Awareness, attitude, and distribution of high blood pressure among health professionals

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Background: **BP control is suboptimal Worldwide. Little is known about attitudes of health professionals toward their BP status.**

Aim: **To estimate awareness, attitudes, and distribution of blood pressure among health professionals.**

Study design: **Prospective cross-sectional survey.**

Methods: **Study was conducted among health professionals in two tertiary hospitals in Riyadh, KSA during December 2010. Socio-demographics, risk factors for high BP, awareness, and adherence to treatment were recorded.**

Results: **Six hundred and seventy-two subjects, 66.6% females, mean age 36.2 + 13.9 years. Prevalence of Hypertension (HTN) was 28%. 114 (60.6%) patients had self reported HTN in HTN group while 74 (11%) of total study population, were not aware that they have HTN which was detected on screening. Stress and lack of formal exercise were prevalent risk factors for HTN, present in 44.1% and 36.1%, of patients, respectively, while obesity was present in 19.4%. Many participants were not aware of recently recommended target value of blood pressure. 22.3% patients were irregular for their follow-up. 12.2% patients were not adherent to the treatment. Isolated systolic hypertension was more common in men. A point of serious concern was that relatively young health professionals, who were not known to be hypertensive did not monitor their BP, found to have HTN.**

Conclusion: **Suboptimal awareness and lack of adherence to the treatment for BP among health professionals is of serious concern, for increased chances of cardiovascular events. Physical exercise, correction of obesity and compliance with treatment may reduce the risk of HTN-related adverse outcome in this special subset of the population.**

Keywords: High blood pressure, Awareness, Cardiovascular disease, Health professionals, Saudi Arabia

Introduction

High BP is a major risk factor for cardiovascular disease, including ischemic heart disease (IHD), atherosclerosis, cardiovascular events, like myocardial infarction, MI, and Stroke [1,2]. Treatment and control of BP reduces the risk of IHD including (MI), and stroke [3]. The Seventh Report of the Joint National Committee on Prevention Detection Evaluation and Treatment of High Blood Pressure JNC 7 [4], emphasizes that no matter how effective is the therapy prescribed and no matter how careful and experienced clinician has prescribed it, the goal of BP control is possible

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only when the patient is aware and motivated for compliance with the treatment and follow-up and to establish and maintain a health promoting life style. The patient's attitude must be understood in order to increase the communication and control of BP [4]. Further, the report emphasizes that sustained 12 mmHg reduction in BP over 10 years will prevent one death for every 11 patients treated [5].

Further, Seventh Report of the Joint National Committee on Prevention Detection Evaluation and Treatment of High Blood Pressure JNC 7, have emphasized that blood pressure related mortality is linear even within normal range of blood pressure [6]. Treatment and control of BP reduces the cardiovascular risk [7,8].

Worldwide analysis of global burden of hypertension (HTN) revealed that 25% of the adults are having HTN and 9.2% of total deaths are due to HTN related events [9]. Despite the fact that high blood pressure is a modifiable risk factor [10], yet the patients education of the early diagnosis and control of HTN has not received enough attention worldwide [11]. Often patients are not aware of their diagnosis and even if aware, remain untreated and uncontrolled [10]. Adherence to the therapy is often poor and inconsistent [12,13].

Currently, JNC 7 report describes that, even most effective therapy prescribed by the most careful clinician can control hypertension; only if patient is motivated to take the prescribed medication. It also insists that awareness and attitude of the patients are greatly affected by lives – compelling demands, job and work load and lack of symptoms for hypertension are additional barriers that must be overcome so as to achieve the recommended goal BP [14]. Little is known about the prevalence, attitude and awareness of BP in this special group of health professionals. Better understanding of their attitude can help in motivation for optimizing BP control. The aim of this study was to assess the prevalence, attitude and awareness related to hypertension among health professionals in two major hospitals in Riyadh City, Saudi Arabia. The present study may help in improving BP control among doctors and other health personnel.

