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Lifestyle and hypertension in rural population of Tangestan town, Iran

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Original Article

Abstract

BACKGROUND: Hypertension is an important health problem in developed countries and the risk factors of this complication are related to the individuals' lifestyle, with most of them being modifiable. The present study was conducted with the aim to investigate the relationship between lifestyle and primary hypertension among the people referring to health centers of Tangestan Town, Iran, in 2017.

METHODS: This study was a case-control study carried out on 100 patients with hypertension and 100 subjects as the control group living in the villages of Tangestan who had a health record in health centers. Data were collected through the international health promoting behaviors (HPLP-II) questionnaire and were analyzed using descriptive and analytical statistics in SPSS software.

RESULTS: The mean and standard deviation (SD) of the body mass index (BMI) scores were 26.27 ± 4.09 and 26.20 ± 4.30 in the case and control groups, respectively, and there was no significance difference between the two groups (P > 0.050). The mean total score of overall health promotion behavior in the case and control groups was respectively 133.27 ± 29.72 and 135.84 ± 29.39 out of 208. In the case and control groups, the highest and lowest scores in the subgroups were associated with the nutritional status and physical activity, respectively. However, there was no significant difference between the lifestyle dimensions of the two groups (P > 0.050).

CONCLUSION: Regarding overweight and lack of activity among the studied participants, it is necessary to perform the intervention based on psychological principles for the people prone to hypertension, especially those having positive history among their family members.

KEYWORDS: Hypertension, Lifestyle, Risk Factors, Behavior, Health

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Introduction

Hypertension is a chronic problem in the global health field[1] requiring a significant global responsibility in developed and developing countries.[2] It is also related directly to cardiovascular diseases (CVDs) leading to death. Moreover, hypertension is known as one of the causes of physical disabilities due to its connection to CVDs.[1]

The incidence risk of CVDs, cardiac failure, and cerebrovascular stroke in the patients with hypertension is respectively two, four, and seven times more than that in the healthy people.[3] According to the statistical figures issued by the Ministry of Health, Treatment, and Medical Education, 20 out of 100 thousand adult individuals suffer from hypertension, with half of them being unaware of their disease and only five of these people receive treatments. In other words, 75% of individuals with hypertension do not receive any

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treatment and this is not limited to Iran, rather it is the case even in developing countries.[4] However, the burden of this disease is more prominent in the countries with low and average income and in middle age period.[5] Todays, most of health problems such as obesity, cancers, hypertension, and the resulting mortality are caused by the changes in lifestyles and, consequently, made by the people's behaviors.[6]

In Iran, in recent decades, the socioeconomic changes and lifestyle modification have led to high prevalence of CVDs' risk factors such as smoking, hyperlipidemia, and hypertension, so that the mortality caused by CVDs have increased drastically.[7] High salt consumption, imbalance in taking calorie and its subsequent obesity are called as hypertension's risk factors, which can deteriorate the situation towards death when it is accompanied by smoking and high calorie food consumption.[8]

Since most of these risk factors are related to the lifestyle and hypertension can be modified,[9] changing the factors associated with the lifestyle is known as the best way to control and prevent this disease.[10] So, precise recognition of this connection results in taking effective measures to manage this disease.[11] Regarding the importance of lifestyle modification and its role in health promotion and preventing hypertension, this study was performed to investigate the relation between lifestyle and primary hypertension among the people referring to health centers of Tangestan town.

Materials and Methods

This is a case-control study which was carried out in 2017 on 100 patients suffering from hypertension (case group) and 100 people as control group living in Tangestan town with a health chart in the health centers. The multi-stage random sampling method was used to select the samples, so that ten health centers in the region was selected randomly and, then, ten records of the patients with hypertension were chosen randomly. It should be noted that if the selected record was not accessible or did not dissatisfy the researcher, another patient was replaced randomly.

The inclusion criteria of the case group included having a blood pressure of 140/90 or higher and affirmation of the disease by the doctor, receiving medicines reducing blood pressure, an age of more than 30 years old, and lack of suffering from kidney disease, CVDs, and diabetes mellitus (DM). In addition, 100 people from the same village were selected as the control group members and both groups were the same in respect of age, gender, and place of living. They were supposed not to consume any blood pressure reducing medicines or have blood pressure less than 140/90.

An experienced and trained interviewer collected the data using the health promoting behaviors (HPLP-II) questionnaire by direct referring to health centers and patients' homes after receiving oral consent from the participants. The questionnaire included two parts. The first part consisted of demographic information and general characteristics with 30 questions including age, gender, marital status, education level, occupation, income, weight and height, smoking, physical activity, nutrition circumstance, mood situation, and the history of hypertension.

