Impact of the 2017 American College of Cardiology/American Heart Association Hypertension Guideline on the prevalence of hypertension in young Saudi women

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Abstract

Background: The diagnostic criteria for hypertension have recently been redefined by the American College of Cardiology/American Heart Association (ACC/AHA). Data on the new prevalence of hypertension in different countries are emerging, but none, to date, from Saudi Arabia.

Aims: This study aimed to determine the impact of the 2017 ACC/AHA hypertension guideline on the prevalence and determinants of hypertension in young Saudi women.

Methods: 518 female college students, 17–29 years of age were prospectively enrolled in a survey during the period from January 1, 2016, to April 15, 2016 at Princess Nourah University. The participants completed a previously validated questionnaire, that assessed their risk factors for hypertension, and their blood pressure, weight and height were measured.

Results: Application of the 2017 ACC/AHA diagnostic criteria resulted in approximately 7-fold increase in the prevalence of hypertension, from 4.1% to 27.1% (P < 0.001). At a cut-off value of ≥140/90, hypertension was significantly associated with increased age, increased body mass index (BMI), increased heart rate, history of chronic illnesses, prior diagnosis with diabetes mellitus and family history of hypertension. Whereas, with the ≥130/80 cut-off value, only increased BMI and heart rate were significant predictors (P < 0.001).

Conclusion: The prevalence of hypertension markedly increased among young adult Saudi women with the 2017 ACC/AHA classification for hypertension, and the main predictors were increased BMI and heart rate. Further studies on the new prevalence and predictors of hypertension in the Saudi population are warranted. This information is important for healthcare authorities to plan cost effective screening, prevention and control programmes.

Keywords: hypertension, ACC/AHA diagnostic criteria, prevalence, predictors, women

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Introduction

The American College of Cardiology/American Heart Association (ACC/AHA) recently redefined the thresholds for the diagnosis of hypertension in adults. The new diagnostic cut-off value of ≥130/80 mmHg is to replace the previous JNC7 threshold of ≥ 140/90 mmHg for the diagnosis of hypertension (*1*). While the 2017/ACC/AHA guideline recommends lifestyle modification for all hypertensives, it only recommends blood pressure (BP)-lowering medications for adults with stage 1 hypertension, for secondary prevention in patients with clinical cardiovascular disease or for primary prevention in adults with an estimated 10-year atherosclerotic cardiovascular disease risk of ≥ 10%, and those with stage 2 hypertension (*1*).

Accumulating evidence has shown that reduction of systolic BP to a target of < 130 mmHg significantly decreases the risk of myocardial infarction, stroke, heart failure and major cardiovascular events in adults (*2*). Implementation of the 2017/ACC/AHA hypertension guideline is, therefore, expected to translate into reduction in cardiovascular mortality and morbidity (*3*). However, compared to JNC7, the new lower 2017/ACC/AHA diagnostic thresholds will increase the disease burden worldwide, annual costs of antihypertensive treatment, the proportion of uncontrolled hypertensives, (*3–6*), and likely the number of adverse events among treated patients (*3*). Decreasing the diagnostic thresholds for hypertension is also expected to increase the number of statin-eligible adults according to the 2016 cholesterol guideline (*7*). Although not all authorities have adopted the ≥ 130/80 mmHg thresholds, their diagnostic cut-off values and goals have been reduced, particularly in high risk patients (*8*). With the change in hypertension definition, estimation of the new prevalence of hypertension with the lower cut-off values in communities, therefore, becomes paramount and data are accumulating from different sources globally (*4–6,9–11*).

Studies on the prevalence of hypertension in Saudi Arabia have all used the previous diagnostic thresholds of ≥ 140/90 mmHg. A prevalence of 26.1–27.2% among Saudis aged ≥ 30 years was found (*12,13*) and 15.2% in those aged 15 years or older (*13*). For the 15–24 years age group, a prevalence up to 8.8% was reported (*14*). These estimates are expected to be higher had the ≥ 130/80 mmHg thresholds been used. The magnitude of increase in the prevalence in hypertension in SA with the new ACC/AHA guideline is unknown to date.