Methods

This cross-sectional survey involved health professionals, working in King Khalid University hospital and King Fahad Medical Complex, Riyadh, Saudi Arabia. Subjects were contacted individually in a campaign like. After their permission, residents, interns and medical students provided them with questionnaires and BP measurement. Medical students and junior doctors helped in conducting the study, using a self administered questionnaire, including socio-demographic data, knowledge, attitudes and practices (KAP) in addition to assessment of BP, by taking three (3) readings 10 min apart in right arm in sitting position average of the three readings was taken.

Outcome measures

The primary out-come of this study was to see the awareness, attitude, and distribution of blood pressure among the health professionals. Using JNC 7 guidelines and recommendation for the goal of controlled BP in healthy subjects was considered to be <140 mmHg SBP/90 mmHg DBP. It was also determined that what percentage of health professionals whose raised BP was detected only on screening by the investigators, were unaware of the status of their BP.

Statistical analysis

To determine blood pressures awareness and attitude, a descriptive analysis was conducted. Results are expressed as mean ± SD and percentage as appropriate. Univariate – analysis and logistic regression was performed using forward stepwise method using SPSS version 17 SPSS Inc., Chicago, IL. Odds ratio and its 95% confidence interval was calculated to assess the association between variables with BP awareness.

Results

Total of 700 subjects contacted, 96% of 700 participated. 28 (4%) did not participate. A total of 672 subjects included in the study. Table 1 comprises the socio-demographic data of the study

Table 1. Clinical demographics of study population.

Variables	Number/(%)
Nationality	
Saudi	270/672 (40.2%)
Non-Saudi	402/672 (59.8%)
Male	224/672 (33.3%)
Age all patients (years) mean ± SD	36.2 ± 13.9
Age males (years) mean ± SD	37.9 ± 12.3
Age females (years) mean ± SD	35.5 ± 14.6
Family H/O HTN	355/672 (52.8%)
Smokers	56/672 (8.3%)
Diabetic	155/672 (23%)
Obesity (BMI > 30)	131/672 (19.4%)
Self-reported heart problems percentage of patients	68/672 (10.1%)
Stress at work	299/672 (44.4%)

Table 2. Awareness and compliance to the treatment for HTN among Health Professionals.

Parameters	Number/percentage
Total no of persons with hypertension	188/672 (28%)
Aware of having HTN and its implementation	114/188 (60.6%)
Aware of last BP reading	89/188 (47.3%)
Aware of latest recommended BP goal	132/188 (70.2%)
Aware risk factors for uncontrolled blood pressure	102/188 (54.3%)
Aware that BP reduction reduces C.V. and renal events	105/188 (55.8%)
Can interpret self monitored BP	113/188 (60.1%)
Percentage of study population not aware of having HTN but detected by Investigator	74/672 (11.01%)
Self reported duration of HTN: 1–5 years	102/188 (54.3%)
6–10 years	33/188 (17.5%)
11–15 years	33/188 (17.5%)
>15 years	22/188 (11.7%)
Taking medication regularly	170/188 (90.42%)
Controlled blood pressure	166/188 (88.2%)

population. Females were 448/672 (66.7%) and males were 224/672 (33.3%), with a mean age of 36 ± 13.9 years. Mean systolic blood pressure in males was 133.3 ± 8.8 mmHg and diastolic blood pressure was 80.6 ± 6 mmHg. Where as in females SBP was 134.4 ± 8 mmHg and diastolic BP was 80.2 ± 6.2 mmHg. Prevalence of Hypertension was 188/672 (28%).

A total of 114/188 (60.6%) subjects had self reported HTN while 74/188 (39.3%) subjects (i.e. 74 out of the total sample, which is 672 participants, it is 11%) were found to be hypertensive on blood pressure measuring by research investigators. Almost half of the total hypertensive subjects were diagnosed to be hypertensive within the last 5 years (Table 2). 33/188 (17.5%) were diagnosed within the previous 10 years, while 22/188 (11.7%) had HTN for the past 15 years. 106/188 (54.2%) were asymptomatic at the time of diagnosis and they were diagnosed to be hypertensive on routine checkup, while 70/188 (37.2%) had symptoms. Of those who had symptoms 52.1% presented with headache, 42/188 (22.3%) had palpitation, 11/188 (5.8%) had angina; Family history of hypertension was present in 354/672 (52.6%) of total participants. As co-morbid factors; diabetes mellitus, obesity, and smoking were salient co-morbidities present in 23%, 19.4% and 8.3%, respectively.