The second part was the HPLP-II questionnaire containing 52 questions and 6 dimensions including health accountability (9 questions), spiritual development (9 questions), physical activity (8 questions), nutrition (9 questions), interpersonal communication (9 questions), and stress management (8 questions). The questionnaire was set by the Likert-type scale. The scores 1, 2, 3, and 4 were defined as never, sometimes, often, and always options, respectively. The total score of the dimensions was obtained summing up of all scores. Therefore, the range of the health promotion behavior total score

was between 52 to 208.

The sub-scales of nutrition, responsibility, spiritual excellence, and interpersonal relationships were possible from a minimum of 9 to a maximum of 36, and the two sub-scales of physical activity and stress control were possible within the range of 8 to 32 scores. The sub-scales were categorized into three classes of poor, moderate, and good with score ranges of less than 18, 19 to 27, and above 27, respectively.[12]

Regarding the lifestyle score range, the scores below 100, 100 to 150, and 150 to 208 indicated a poor, moderate, and good lifestyle, respectively.

Higher scores represented better health condition. Although the validity and reliability of the questionnaire has been confirmed by Morvati Sharifabad et al.[13] (Cronbach's alpha coefficient = 0.87), its reliability was measured by the internal consistency or Cronbach's alpha coefficient (0.75) among 20 cases of the studied population before starting the main project. This was performed due to the lack of use of the original questionnaire among the people living in Bushehr province, Iran. Data were analyzed using descriptive and analytical statistics such as t-test and chi-square in the SPSS software (version 20, IBM Corporation, Armonk, NY, USA).

Results

The mean and SD of age was 52.70 ± 11.23 and 51.60 ± 10.53 in the case and control groups, respectively. Moreover, 61 (61%) cases from each of the case and control groups were women. Both the studied groups were the same in terms of demographic characteristic including age, gender, marital status, and occupation. No significant difference was observed between the two groups regarding the mentioned variables (Table 1).

The mean weight of the cases in the case and control groups were 71.24 ± 11.28 and 70.21 ± 11.69 kg, respectively. The mean body mass index (BMI) of the cases in the two groups was 26.27 ± 4.09 and 26.20 ± 4.30, respectively. There was no significant difference between the two groups in terms of the afore-mentioned variables (P > 0.050).

Statistical tests showed no significant difference between the two studied groups about the factors related to blood pressure such as smoking, physical activity, and fat intake (P > 0.050). However, there was a significant difference between the two groups regarding salt intake and mood condition (P < 0.050) (Table 2).

Table 1. Frequency distribution of data of the variables studied among the case and control groups

Variable		Case group Frequency (%)	Control group Frequency (%)	P
Sex	Male	37 (37)	39 (39)	0.880
	Female	63 (63)	61 (61)	
Age group (years)	30-40	15 (15)	17 (17)	0.940
	40-50	27 (27)	28 (28)	
	50-60	28 (28)	29 (29)	
	≥ 60	30 (30)	26 (26)	
Marital status	single	6 (6)	4 (4)	0.120
	Married	79 (79)	85 (85)	
	Divorced	15 (15)	13 (13)	
Educational level	Illiterate	35 (35)	16 (16)	0.001
	Elementary education	33 (33)	28 (28)	
	High school	23 (23)	22 (22)	
	Diploma	3 (3)	23 (23)	
Occupation	Employed	96 (96)	95 (95)	0.370
	Unemployed	4 (4)	5 (5)	

Table 2. Frequency distribution of data of the demographic variables studied among the case and control groups

Variable		Case group Frequency (%)	Control group Frequency (%)	P
Smoking	Yes	25 (25.2)	22 (22.0)	0.590
	No	74 (74.8)	78 (78.0)	
Physical activity	Yes	43 (43.0)	54 (54.0)	0.199
	No	56 (56.0)	46 (46.0)	
Salt intake	None	31 (31.0)	10 (10.0)	0.001
	A little	34 (34.0)	22 (22.0)	
	Normal	29 (29.0)	58 (58.0)	
	High	6 (6.0)	10 (10.0)	
Fat intake	Low	50 (50.0)	35 (35.4)	0.214
	Normal	37 (37.0)	49 (49.5)	
	High	13 (13.0)	15 (15.1)	
Family history of hypertension	Yes	59 (59.0)	35 (35.0)	0.001
	No	41 (41.0)	65 (65.0)	
Mood condition	Calm	35 (35.0)	52 (52.0)	0.018
	Occasionally tempered	58 (58.0)	38 (38.0)	
	Frequently tempered	7 (7.0)	10 (10)	

Table 3 compares the mean level of agreement between the HPLP-II subscales of health promotion, physical activity, nutrition, spiritual growth, interpersonal communication, and stress management. The mean total score of overall health promotion behavior in the case and control groups was 133.27 ± 29.72 and 135.84 ± 29.39 out of 208, respectively. In the case group, the highest and lowest scores in the subgroups were associated with the nutritional status and physical activity, respectively. Furthermore, in the control group, the highest and lowest scores in the subgroups were associated with the nutritional status and physical activity, respectively. According to table 3, none of the dimensions of lifestyle were different significantly in the two studied groups ($P > 0.050$).