In this study we aimed to assess the effect of the 2017/ACC/AHA hypertension guideline on the prevalence of hypertension and predictors of hypertension in young Saudi women.

Methods

Study population

We re-analysed the data of 518 adult Saudi females aged 17–29 years who participated in a hypertension survey conducted in 2016 on undergraduate and postgraduate students at Princess Nourah bint Abdulrahman University, Riyadh. We evaluated the change in the prevalence of hypertension among these young women following the introduction of the 2017/ACC/AHA guideline using the new thresholds (*15*).

The participants were enrolled prospectively during the period from 1 January 2016 to 15 April 2016. The sampling is detailed in the original study (*15*). With 530 participants, the estimated prevalence would be expected to have a precision of 2% with alpha 0.05 (*16*). Those diagnosed with cardiac disease and pregnant women were excluded.

Questionnaire and data collection

The questionnaire and method of data collection has been described previously (*15*). In brief, following approval of the study by our Institutional Review Board, the students were invited to participate in the study. Participation was voluntary, and the study followed the principles of the Helsinki Declaration. An anonymous self-administered questionnaire was distributed (*13*) [the questionnaire was part of the Saudi Health Interview Survey (*17*)]. The final questionnaire comprised 65 questions assessing sociodemographic characteristics, BP history and risk factors for hypertension.

The participants' BP, heart rate, weight, and height were measured and recorded on entry to the study. For BP measurement, we followed The National Health and Nutrition Examination Survey instructions. The Omron M6 Comfort (HEM7223-E) automated BP device was used. Three brachial BP readings were taken at 5 minute intervals for each participant while resting. The first reading was discarded and the second and third readings were averaged and recorded. In cases where only 2 readings were available, the second reading was recorded (*18*).

Statistical analysis

Data analysis was performed using *SAS*, version 9.4. Continuous variables are reported as means and standard deviations (or medians and interquartile ranges as appropriate) and categorical variables as numbers and percentages. Comparisons between the hypertension and normal groups were performed using the Chi-squared test, Fisher's exact test, *t*-test, or the Wilcoxon rank sum test as appropriate. We compared the difference in the prevalence of hypertension as diagnosed via the 2017/ACC/AHA and the JNC7 guidelines using McNemar's test (due to matched pairs of women across the 2 guidelines). A *P*-value < 0.05 was considered statistically significant.

Results

A total of 530 students were enrolled in the initial survey. Twelve participants (2.3%) had undetermined BP status (BP measurements were taken but they omitted to answer the question regarding being on treatment for hypertension) and were excluded. The baseline characteristics of the remaining 518 participants are displayed in Table 1. Table 2 shows the new analysis of the BP and heart rate results according to the new2017 /ACC/AHA guidelines. All the hypertensives (those on treatment for hypertension or with BP ≥ 130/80) had elevated their diastolic BP (mean 83.3 mmHg, range 73.5–107.0 mmHg). None of the hypertensive subjects had a systolic BP ≥ 130 mmHg.

The prevalence of hypertension in the study population according to the2017 /ACC/AHA and JNC7 guidelines is shown in Table 3. According to the 2017/ACC/AHA classification, 27.1% of participants would be classified as having hypertension, which was significantly higher than the prevalence of 4.1% if the JNC7 classification was applied (*P* < 0.001). We found that 85% of the hypertensives in the study had stage 1 hypertension (systolic BP = 130–139 mmHg and/or diastolic BP = 80–89 mmHg), and 15% had stage 2 hypertension (BP ≥ 140/90 mmHg). All of the 119 participants with stage 1 hypertension according to the 2017/ACC/AHA guideline also fulfilled the JNC7 criteria for prehypertension (systolic BP = 120–139 mmHg and or diastolic BP = 80–89 mmHg) (Table 3).