21/188 (11.1%) subjects were on diuretics, 42/188 (22.2%) on angiotensin converting enzyme inhibitors or Angiotensin receptor blockers. 78/188 (41.4%) were on beta blockers, and 16/188 (8.5%) on calcium channel blockers. 170/188 (90.42%) patients had their blood pressure well controlled.

Stress at work and lack of exercise were the most prevalent risk factors accounting for (299/672) 44.4% of participants, 63.9% participants were monitoring their BP at home.

Awareness and compliance to treatment: 114/188 (60.6%) were aware of their HTN and its implication; 23/188 (12.2%) patients were non-adherent to their medication and they were not regularly taking medicine regularly; 3/188 (1.59%) patients stopped their medication with the commonest reason that they believe that they have improved and their BP has become normal. Younger participants with age <30 years were less aware of their blood pressure and were diagnosed on surveillance by junior doctors. Females were more aware of their blood pressure than males, Table 3. Systolic hypertension was more common among males.

Distribution of systolic and diastolic blood pressure among health professionals: Table 4 shows the distribution of blood pressure according to age and sex. Mean systolic BP for the entire sample was 133.3 ± 8.4 (120–160) mmHg, while the diastolic BP was 80.3 ± 6 (70–96) mmHg. The percentage distributions of individuals by systolic and diastolic BP are presented in Table 4. The prevalence of systolic BP above 140 mmHg increased with increase in the age. Among men, 20 patients had SBP >140 mmHg in ages below 40 years of age group as compared to 41 patients had SBP above 140 mmHg among patients above the age of 40 years (Table 4).

On the other hand, the number of subjects with SBP <130 mmHg decreased with age in both men and women. In females, 121/448 (27%) subjects were having SBP <130 mmHg. 208/448 (46.4%) females had SBP 131–140, 107/448 (23.8%) were having BP 140–150 mmHg while 12/448 (2.6%) were having SBP >150 mmHg.

Similarly, in females 253/448 (56.4%) had DBP <80 mmHg, 193/448 (43%) had DBP from 80.1 to 90 mmHg and 3/448 (0.66%) had DBP >90 mmHg. For both men and women prevalence of elevated BP increased with increasing age.

Table 3. Salient factors associated with blood pressure awareness.

Awareness of BP	Odds ratio	95%CI
Professionally qualified	3.5	2.1–4.8
Seniors	2	1.41–2.8
Females	1.89	1.32–2.7
Newly diagnosed hypertensive	2.3	1.65–3.35

Table 4. Distribution of SBP according to age and sex of the study population systolic BP distribution mmHg.

	Systolic BP distribution mmHg			
Men = 224				
Age groups	<130	131–140	141–150	>150
<30 years	36	29	5	0
31–40 years	39	14	14	1
41–50 years	20	12	21	2
>50 years	10	3	17	1
Total	105	58	57	4
Women = 448				
<30 years	57	139	20	0
31–40 years	38	47	36	1
41–50 years	26	18	47	8
>50 years	0	4	4	3
Total	121	208	107	12

Table 5. Prevalence of risk factor for CVD among health workers.

Risk factors	No/percentage
Smoking	56/672 (8.3%)
BMI $\geq$30	131/672 (19.4%)
Inactivity	75/672 (11.1%)
Diabetes	155/672 (23%)
Kidney disease	18/672 (2.67%)
Stress at work	297/672 (44.1%)
No formal exercise (health club)	243/672 (36.1%)
Uncontrolled HTN	6/188 (3.19%)
Have regular F/n	42/188 (22.3%)

Isolated systolic HTN was more prevalent in men than in women. The distribution of people who had been told that they are hypertensive but not following regular treatment decreased with the increasing age being 12 at the age of 30–40 years to zero above the age of 50 years.

