INVESTIGATING CRITICAL BLOOD PRESSURE RISK FACTORS IN ZABOL, AMIR-AL-MOMENIN HOSPITAL PATIENTS IN 2015-2016

Zohreh Mahmoodi¹, Mohamad Reza Havasian², Bahareh Esmail-Zahikurin³ and Morteza Salarzaei³*

¹Department of Cardiology, Faculty of Medicine, Zabol University of Medical Sciences, Zabol, Iran.
²Department of Periodontics, School of Dentistry, Ilam University of Medical Sciences, Ilam, Iran.
³Student of Medicine, Students Research Committee, Zabol University of Medical Sciences, Zabol, Iran.

Abstract:
Due to high prevalence and its relation to cardiovascular diseases, hypertension has emerged as one of the most serious health problems in industrialized and developing countries. The present’s cross-sectional study was conducted in order to investigate critical blood pressure risk factors in patients referring to Amir-Al-Momenin Hospital of Zabol in 2015-2016. Common symptoms of all examined patients who referred to Amir-Al-Momenin Hospital of Zabol included headache, nasal bleeding, fainting, restlessness, chest pain, shortness of breath, and higher than 180 mmHg systolic blood pressure. Risk factors of the subjects were assessed a standard questionnaire and the collected data was analyzed using SPSS, version 22. This study included 250 subjects, a 60% majority of whom were female, aged between 55 to 61 years, suffering from critical blood pressure with systolic blood pressure of 205 mm Hg and an average blood pressure of 100 mm Hg. A history of hypertension was the highest rated, 86.4% factors risk assessed in the present study. 72% of patients did not use the drug correctly; the frequency of other physical diseases and disorders was like the following in the present study: 39.6% diabetes, 33.6% dyslipidemia, 27.2% a history of coronary artery disease, 16% kidney disease, 13.2% stroke, 8.4% hyperthyroidism, 48.4% psychological disorder, 26.8% smoking, 0.8% alcohol, and 66% salty diet. According to the results of the present study, a history of hypertension and drug compliance is the most common risk factors for critical high blood pressure. Therefore, it is suggested that all hypertension patients receive proper medical advice from experts in terms of correct application of required medicine.

Corresponding author:
Morteza Salarzaei,
Student of Medicine,
Students Research Committee,
Zabol University of Medical Sciences,
Zabol, Iran.
Email: mr.mortezasalar@gmail.com,
Tel: +989120644917

INTRODUCTION:
Hypertension is a leading cause of disability in society. This disease doubles the risk of coronary artery and cardiovascular diseases, congestive heart failure, ischemic and hemorrhagic stroke, kidney failure, and peripheral vascular disease [1]. Diastolic blood pressure increases up to the age of 55 and then it decreases after the mentioned age [2]. Hypertension is one of the main factors which create the potential of cardiovascular diseases. There were one billion people suffering from high blood pressure in 2005 and four million people die each year as a direct cause of hypertension; it is predicted that the incidence rate of this disease increases by 60%, leading to an incredible number of 1.56 billion patients, by 2025 [3]. Hypertension is divided into two categories of primary and secondary. Primary hypertension, the incidence rate of which is 95%, is affected by genetic and environmental factors and is more probable with aging. Secondary hypertension, with an incidence rate of 5%, is affected by disorder in, and malfunction of, kidney, adrenal glands, and aortic stenosis and neurogenic causes such as estrogen drug, cyclosporine, erythropoietin, cocaine [2]. Critical blood pressure is a serious medical condition recognized by sudden increase in blood pressure and organ damage [4]; it emerges in two forms of hypertensive urgency and hypertensive emergency, the difference between which is presence or absence of major organ damage. Hypertensive urgency is characterized with systolic blood pressure higher than 180 mmHg or diastolic blood pressure above 120 mmHg, with no or slight major organ damage [5]. In case of hypertensive emergency, there will occur diastolic blood pressure higher than 120 mmHg, with damage of major organs, such as heart, kidney, or nervous system [6]. The incidence of secondary hypertension is accelerated in case of the presence of the following factors: age, gender, obesity, dyslipidemia, indulged in the use of antihypertensive drugs, nonadherence to medication, smoking, alcohol, diabetes, cardiovascular diseases, renal disorders, stroke, psychological disorders, and hyperthyroidism [7-9]. Hypertensive urgency can emerge in two forms of symptomatic and asymptomatic [10]. The most common symptoms of emergency hypertension include headaches, nosebleeds, fainting, restlessness, chest pain, and shortness of breath [11]. Since hypertensive emergency involves major organ damage, its symptoms, including chest pain, seizures, nausea, vomiting, confusion or shortness of breath, vary depending on the target organ [12]. Due to high prevalence and its relation to cardiovascular diseases, hypertension has emerged as one of the most serious health problems in industrialized and developing countries [13]. Hypertension is a non-communicable disease which has increased considerably in Middle East [14]. The results of studies show a high incidence rate of 23.3% for this disease in Iran [15]. 38% happen as a result of cardiovascular diseases, the most common of which is Coronary artery disease and its complications, in Iran [16]. The present study was conducted in order to investigate critical blood pressure risk factors in patients referring to Amir-Al-Momenin Hospital of Zabol in 2015-2016.

