High Blood Pressure control in a Rural Area of Iran

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Abstract

Objectives: Hypertension is an important risk factor for cardiovascular diseases. One of the cornerstones of primary prevention of cardiovascular diseases is screening high blood pressure and antihypertensive drug therapy.

Unfortunately little has been known about controlling of hypertension in rural areas of Iran. This research was performed to assess the control of high blood pressure in rural areas of Charmahal and Bakhtyari Province.

Methods: In a cross-sectional study, 376 patients were selected by a random cluster sampling from 19 rural healthcare centers. Their blood pressure were measured and recorded. Systolic Blood Pressure (SBP) lower than 140 mmHg and Diastolic Blood Pressure (DBP) lower than 90 mmHg were defined as successful control of high blood pressure. The percentage of successful control of high blood pressure was calculated and its relation with gender, Body Mass Index (BMI), and type of drug therapy was evaluated.

Results: Blood pressure was successfully controlled in 125 of 376 patients (33%). We found that male patients, and patients who were on multi-drug therapy had better blood pressure control (P-Value<0.05). There was not any significant relationship between BMI of patients with level of blood pressure control.

Conclusion: It seems that insufficient blood pressure control still remain as major public health problem. These results underscore the urgent need to develop national strategy to improve treatment of hypertension.

Key words: Cardiovascular diseases, Hypertension, Charmahal and Bakhtyari Province

Introduction

Hypertension is an important risk factor for cardiovascular diseases.¹ One of the cornerstone of the primary and secondary prevention of cardiovascular diseases is screening for high blood pressure, and antihypertensive drug therapy.²

In contrast, control of hypertension among the population remains disappointing. In the United Kingdom, only 6% of hypertensive subjects had their blood pressure level to lower than 140/90 mmHg.³ Among treated hypertensive subjects, blood pressure control was achieved to 27% in the United States,⁴ and 24% of the subjects in France.⁵ A study which was done in rural areas of Egypt found even more impaired blood pressure control, with fewer than 1% of patients being controlled.⁶ In China only 8.1% of patients achieved controlled blood pressure.⁷
Results from the fifth report of the Joint National Committee on Detection, Evaluation, and Treatment of high blood pressure (JNCV) in 1993 showed a deterioration in control of high blood pressure. During 1988 to 1991 a decrease in control of hypertension from 29% to 27.4% was seen.8

Unfortunately little is studied about blood pressure control in rural areas of Iran. This study was designed to evaluate blood pressure control in the rural areas of Charmahal and Bakhtiary Province.

Methods and Materials

In a cross sectional study, 376 patients were selected by a random cluster sampling from 19 rural healthcare centers of Charmahal and Bakhtiary Province.

All of them were registered as hypertensive patients and were treated with antihypertensive drugs.

The complete medical record of each patient was studied. We obtained data for age, gender, duration of hypertension, and medications used by the patients.

During the visits, blood pressure was measured by standard mercury column sphygmomanometer after the subject had been at rest in the seated position for at least 5 minutes. Blood pressure was measured twice from both arms.

Measurements were separated by at least two minutes. The mean values of the two separate blood pressure measurements were calculated for right and left arms and higher values were used as the reported blood pressures of the examination.

SBP control was defined as a SBP<140 mmHg, and DBP control was defined as a DBP<90 mmHg. Overall control of high blood pressure was defined when both SBP and DBP were controlled.

Analysis was performed using SPSS software and was performed separately for women and men. Continuous data were expressed as mean (±).

Categorical data were compared by using Chi-square test (X²), and P-value less than 0.05 was reported statistically significant.

Results

The mean age was 67±9 years, 80% female. Table-1 presents basic demographic information of the studied population.

Overall success rate of hypertension control was 33%. Among female patients, 38.2% were controlled for SBP goal, 63% were controlled for DBP and 34.6% were controlled for both. In male patients, 36.1% were controlled to SBP goal, 81% were controlled to DBP goal, and 35.1% were controlled for both.