Table 4 shows the predictors of hypertension in the study population according to the JNC7 and 2017/ACC/AHA guidelines. At a cut-off value of ≥ 140/90, significant predictors of hypertension were increased age, body mass index (BMI) and heart rate; known diabetes; and family history of hypertension. Prior diagnosis of chronic disease was more common in the hypertension group, 23.8% vs 10.3% (*P* = 0.05). The percentage of participants who exercised regularly was lower in the hypertension group but this was not statistically significant (23.1% vs 30.0%, *P* = 0.592). None of the dietary constituents had an association with hypertension. When analysed using the 2017/ACC/AHA cut-offs, only BMI and heart rate emerged as statistically significant. There was no association between hypertension and other established risk factors for hypertension, including diabetes mellitus, age,

Table 1 Baseline sociodemographic characteristics of the study population, Saudi Arabian women aged 17–29 years, 2016

Characteristic	Total (*n* = 518)	
Age (years)		
Mean (SD)	20.5 (1.8)	
Range	17–29	
	No.	%
Marital status		
Married	19	3.7
Single	499	96.3
Highest level of education		
High school	502	96.9
Bachelor	16	3.1
College		
Health[a]	179	34.6
Non-health[b]	339	65.4
Family income (Saudi riyals)		
Unknown	152	29.3
< 5 000	33	6.4
5 000–9999	87	16.8
10 000–19 999	135	26.1
≥ 20 000	111	21.4

[a]*Participants from the colleges of medicine, nursing, pharmacy, dentistry and health and rehabilitation sciences.*

[b]*Participants from the faculty of education, college of literature, college of social work, college of languages and translation, college of science, college of computer and information sciences, college of business and management, college of arts and design.*

family history, or exercise. None of the studied dietary constituents had an association with hypertension (Table 4).

Discussion

Prevalence of hypertension according to the 2017/ACC/AHA guideline

The results of this study show an approximately 7-fold increase in the prevalence of hypertension among young Saudi women with application of the 2017/ACC/AHA thresholds for hypertension diagnosis. A significant absolute increase of 23% is observed using the 2017/ACC/AHA guideline compared with the JNC7 guideline (27.1% vs 4.1% respectively (P < 0.001)), representing an increase in newly diagnosed stage 1 hypertension cases. As would be expected in a young population, diastolic hypertension predominated, and in our sample, all the hypertension cases were comprised of isolated diastolic hypertension. To our knowledge, this is the first study to report on the new prevalence of hypertension in a subset of the Saudi population following the introduction of the 2017/ACC/AHA guideline and to study hypertension prevalence in this age group.

The magnitude of the increase in the prevalence of hypertension as defined by the 2017/ACC/AHA guideline, varies between countries. In the United States of America, the crude prevalence of hypertension among adults increased to 45.6% with implementation of the 2017/ACC/AHA hypertension guideline, with an absolute increase of 13.7% compared to the JNC7 guideline (*6*). In India and Canada absolute increases of 14% are expected with the new classification (*4,11*); and increases of ≈25–50% and 36–58% are anticipated in China and Japan respectively (*10,19*). To our knowledge, there are no studies to date on the new prevalence of hypertension among young adults to compare our results to. However, we believe that the magnitude of increase we found likely represents a true increase since our finding based on JNC7 criteria was 4.1%, which is within the results reported by other studies involving Saudi youths (2.5–8.8%) (*13,14*). As the Saudi population currently comprises mainly young individuals (*20*), these findings may translate into a significant rise in the proportion of hypertensive Saudis. Considering that women are at a lower risk of hypertension (*12*) compared with males , we expect that these figures will be higher when young male subjects are studied. As a youthful population is expected to be at low cardiovascular risk, it is likely that only a few of the newly diagnosed hypertensives will require antihypertensive therapy (*6*).

Predictors of hypertension according to JNC7 and 2017/ACC/AHA classifications

In addition to increasing the prevalence of hypertension, lowering the diagnostic thresholds altered the predictors of hypertension in our study. With application of the JNC 7 classification, significant predictors of hypertension were increased age, increased BMI, increased heart rate, history of diabetes, and family history of hypertension. These findings are in accordance with the known risk factors for hypertension, and their relation to hypertension has been discussed in detail previously (*1*). However, predictors of hypertension with the lower 2017/ACC/AHA guideline criteria were limited to increased BMI (P < 0.001) and increased heart rate only. These 2 risk factors are unique: the association of increasing BMI with hypertension bears a continuous, almost linear, relationship, with no evidence of a threshold (*1*), while increased heart rate implies dominance of the sympathetic over the parasympathetic nervous systems, a mechanism that leads to both accelerated heart rate and raised BP (*21*). Increased heart rate often predated the development of hypertension in previous studies (*22*).