Discussion

This study was performed in order to determine the relationship between health promoting lifestyle and hypertension disease. Most of the cases were older than 50 years and aging was considered as a risk factor for hypertension in the present study, which confirms the results of other studies.[14-17] Accordingly, training to prevent high blood pressure since the young ages seems necessary. As mentioned before, no significant difference was found among the demographic characteristics between two groups and a precise consistency was observed between the two groups.

Table 3. Six dimensions and the total score of health promotion behaviors in both case and control groups

Subscales	Score range	Case group Mean ± SD	Control group Mean ± SD	P
Health responsibility	9-36	23.79 ± 4.76	23.66 ± 4.78	0.840
Physical activity	8-32	16.58 ± 5.25	16.88 ± 6.29	0.740
Nutrition	9-36	25.20 ± 5.21	26.41 ± 4.04	0.070
Spiritual development	9-36	24.08 ± 4.91	24.63 ± 4.60	0.410
Interpersonal communication	9-36	24.07 ± 5.21	24.65 ± 4.78	0.410
Stress management	8-32	19.55 ± 4.46	19.61 ± 4.86	0.920
Total sum score of health promotion behaviors	52-208	133.27 ± 7.29	135.84 ± 35.29	0.420

SD: Standard deviation

The number of illiterate people was twice more than the cases in the control group. In addition, there was a significant relationship regarding the education level between the control group cases and their counterparts in the case group. The importance of literacy and its role is prominent in disease prevention and control. Vakili et al studied 320 patients with hypertension among rural population over 30 years old in Islamabad Gharb city, Iran and found that the illiteracy level was high among them and concluded that health literacy was associated with the education level.[18] Eftekhar Ardebili et al. showed in a study that educational programs for blood pressure control were effective. They also regarded training the individuals based on health education models to be necessary for the hypertension prevention and control.[19] These findings show the need for self-care planning and blood pressure management for literate and illiterate people.

35 and 59% of the subjects in the control and case groups reported the history of hypertension in their family, respectively. This is in line with the studies by Mansoorian et al.[11] and Shayesteh et al.[14] Moreover, the history of the afore-mentioned disease was higher among the fathers of the control group's cases.

22 and 52.2% of the subjects in the control and case groups were smoking and used hookah, respectively, and there was no significant difference between them. It should be noted that tobacco is planted in the villages of Tangestan town and this point must be taken into account in present study.

Since smoking is a major contributor to CVDs and stroke, the incidence of stroke and coronary artery diseases (CADs) in patients with hypertension is two to three times higher than that of a non-smoking patient with hypertension, and smoking cessation reduces this risk.[20]

65% of the case group consumed no or lower salt and there was a significant difference between the case and control groups. This represented regarding of the nutritional points by the patients in present study.

The occasionally tempered mood was more seen among the case group subjects in comparison to the control group in present study. However, no significance difference was observed between the two groups in terms of stress management and interpersonal communication, which could be affected by behavioral manner of the subjects. No significant difference was found between the two groups regarding the total mean scores of all dimensions of the questionnaire. Nevertheless, Mansoorian et al. showed that behavioral habits related to nutrition, stress, and physical activity of the patients suffering from hypertension are more prevalent in rural population of Gorgan, Iran.[11]

The mean BMI of patients in the case and control groups were respectively 26.27 and 26.20, which are near the overweight boundary. This is consistent with the studies by Aghamolaei et al.,[21] Najar et al.,[22] and Ba et al.,[23] as well as the studies by Songc and Dai in China.[24] It seems that encouraging patients to lose weight and interventions for weight loss seem to be necessary for hypertension reduction. On the other hand, half of the people do not have regular physical activity as a factor of hypertension reduction. This is in agreement with the investigations by Shayesteh et al.,[14] Najar et al.,[22] Sadeghi et al.,[25] Madani et al.[26] and Ahmadi[20]. The first mentioned study indicated that this inactivity among rural population is associated with urban lifestyle and hence it is necessary to modify it among the rural people.

Limitations of the study included the lack of generalizability of the study findings. Besides, the cross-sectional design of the study limited any causal interpretation of the relationships between health promotion activities and hypertension.

Conclusion

In General, the health-promoting lifestyle in patients with hypertension was in a medium level, but the physical activity scale was in the weak level. Therefore, educational interventions and promotion to provide a suitable basis for physical activity for people with hypertension to control their weight can be an effective step in improving the health level in these patients.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

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