Regarding to antihypertensive therapy, 108 patients (28%) were on α-blocker (methyldopa), 84 patients (22%) were on β-blocker (atenolol), and 128 (34%) patients were on multiregimen therapy. Table-2 shows the proportion of the various blood pressure lowering drugs used by men and women. The mean body mass index was 26.2 ± 3.4.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Men (n=75)</th>
<th>Women (n=301)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age, y ± SD</td>
<td>67.4 ± 9.4</td>
<td>67.1 ± 8.8</td>
</tr>
<tr>
<td>Mean SBP mmHg</td>
<td>144 ± 12.3</td>
<td>145 ± 11.8</td>
</tr>
<tr>
<td>Mean DBP mmHg</td>
<td>81.4 ± 7</td>
<td>82 ± 8.2</td>
</tr>
<tr>
<td>BMI Kg/m²</td>
<td>23.3 ± 4.2</td>
<td>27.2 ± 5.2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Antihypertensive Agents</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diuretics n (%)</td>
<td>4(5.3%)</td>
<td>22(7.3%)</td>
</tr>
<tr>
<td>β-blockers n (%)</td>
<td>21(28%)</td>
<td>65(20%)</td>
</tr>
<tr>
<td>α-blockers n (%)</td>
<td>10(13.3%)</td>
<td>16(5.3%)</td>
</tr>
<tr>
<td>Ca-blockers n (%)</td>
<td>22(29.3%)</td>
<td>86(28.5%)</td>
</tr>
<tr>
<td>ACEI n (%)</td>
<td>3(4%)</td>
<td>4(1.3%)</td>
</tr>
<tr>
<td>Multidrug Therapy</td>
<td>15(20%)</td>
<td>110(36.4%)</td>
</tr>
</tbody>
</table>

Discussion

There was not any significant difference between mean age of our study with previous studies 8,9,10. Most of our patients were women, and difference between two gender in our study was more significant in comparison with other studies. 6,7,11 this may be in part due to more attention of women about health care.

Only 33% of the 376 hypertensive patients that we studied had a mean blood pressure lower than 140/90 mmHg despite ongoing medical treatment.

In comparison with other studies, our results do not substantially differ from a recent overview of studies on the control of high blood pressure were
done in the United States and France, but better than the results reported from China, Egypt and Ecuador, and poorer than results reported from Netherlands.

Methyldopa was the most common and Angiotensin Converting Enzyme Inhibitors (ACEI) were the least common antihypertensive drugs used as monotherapy by patients. Considering that β-blockers are not the initial choice of antihypertensive therapy, we think there is overuse of β-blockers in the treatment of hypertension.

In the present study no specific medications were associated with better or poorer blood pressure control, but patients that were on multidrug therapy had lower SBP, (P-Value<0.05) and it may be due to more aggressive treatment of hypertension in this group of patients.

We did not find any significant difference between men and women regarding to the control of DBP, but men had a better control of SBP, (P-Value<0.05). Jones reported higher success rate in controlling hypertension among men. We found that the rate of DBP control is higher than SBP among two sexes. Clinicians appear more likely to increase antihypertensive medications for DBP than SBP.

In our study there was no significant relationship between BMI of the patients and control of hypertension. But in some previous studies, they reported a reverse correlation between BMI of patients with control of hypertension.

Results obtained in this study can not be extended to the Iranian population without discussion. These results belong to rural population. They have lower economic and educational level, but it is also likely that they use the healthcare services better because of the mandatory periodic medical examination, which gives them a regular opportunity to use health care.

A comparison of controlling of hypertension with the other studies should be done with caution, because of different cut off points, number of measurements and different measurement techniques.

In conclusion, vast majorities of patients with high blood pressure that are taking drugs for treatment of their hypertension, do not have their blood pressure well controlled.

We think management of hypertension in healthcare centers needs to be revised. Treatment of hypertension in healthcare centers requires more attention by medical practitioners to reduce the burden of cardiovascular diseases.

Acknowledgment
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References
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