While the number of participants who consumed ≥ 5 servings of fruits and vegetables per day was higher in the no hypertension group in both the 2017/ACC/AHA and JNC7 comparisons [7 (13.2%) vs 20 (17.9%), and 27 (17.0%) vs 0 (0.0%) respectively], this was not statistically significant (P= 0.608 and 0.670 respectively). This finding is likely due to the poor accordance with the DASH (Dietary Approaches to Stop Hypertension) diet observed in our population as a whole, as in this dietary pattern 4–5

Table 2 History of hypertension and measurements of blood pressure and heart rate in Saudi Arabian women aged 17–29 years, 2016

Characteritic	Hypertension status (*n* = 518)			
	No hypertension[a] (*n* = 378)		Hypertension[b] (*n* = 140)	
	No.[c]	%[c]	No.[c]	%[c]
Told by a doctor or other health professional they had high BP reading				
Yes	35	9.3	22	15.7
No	307	81.2	108	77.1
Treated for raised BP in the past 2 weeks				
Yes	0	0.0	7	5.0
No	378	100.0	133	95.0
Measurements				
No. of BP measurements				
2	17	4.5	9	6.4
3	361	95.5	131	93.6
No. of heart rate measurements				
2	20	5.3	12	8.6
3	358	94.7	128	91.4
Measured SBP				
Mean (SD)	100.0 (8.8)		109.9 (7.2)	
Range	76.0–129.0		94.0–129.5	
< 130	378	100.0	140	100.0
Normal, < 120	371	98.2	126	90.0
Elevated, 120–129	7	1.8	14	10.0
Measured DBP (mmHg)				
Mean (SD)	71.8 (5.1)		84.3 (4.8)	
Range	55.0–79.5		73.5–107.0	
Normal, < 80	378	100.0	3	2.1
Stage 1 HTN, ,80–89	0	0.0	122	87.1
Stage 2 HTN, ≥ 90	0	0.0	15	10.7
Measured heart rate, beats/min				
Mean (SD)	82.6 (10.6)		87.2 (11.3)	
Range	56.5–118.5		64.5–115.5	

BP = blood pressure; DBP = diastolic BP; SBP = systolic BP; SD = standard deviation.

[a]*Not on treatment for hypertension and BP < 130/80.*

[b]*BP ≥ 130/80 or on treatment for hypertension.*

[c]*Unless otherwise indicated.*

servings each of vegetables and fruits are recommended (23). None of the comparisons for the other components of the DASH diet reached statistical significance in our study. More research involving larger samples is necessary to establish the efficacy of the DASH diet in young Saudis with formal calculation of the DASH score. Of interest, it was recently reported that among children and adolescents, despite a significant inverse relationship between the DASH score and systolic BP, there is no significant association between this dietary pattern and diastolic BP (24), which is commonly involved in hypertension in the young. Additionally only a small proportion of the participants had hypertension risk factors, including diabetes, dyslipidaemia and a positive family history, and only about one-third of the participants exercised 3–5 times/week. These results also require re-evaluation in larger samples to establish their effect on the new hypertension thresholds.

Other potential explanations for the lack of association of the 2017/ACC/AHA stage 1 hypertension with well-established predictors, observed in our study, may be due to the nature of the studied population and the BP cut-off values. Our sample comprised young and mostly healthy females. In such a population, some risk factors may be of greater significance compared to others, obesity particularly. Although multivariate analysis was not performed in our study, Obarzanek et al, evaluating the individual components of multiple behaviour changes,

Table 3 Cross-tabulation of the blood pressure results among Saudi Arabian women aged 17–29 years, as defined by the JNC7 and 2017/ACC/AHA classifications

JNC7	2017/ACC/AHA								Total	
	Normal[a]		Elevated BP[b]		Stage 1 HTN		Stage 2 HTN[d]			
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal[a]	371	100	0	–	0	–	0	–	371	71.6
Prehypertensione	0	–	7	5.6	119	94.4	0	–	126	24.4
HTN[d]	0	–	0	–	0	–	21	100	21	4.0
Total	371	71.6	7	1.4	119	23.0	21	4.0	518	100

BP = blood pressure; HTN = hypertension.

