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Hypertension Among 30+ Year-Old People in Zahedan (Southeast of Iran).

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Abstract:

Target & aim: Hypertension (HTN) is considered a public health problem due to its magnitude, risk, and difficulty to control. Estimates of the prevalence of hypertension are certainly increasing in the world. Since such a study was not yet carried out in Zahedan, this survey was conducted to find out the prevalence of hypertension in Zahedan, southeast of Iran (2006-2007).

Materials & Methods: This cross-sectional study was carried out on 2300 individuals (1150 men and 1150 women) of age 30+ years in Zahedan. Samples were selected randomly from all regions. Weight, height, Body Mass Index (BMI) and blood pressure were measured using ordinary methods. Obtained data were analyzed using version 11 of SPSS, via Chi square and student T- Tests. Results were expressed as percentage and mean \pm SD. $P < 0.05$ was considered statistically significant.

Results: The results obtained from this survey showed that prevalence rate of hypertension in Zahedan were 27.08 % (32.3% in men and 22.5% in women). In addition, prevalence rate of hypertension in Baluch ethnic group was higher than that of other ethnic groups and increased by age, BMI and the family size.

Conclusion: Hypertension prevalence rate was high in Zahedan and there was also a direct relationship between, BMI, age, ethnicity and the family size and hypertension.

Keywords: Ethnic groups, Hypertension, Prevalence, family size.

Introduction:

Blood pressure is a vital sign that is routinely obtained during a physical examination of individual but high blood pressure varies with age, sex and height.⁽¹⁾ Hypertension (HTN) is considered a public health problem due to its magnitude, risk, and difficulty to control.⁽²⁾ It is a common, asymptomatic, and a readily detectable disease. Generally HTN is a major public health problem and a leading cause of death and disability in developing countries. One-quarter of the world's adult population has hypertension, and this is likely to increase to 29% by 2025 in these countries.⁽³⁾ Pre-hypertension has a likelihood of progressing to hypertension.⁽⁴⁾ Hypertension represents an independent, linear risk factor to cardiovascular diseases.⁽⁵⁾ High medical and socio-economic costs of HTN results mainly from its complications, such as cerebrovascular disease, coronary artery disease, cardiac insufficiency, chronic renal insufficiency, and peripheral vascular disease.^(5, 6) Many investigations showed that prevalence of HTN correlated with Body Mass Index.⁽⁷⁻¹²⁾ and it is a risk factor for coronary arterial diseases.⁽¹³⁾ Other studies revealed that HTN prevalence in women is more than men⁽¹⁴⁻¹⁶⁾ and it was higher among urban than rural participants^(17, 18) many investigations reported that prevalence of arterial HTN was associated with life style⁽¹⁸⁾ and associated with economical and social condition. The experiment showed that HTN relationship with obesity and smoking.⁽¹⁹⁾ Experimental evidence revealed that urbanization, life stress, gender and smoking are the most effective factors for elevated blood pres-

sure.^(20- 23) Moreover, Dressler and Santos, 2000 showed that social and cultural situations were effective factors on HTN.⁽²⁴⁾ Studies carried out by Canadian Heart Health Research Group, on 26294 both women and men participants aged from 18 to 84 years showed that prevalence of HTN was controlled by changing the life style and diet habits during 1981-90.⁽²⁵⁾ Because prevalence of HTN is certainly increasing in the world and that such a study has not so far been carried out in Zahedan, this survey was conducted to find out the prevalence of hypertension and determine its prevalence based on sex, age, Body Mass Index (BMI), ethnicity and the family size.

Materials & Method:

This cross-sectional study, was performed in Zahedan (southeast of Iran) during 2006-2007. At first the city was divided into 10 regions and from each division 230 participants took part in this survey. Men and women with aged of 30+ years were invited to participate in a thorough health screening study. Those who were younger than 30 years old were excluded from the study. Finally, 2300 individuals comprising 1150 men and 1150 women were included. Participants were selected randomly. The trained blood sample takers would enter a neighborhood and would select every other house and would include 30+ people in the study only if they accepted to participate in the study so that we would have 230 cases in each neighborhood to obtain 2300 participants which is 10% of the estimated population of over 30 year-old people in Zahedan. Since the participants did not trust us doubting that

our sample takers might have relations with the police they misinformed us while being asked about smoking habits, we preferred to omit the related options in the questionnaire. A limitation in our study is that we could not find clear information about population pyramid in Zahedan. In the beginning a questionnaire was filled out by each participant. After resting for 5 to 10 minutes in their quiet and warm room (suitable room), blood pressure was measured three times by the medical students from the left arm with a table sphygmomanometer (Germany Company Riester). A wider cuff was used if the participant's upper arm circumference was more than 32 cm. For the purpose of analysis, the mean of the three measured values was considered. Weight and Height of participants was measured by ordinary methods. Blood pressure was measured at 8 and 11 A.M. There are two types of blood pressure: systolic and diastolic. Systolic blood pressure is the maximum blood pressure in the system as the heart contracts, diastolic blood pressure, on the other hand, is the minimum blood pressure while the heart rests and fills with blood.⁽²⁶⁾ A condition when systolic blood pressure is greater than 140 mmHg and diastolic blood pressure greater than 85 mm Hg is defined as hypertension (140/85 mmHg).⁽²⁶⁾ Known hypertensive patients or using hypertensive drug Known HTN as self-reported in the questionnaire. In this survey individuals with blood pressure between >120/85 mmHg were considered as HTN. Individuals with blood pressure <120/85mm/Hg was considered normal blood pressure. Body Tables.....

