.
3. **Arboix A:** Cardiovascular risk factors for acute stroke: Risk profiles in the different subtypes of ischemic stroke. *World J Clin Cases.* 2015;3(5):418-429. doi:10.12998/wjcc.v3.i5.418.
4. **Murray M, King C, Sorensen C, Bunick E, King R:** Community awareness of stroke, hypertension and modifiable risk factors for cardiovascular disease in Nkonya-Wurupong, Ghana. *J Public Health Afr.* 2018;9 (2):783. Published 2018 Oct 11. doi:10.4081/jphia.2018.783.
5. **Abate AT, Bayu N, Mariam TG:** Hypertensive Patients' Knowledge of Risk Factors and Warning Signs of Stroke at FelegeHiwot Referral Hospital, Northwest Ethiopia: A Cross-Sectional Study. *Neurol Res Int.* 2019;2019:8570428. Published 2019 Jun 23. doi:10.1155/2019/8570428.
6. **Turin TC, Okamura T, Afzal AR, Rumana N, Watanabe M, Higashiyama A, Nakao Y, Nakai M, Takegami M, Nishimura K, Kokubo Y, Okayama A, Miyamoto Y:**Hypertension and lifetime risk of stroke. *J Hypertens.* 2016;34(1):116-122. doi:10.1097/HJH.0000000000000753.
7. **Men X, Sun W, Fan F, Zhao M, Huang X, Wang Y, Liu L, Liu R, Sun W, Peng Q, Qin X, Tang G, Li J, Zhang Y, Cai Y, Hou FF, Wang B, Xu X, Cheng X, Sun N, Huang Y, Huo Y:**China Stroke Primary Prevention Trial: Visit-to-Visit Systolic Blood Pressure Variability Is an Independent Predictor of Primary Stroke in Hypertensive Patients. *J Am Heart Assoc.* 2017;6(3):e004350. Published 2017 Mar 13. doi:10.1161/JAHA.116.004350.
8. **Hodgkinson JA, Stevens R, Grant S, Mant J, Bray EP, Hobbs FDR, Martin U, Schwartz C, McCartney D, O'Mahony R, Perera-Salazar R2, Roberts N8, Stevens S, Williams B, McManus RJ:**Schedules for Self-monitoring Blood Pressure: A Systematic Review. *Am J Hypertens.* 2019;32(4):350-364. doi:10.1093/ajh/hpy185.
9. **Dar NZ, Khan SA, Ahmad A, Maqsood S:** Awareness of Stroke and Health-seeking Practices among Hypertensive Patients in a Tertiary Care Hospital: A Cross-sectional Survey. *Cureus.* 2019;11(5):e4774. Published 2019 May 28. doi:10.7759/cureus.4774.
10. **Basfar WM, Al-Sebyani AE, Aljawi GA, Milyani, HA, Jan MM:**Public knowledge of stroke amongst a Saudi population. *World Journal of Research and Review (WJRR)* 2016 3(2) 10-12
11. **Alaqeel A, AlAmmari A, AlSyefi N, Al-Hussain F, Mohammad Y:**Stroke awareness in the Saudi community living in Riyadh: prompt public health measures must be implemented. *J Stroke Cerebrovasc Dis.* 2014;23(3):500-504. doi:10.1016/j.jstrokecerebrovasdis.2013.04.011.
12. **AlOtaibi MK, AlOtaibi FF, AlKhodair YO, Falatah EM, AlMutairi HA:**Knowledge and attitude of stroke among Saudi population in Riyadh, Kingdom of Saudi Arabia. *International Journal of Academic Scientific Research.* 2017; 5, (1): 149-157
13. **Arisegi SA, Awosan KJ, Oche MO, Sabir AA, Ibrahim MT:** Knowledge and practices related to stroke prevention among hypertensive and diabetic patients attending Specialist Hospital, Sokoto, Nigeria. *Pan Afr Med J.* 2018;29:63. Published 2018 Jan 22. doi:10.11604/pamj.2018.29.63.13252.
14. **Donkor ES, Owolabi MO, Bampor P, Aspelund T, Gudnason V:** Community awareness of stroke in Accra, Ghana. *BMC Public Health.* 2014;14:196. Published 2014 Feb 21. doi:10.1186/1471-2458-14-196.
15. **Bacha D, Abera H:** Knowledge, Attitude and Self-Care Practice towards Control of Hypertension among Hypertensive Patients on Follow-up at St. Paul's Hospital, Addis Ababa. *Ethiop J Health Sci.* 2019;29(4):421-430. doi:10.4314/ejhs.v29i4.2.