Numbers in brackets were percentages within the subtotal under JNC7 or percentages within the total of 518 as appropriate.

[a]BP< 120/80.

[b]BP of 120–129/<80.

[c]BP=130–139/80–89 mmHg and not on treatment for hypertension.

[d]BP≥140/90 or on treatment for hypertension.

[e]BP= 120–139/80–89.

found that while several lifestyle behaviour changes are important for reduction of BP, they were difficult to detect when weight was included in multivariate models (*25*). It is also important to note that, the "blood pressure zone" termed prehypertension in the JNC7 guideline is currently unequally split in the 2017/ACC/AHA classification between high normal BP and stage 1 hypertension. In our study, 100% of those with stage 1 hypertension according to the 2017/ACC/AHA guide also fulfilled the criteria for prehypertension. Therefore, it is our expectation that many of the pathophysiological processes and clinical characteristics of prehypertension may now be applicable to the 2017/ACC/AHA stage 1 hypertension, which constitutes the majority of hypertensives in our sample. Prehypertension is characterized by autonomic and metabolic dysfunction (*26*) and has been correlated with the metabolic syndrome, dyslipidaemia, diabetes, obesity (*27*)/ increased BMI, high visceral adipose index, and increased heart rate (*28*). Autonomic dysfunction coexists with prehypertension and is closely related to changes in BP and lipid metabolism (*26*). Increased resting heart rate was associated with higher blood pressure, lower pulse pressure and increased risk of prehypertension and hypertension for males and females, and waist–height ratio, as a measure of abdominal obesity, further increased this association (*29*). Our results suggest that the autonomic and metabolic dysfunction observed with prehypertension may continue to manifest in the new stage 1 hypertension. Although prehypertension is considered one of the predictors of the development of hypertension (*27*), not all people with prehypertension progress to develop hypertension as defined by JNC7 (*30*). The current hypertension classification is based on shared cardiovascular outcomes rather than pathophysiology. Further studies on the associations if hypertension the new classification are warranted.

Hypertension in young Saudis

Studies from Saudi Arabia have shown a progressive build-up of risk factors for hypertension at an early age. The prevalence of hypertension risk factors among Saudi schoolchildren has reached epidemic levels due to the adoption of unhealthy lifestyle habits, particularly sedentary lifestyle and poor diet (*31*). It is estimated that 34.2% of Saudi schoolchildren have abnormal BMI (*32*). This figure increases to 48.4% mong university students (*33*), and further increases are expected with time (*34*). While many prior studies from Saudi Arabia have recommended focusing on the modifiable risk factors for hypertension as a preventive and therapeutic measure (*15,31,33,35*), this goal remains far from reach due to the huge gap between knowledge and attitudes and practices among young adults. Despite having good knowledge, few young Saudis actually adopt healthy lifestyle measures to reduce their cardiovascular risk (*33*).

In their recommendations on the management of obesity, the Canadian hypertension guidelines advise approaching weight loss management in a multidisciplinary fashion that includes behavioural intervention in addition to dietary education and promotion of physical activity (*8*). Concentrated efforts in training on healthy habits should be initiated in early childhood to increase their efficacy (*31*), improve children's development, and prevent adulthood disease and disability (*36*). Parental involvement improves both children's and parents' behaviours (*37*). Development of family-based prevention programmes for obesity in children is therefore important (*38*).