Table 4 shows factors associated with blood pressure awareness professional qualification; seniors and females had highest odds. Youngsters were comparatively less aware.

Table 5 shows risk factors for CVD among hypertensive healthy workers. Obesity, diabetes, work stress and lack of regular exercise were the salient-risk factors.

Discussion

Across the world health caring organizations are dedicating for raising the public awareness about BP. Month of ''May'' has been proclaimed as National Blood Pressure Awareness month [15]. Health care institutions are asked not only to provide excellent care to the patients, but also to improve existing strategies through surveillance studies & awareness campaigns [16]. Although we have done much work in the field of hypertension in Saudi population [17–21]. The present study is to our knowledge is the first study on the health professionals from the region to address this special group of population. We have found that awareness of blood pressure among health professionals is suboptimal with a large number of subjects not knowing the recently recommended guidelines and cut off values for systolic and diastolic blood pressure under various clinical subsets of conditions like in healthy people, in patients with diabetes, patients with CVD, Kidney disease patients, etc. Further, many health professionals were careless and could not recall their most recent SBP and DBP readings. Similar to the studies on general population [22–24]. Although, 63.9% subjects in present study monitor their BP at home but many of them do not know how to interpret their reading according to their age group, co-morbidities and treatment states. Thus there is need of proper communication to increase awareness among health professionals regarding individualized BP target levels. For instance 139 SBP may be normal for one person and not normal for another patient (e.g. with renal disease or nephropathy).

There was inconsistency among few subjects who believed that BP as low as possible below 120/80 mmHg is better although there is no known additional benefits in lowering BP much below 120/80. Rather, some studies have reported a J curve effect between blood pressure reduction and adverse outcome and too much lowering of the blood pressure may increase the risk of adverse outcome as the recommended value of BP according to JNC 7 is up to 140/90 mmHg [25,26].

Amongst the doctors included in the study the greatest problem we came across was that they do not follow any clinic or physician regularly and do not adhere to the treatment needed. They attribute it to the work stress, less spare time and no faith in the treating physician. They also have their own opinions and do not want to change their life style. As the complications of HTN increases with the age. This group of patients needs

to be motivated to take their health care more seriously. The present study reveals that several co morbidities and risk factors were prevalent among health professionals. Stress, suboptimal activity and exercise, and obesity ranks highest among the risk factors. Proper advice from dietitian along with motivation may help in solving some of the issues.

A careful guideline for individualized BP target value should be distributed to health professionals so that they can detect abnormal readings of self monitored BP and can report to the treating physician at the earliest. Further counseling on the importance of controlling blood pressures, goals of the therapy, and the importance of early detection of uncontrolled BP will increase the awareness and inclination of health professionals to monitor their blood pressure more frequently.

Finally a matter of great concern problem was that a good number of patients were having undiagnosed HTN since they were symptom less. They were not monitoring their blood pressure (considering them to be normal).

Present study demonstrates the need of thorough surveillance and management of BP specially targeting health professionals with risk factors for HTN like obesity, in-activity, lack of exercise, smoking or family history of hypertension, so as to detect HTN at its earliest stage [27–29]. Further knowledge of recent recommendation, benefits of adherence to treatment and motivation for regular checkups will improve the BP control towards target values among health professionals.

Senior physicians, who are aware of their raised blood pressures but are not adherent to the treatment, require greater motivation and reminding, with frequent compulsory BP surveillance.

Further high prevalence of obesity among hypertensive patients requires compulsory diet counseling, to match the calorie intake and guidelines to add non-pharmacological support to the treatment of High BP.

The present study is a step towards improving the control of high blood pressure in a special subset of the population, which needs to be healthy in order to take good care of the patients. Since HTN is often asymptomatic, frequent surveillance and screenings is the only answer for early detection, and therefore highly desired. In conclusion motivation through reminders, guideline distribution, conferences and frequent health assessments of health professionals may improve the blood pressure control and awareness among this subset of the population.

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