Mass Index (BMI) was calculated as weight (kg) divided by height squared (m²). Krotkof phase I was used to defined systolic blood pressure (SBP) and phase V was used for the diastolic blood pressure.⁽²⁷⁾

All the participants received verbal and written information about the purpose and procedures of the study before giving informed consent to participate. The study was approved by the Research and Ethic committee of the Zahedan University of Medical sciences (Zahedan, Iran). Data were analyzed using X² and student T-test by SPSS V.11. P<0.05 was considered statistically significant.

Results:

Results obtained from this study showed that the prevalence rate of hypertension was 27.08 % in Zahedan. It was higher in male (32.3%), compared to female one (22.5%9%, table 1). In addition, there was a positive correlation between the hypertension prevalence and age. In the age group of 30-40 years, frequency of HTN was 19% and showed an increase up to 32% in the age group of 40-50 years and reached 49% in those who were more than 50 years old (table, 2). These results showed that frequency of HTN was higher in Baluch tribes than other ethnic groups (Table -2). Meanwhile, the results revealed that mean arterial pressure increased in accordance to the age increase (30-40yrs: = 88.13±11.18, 40-50 yrs: 92.35± 12.45, >50yrs: 97.83±14.41,). Tables 3 and 4 show that frequency of HTN increases with BMI and the family size.

Table 1: prevalence of hypertension (systolic/diastolic mm/Hg) based on gender and age group of above 30 yrs.

Blood pressure	120/<85		>120/ 85-89		9 >120/ 90-104.9		>120/ >105 mm/Hg	
	(normal)		(H.T)		(H.T)		(H.T)	
gender	n	%	n	%	n	%	n	%
Women	871	77.5%	2 43	5.4 %	173	14.95%	22	%2.15%
Men	806	4.7%	126	6.2%	123	15.17%	20	%3.93 %
age								
30-40 yrs	926	80%	69	5.7%	155	12.9%	17	1.4%
40-50 yrs	403	61.02%	120	18.28%	113	17.15%	23	3.55 %
> 50 yrs.	227	51.5%	107	23.1%	93	21 %	19	4.4%

Data obtained from Table 1 show that hypertension prevalence rate went up with age increase.

Table: 2. Prevalence of Hypertension (sis/dia BP mm/ Hg) among the tribes' inhabitants in Zahedan.

Blood pressure	Normal 120/<85 mmHg		HT >120/ 85 mmHg	
	n	%	n	%
Tribes				
Baluch	556	69.5%	251	30.5
Sistani	772	75.4 %	253	24.6 %
Others	345	73.7 %	123	%26.7 %

Data obtained from Table 3 showed that hypertension prevalence in Baluch tribes is significantly high compared with those of the others (P<0.01).

Table 3: Comparison of Normal Blood Pressure percent and Hypertension (mm/Hg) distribution among examined by BMI

BMI	Normal Blood Pressure		Hypertension	
	120/80-85		>120/ 85	
	n	%	n	%
≤18	201	86.6 %	31	13.4%
18.1-22.	720	81.8 %	160	18.2 %
22.1-30.1	330	72%	128	28%
30.1-4	259	60.3 %	171	39.7 %
> 40	198	60 %	133	40 %

Data obtained from Table 4 showed that hypertension prevalence is increased by BMI.

Table 4: prevalence of hypertension among the examined by number of children.

Number of children	N BP =120/80-85		HT=>120/ 85	
	n	%	n	%
<2	364	%76.7	110	% 23.3
2-4.	844	%75.2	278	%24.8
4-8	342	% 71.16	138	% 28.4
>8	125	% 56	99	% 44

Data obtained from table 5 showed that hypertension prevalence is increased by number of children.

Discussion:

The results obtained from this survey showed that the prevalence of hypertension in the city of Zahedan was % 27.08. Moreover, hypertension in men was

higher than in women and increased with age, MBI and family size. In addition, the results indicated that hypertension was significantly different among different ethnic groups living in this city. The pre-

valence of HTN in the present study was approximately the same as that of Barquera, et al., 2010 who had determined that Hypertension had a higher prevalence in Mexico than among Mexican-Americans living in the U.S.⁽²⁰⁾ These findings are in accordance with those of Joffres et al., 1992⁽²⁶⁾ who reported high blood pressure among Canadian adults but lower than those of Jardim et al⁽²⁸⁾ who investigated prevalence of HTN in Goiânia in Brazilian and higher than those of Jonas et al⁽¹⁹⁾ that reported prevalence of HTN in India. These differences might be due to life style, economic status and nutrition among these populations. The results obtained from the present study also showed a positive correlation between hypertension, age and BMI in both sexes. Also these results showed that the frequency of hypertension in male population was higher compared with those of female and accordance with those De Munter JS, et al⁽²⁹⁾ who investigated that blood pressure in Indian, Pakistani and Bangladeshi populations had sex differences. In addition, the results obtained from the present study revealed that the prevalence of hypertension in male population was higher compared with that of female. In addition our finding is accordance with the results of the study by Nascente et al⁽⁹⁾ who discovered that men had a higher BP and higher prevalence of hypertension compared with women. These differences might be due to sex hormones and other sex factors. The results of the present study showed that the prevalence of hypertension among Baluch populations who live in Zahedan was more than other tribes. This is due to their life style, intake of higher calorie foods, more seden-

tary life and nutritional habits. This finding are same as Duangtep, et al (2010) who reported that unhealthy lifestyle practices which cause hypertension among hill tribe populations in Mae Fah Luang District of Chiang.⁽³⁰⁾ Furthermore, we found that the prevalence of hypertension had a positive association with the family size. This might be due to the increased stress and anxiety in cases of children education, diet and other stress effective factors.

Conclusion:

Hypertension prevalence was high in Zahedan and there was also a positive association between between, BMI, age, tribe and family size.

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