Early detection of hypertension in young women

With the evidence showing that lower BP values result in reduced mortality and morbidity (*2*), establishing the true prevalence of hypertension and its risk factors in the community, particularly among the young, becomes a necessity. This information is important for health care planning including early diagnosis, management and prevention campaigns, with the aim of reducing future hypertension and related complications (*15*). Women have a greater projected hypertension prevalence compared with men, particularly in the age groups 35–64 years (*34*), and had a greater risk for stroke compared with men. As

Table 4 Predictors of hypertension in the study population according to the 2017 ACC/AHA and JNC7 classifications

Characteristic [a]	2017 ACC/AHA			JNC 7		
	BP < 130/80 (*n* = 378)	BP ≥ 130/80 (*n* = 140)	*P*	BP < 140/90 (*n* = 497)	BP ≥ 140/90 (*n* = 21)	*P*
Age, mean (SD), years	20.5 (1.8)	20.4 (1.7)	0.631	20.4 (1.8)	21.5 (2.1)	0.006
BMI[b], mean (SD), kg/m²	23.5 (4.9)	25.8 (6.7)	< 0.001	24.0 (5.4)	28.0 (7.7)	0.001
Heart rate, mean (SD), beats/min	82.6 (10.6)	87.2 (11.3)	< 0.001	83.5 (10.8)	90.7 (11.7)	0.003
	No. (%)	**No. (%)**		**No. (%)**	**No. (%)**	
Diagnosed with chronic disease	39 (10.3)	17 (12.1)	0.552	51 (10.3)	5 (23.8)	0.050
Diabetes	3 (0.8)	4 (2.9)	0.196	5 (1.0)	2 (9.5)	0.016
Family history (father/mother) of hypertension	176/350 (50.3)	65/125 (52.0)	0.742	224/454 (49.3)	17/21 (81.0)	0.005
Hypercholesterolaemia	19/363 (5.2)	7/137 (5.1)	0.955	25/479 (5.2)	1/21 (4.8)	0.926
Smoking	25/376 (6.6)	10/138 (7.2)	0.971	32/493 (6.5)	3/21 (14.3)	0.319
Exercise[c]	85/283 (30.0)	29/100 (29.0)	0.846	111/370 (30.0)	3/13 (23.1)	0.592
Diet						
Oil/fat used for meal preparation			0.690			0.198
Olive	166 (49.0)	61 (52.6)		219 (50.0)	8 (47.1)	
Butter/ghee/margarine	32 (9.4)	8 (6.9)		38 (8.7)	2 (11.8)	
Milk			0.969			0.240
0	78 (28.2)	31 (28.7)		101 (27.4)	8 (47.1)	
1–2	190 (68.6)	74 (68.5)		255 (69.3)	9 (52.9)	
≥ 3	9 (3.2)	3 (2.8)		12 (3.3)	0 (0.0)	
Yogurt			0.989			0.556
0	93 (38.6)	34 (38.2)		120 (37.9)	7 (53.8)	
1–2	142 (58.9)	53 (59.6)		189 (59.6)	6 (46.2)	
≥ 3	6 (2.5)	2 (2.2)		8 (2.5)	0 (0.0)	
Fruit/vegetable			0.608			0.670
0	9 (17.0)	14 (12.5)		22 (13.8)	1 (16.7)	
1–4	37 (69.8)	78 (69.6)		110 (69.2)	5 (83.3)	
≥5	7 (13.2)	20 (17.9)		27 (17.0)	0 (0.0)	
Poultry meat			0.076			0.080
0	13 (5.4)	11 (12.5)		21 (6.6)	3 (25.0)	
1–2	207 (86.3)	72 (81.8)		270 (85.4)	9 (75.0)	
≥3	20 (8.3)	5 (5.7)		25 (7.9)	0 (0.0)	
Red meat			0.909			0.590
0	80 (38.6)	32 (41.0)		107 (38.9)	5 (50.0)	
1–2	124 (59.9)	45 (57.7)		164 (59.6)	5 (50.0)	
≥ 3	3 (1.4)	1 (1.3)		4 (1.5)	0 (0.0)	
Fish			0.087			0.749
0	135 (62.2)	59 (72.8)		185 (64.9)	9 (69.2)	
1–2	82 (37.8)	22 (27.2)		100 (35.1)	4 (30.8)	
Sweetened beverage			0.083			0.690
0	93 (38.9)	23 (26.1)		112 (35.7)	4 (30.8)	
1–2	128 (53.6)	55 (62.5)		174 (55.4)	9 (69.2)	
≥3	18 (7.5)	10 (11.4)		28 (8.9)	0 (0.0)	
Fast food, days eaten per week			0.432			0.731
0	30 (10.7)	7 (7.1)		36 (9.9)	1 (6.7)	
1–2	144 (51.2)	57 (57.6)		194 (53.2)	7 (46.7)	
≥ 3	107 (38.1)	35 (35.4)		135 (37.0)	7 (46.7)	

Dietary components are average servings per day (unless stated differently).

SD = standard deviation.

P-value was based on Chi-squared test, Fisher's exact test or t-test as appropriate.

[a]*For variables with missing data, either the available sample size or the number of missing data was provided.*

[b]*Data missing for 4 participants.*

[c]*Vigorous activity for at least 20 minutes 3 times/week or moderate activity for 30 minutes 5 times/week.*

hypertension is the most prevalent modifiable risk factor for stroke globally in both sexes (*39*), efforts should be made to reduce or halt the projected rise in hypertension, particularly among women.

The new diagnostic cut-offs represent a challenge to the health care system in Saudi Arabia considering that with the previous classification, 57.8% of hypertensive Saudis were undiagnosed, and only 45% of treated hypertensives had controlled BP (*13*). The additional hypertension cases based on the new classification will increase the disease prevalence and management burden on the health care system (*4*).

Limitations

Although the majority of the hypertensives in our study had stage 1 hypertension, and were young women, who are expected to have a low risk profile (*6*), these women will constitute a burden to the health care system as they will require education on nonpharmacological interventions and regular follow-up (*1*). Knowing the important predictors of hypertension in this subgroup will help focus the management efforts in a cost–effective manner.

Another limitation in our study is that the questionnaire lacked a question on whether or not the participants had their BP measured recently. In our study, 77.1% of the hypertensives had never been told they had high BP reading. This number is significant considering that these values would have fallen in the prehypertension readings according to the previous JNC classification. One possible explanation may be that these participants (or some of them) were never screened for hypertension.

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Impact des lignes directrices 2017 sur l'hypertension de l'American College of Cardiology/American Heart Association sur la prévalence de l'hypertension chez les jeunes femmes saoudiennes

Résumé

Contexte : Les critères de diagnostic de l'hypertension ont récemment été redéfinis par l'American College of Cardiology/American Heart Association (ACC/AHA). Des données sur la nouvelle prévalence de l'hypertension dans différents pays commence à voir le jour, mais il n'y a, pour l'heure, aucune donnée pour l'Arabie saoudite.

Objectifs : La présente étude avait pour objectif de déterminer l'impact des lignes directrices 2017 sur l'hypertension de l'ACC/AHA sur la prévalence et les déterminants de l'hypertension chez les jeunes femmes saoudiennes.

Méthodes : 518 étudiantes de l'Université Princesse Nourah, âgées de 17 à 29 ans ont été recrutées de manière prospective pour participer à une enquête entre le 1er janvier et le 15 avril 2016. Les participantes ont rempli un questionnaire préalablement validé, qui évaluait les facteurs de risque de l'hypertension et indiquait leur tension artérielle, leur poids et leur taille.

Résultats : L'application des critères de diagnostic définis par les lignes directrices 2017 sur l'hypertension de l'ACC/AHA s'est traduite par une multiplication approximative par 7 de la prévalence de l'hypertension, qui est passée de 4,1 % à 27,1 % (p < 0,001). À une valeur seuil supérieure ou égale à 140/90, l'hypertension était significativement associée à l'âge, à un indice de masse corporelle (IMC) plus élevé, à une fréquence cardiaque accrue, à des antécédents de maladies chroniques, à un diagnostic antérieur de diabète sucré et à des antécédents familiaux d'hypertension. En revanche, avec une valeur seuil supérieure ou égale à 130/80, seule l'augmentation de l'IMC et de la fréquence cardiaque constituait des facteurs prédictifs significatifs (p < 0,001).

Conclusion : La prévalence de l'hypertension a nettement augmenté chez les jeunes femmes adultes saoudiennes suite à l'application des lignes directrices 2017 de l'ACC/AHA sur l'hypertension. Les principaux facteurs prédictifs étaient l'augmentation de l'IMC et de la fréquence cardiaque. Des études supplémentaires sur les nouvelles données concernant la prévalence et les facteurs prédictifs de l'hypertension dans la population saoudienne sont nécessaires. Ces informations sont importantes pour les autorités sanitaires afin de prévoir la mise en place de programmes de dépistage, de prévention de l'hypertension et de lutte contre cette affection ayant un bon rapport coût-efficacité.

الأثر الناجم عن المبدأ التوجيهي المعني بارتفاع ضغط الدم الصادر عام 2017 عن الكلية الأمريكية لأمراض القلب/ الجمعية الأمريكية للقلب على معدل انتشار ارتفاع ضغط الدم في صفوف الشابات السعوديات

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الخلاصة

الخلفية: قامت الكلية الأمريكية لأمراض القلب/ الجمعية الأمريكية للقلب مؤخرا بإعادة تعريف معايير تشخيص ارتفاع ضغط الدم. وأخذت البيانات تظهر حول معدلات الانتشار الجديدة لارتفاع ضغط الدم في بُلدان متفرقة، غير أنها لم تتضمن حتى الآن بيانات من المملكة العربية السعودية.

الأهداف: هدفت هذه الدراسة إلى تحديد الأثر الناجم عن المبدأ التوجيهي المعني بارتفاع ضغط الدم الصادر عام 2017 عن الكلية الأمريكية لأمراض القلب/ الجمعية الأمريكية للقلب على معدل انتشار ومحددات ارتفاع ضغط الدم في صفوف الشابات السعوديات.

طرق البحث: استبق الدراسة تسجيل 518 طالبة جامعية تتراوح أعمارهن بين17 و 29 سنة في مسح أُجري في الفترة من 1 يناير/ كانون الثاني 2016 وحتى 15 أبريل/ نيسان 2016 في جامعة الأميرة نورة بنت عبد الرحمن. واستكملت المشاركات استبيانا مجاز مسبقا هدف إلى تحديد عوامل خطر إصابتهن بارتفاع ضغط الدم، وقياس ضغط الدم لديهن، وكذلك قياس أوزانهن وأطوالهن.

النتائج: أسفر استخدام معايير تشخيص الكلية الأمريكية لأمراض القلب/ الجمعية الأمريكية للقلب عن وجود زيادة في معدل انتشار ارتفاع ضغط الدم بمقدار 7 أضعاف تقريبا، إذ ارتفعت النسبة من 4.1% إلى 27.1% (P < 0.001). وعند وصول القيمة الحدية إلى 140/ 90 أو أعلى، بدا الارتباط واضحا بين ارتفاع ضغط الدم وتقدُّم العمر، وزيادة منسب كتلة الجسم، وزيادة سرعة القلب، وتاريخ الإصابة بأمراض مزمنة، والتشخيص المسبق بالسكريّ، وتاريخ الإصابة بارتفاع ضغط الدم في الأسرة. وعندما بلغت القيمة الحدية 130/ 80 أو أعلى، كانت زيادة منسب كتلة الجسم وزيادة سرعة القلب العاملين المُنبئيْن الوحيديْن المرتبطيْن بارتفاع ضغط الدم (P < 0.001).

الاستنتاج: زاد معدل انتشار ارتفاع ضغط الدم بصورة ملحوظة في صفوف الشابات السعوديات البالغات وفق تصنيف الكلية الأمريكية لأمراض القلب/ الجمعية الأمريكية للقلب الصادر عام 2017 بشأن ارتفاع ضغط الدم، وتمثلت العوامل الرئيسية المنبئة في زيادة منسب كتلة الجسم وزيادة سرعة القلب. ويوصى بإجراء مزيد من الدراسات حول معدلات الانتشار الجديدة والعوامل المنبِئة بارتَفاع ضغط الدم في صفوف السكان السعوديين. وتنطوي تلك المعلومات على أهمية بالنسبة للسلطات الصحية من أجل التخطيط الفعّال مَن حيث التكلفة لبرامج التحري، والوقاية، والمكافحة.

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