MATERIALS AND METHODS
The present study is a cross-sectional research; the study population included patients, all aged above 18, with symptoms of headache, nosebleeds, fainting, restlessness, nausea and vomiting, shortness of breath, chest pain, loss of consciousness, and systolic blood pressure higher than 180 mmHg who admitted to the emergency room of Amir-Al-Momenin Hospital of Zabol in 2015-2016. The blood pressure of the patient was taken on the left arm and recorded in a seated position. A three-part questionnaire which included following information was given to the subjects: demographic information, such as age, sex, height, weight, and BMI, history of diseases, such as hypertension, consumption of high blood pressure drugs, diabetes, dyslipidemia, coronary artery disease, kidney disease, stroke, hyperthyroidism and psychological disorders, and timely and appropriate use of medicines, and personal life style of the subjects, such as consumption of alcohol, smoking, and diet. Patients were categorized, according to their BMI, in groups of normal, fat, and obese based on WHO standard; BMI of less than 25 was put in normal group, between 25-30 was put in fat group, and more than 30 kg/m² was put in obese group [17]. Patients who aged less than 18 years, those who were pregnant, and subjects whose systolic blood pressure was less than 140 mmHg were excluded from the study. The results of the questionnaire were analyzed using SPSS Version 18 software [18].

FINDINGS:
250 subjects, 150 of whom were female (60%) and 100 of whom were male (40%), participated in the present study. The mean age of participants was 55-61 years, the oldest subject being 90 and the youngest one being 20 years old. The highest BMI frequency, 42.8%, was related to the age group if 25-30 years (Table1). 216 subjects, 86.4%, had a history of hypertension; second to hypertension, salty diet, with a frequency of 165 subjects, had highest frequency, 66%, and alcohol had lowest frequency, 0.8% (Table2). 80 subjects (37%) took just one drug, 52 subjects (24%) took two drugs, 68 subjects (31.5%) took three drugs simultaneously and 16 subjects (7.5%) took no drug. 56 patients (28%) who were on hypertension medication, took their medicine properly and on time.
Table 1: Frequency distribution of critical blood pressure risk factors based on BMI

<table>
<thead>
<tr>
<th>BMI</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25</td>
<td>94</td>
<td>37.6</td>
</tr>
<tr>
<td>25-29.5</td>
<td>107</td>
<td>42.8</td>
</tr>
<tr>
<td>More than 30</td>
<td>49</td>
<td>19.6</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Frequency distribution of critical blood pressure risk factors

<table>
<thead>
<tr>
<th>Critical blood pressure risk factor</th>
<th>Variable</th>
<th>Positive case of critical blood pressure</th>
<th>Negative case of critical blood pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of hypertension</td>
<td>216</td>
<td>86.4</td>
<td>34</td>
</tr>
<tr>
<td>Diabetes</td>
<td>99</td>
<td>39.6</td>
<td>151</td>
</tr>
<tr>
<td>dyslipidemia</td>
<td>84</td>
<td>33/6</td>
<td>166</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>68</td>
<td>27.2</td>
<td>182</td>
</tr>
<tr>
<td>Kidney diseases</td>
<td>40</td>
<td>16</td>
<td>210</td>
</tr>
<tr>
<td>Stroke</td>
<td>33</td>
<td>13.2</td>
<td>217</td>
</tr>
<tr>
<td>Hyperthyroidism</td>
<td>21</td>
<td>8.4</td>
<td>229</td>
</tr>
<tr>
<td>Psychological disorders</td>
<td>121</td>
<td>48.4</td>
<td>129</td>
</tr>
<tr>
<td>Salty diet</td>
<td>165</td>
<td>66</td>
<td>85</td>
</tr>
<tr>
<td>Smoking</td>
<td>67</td>
<td>26.8</td>
<td>183</td>
</tr>
<tr>
<td>Alcohol</td>
<td>2</td>
<td>0.8</td>
<td>248</td>
</tr>
</tbody>
</table>

**DISCUSSION:**
Cardiovascular disease, as a major cause of disability and death on a global level, is one of the most prevalent chronic diseases in 21st century [19]. Hypertension, which emerges as a consequence of modern life, reduced physical activity, and a high-fat diet, is one of the most common and most serious diseases of our times [20]. This hidden disease often grows without any overt symptoms and it might cause severe and chronic cardiovascular diseases and other heart complications; thus, it must be fully controlled and kept under supervision [21]. The results of various studies have estimated that hypertension accounts for more than 4.5% of disease global burden and it still keeps increasing more and more in developing countries; in fact, critical hypertension is one of the main causes of cardiovascular diseases in industrial countries [22].
Considering the significance of the issue, the present’s cross-sectional study was conducted in order to investigate critical blood pressure risk factors in patients referring to Amir-Al-Momenin Hospital of Zabol in 2015-2016. 250 subjects, 150 of whom were female (60%) and 100 of whom were male (40%), participated in the present study. 86.4% of patients had a history of hypertension and the mean of taken medicine was 1.2%. 66% of patients with high blood pressure had salty diet. In Nonaka et al study, 2013, which was conducted to investigate nephropathy associated with hypertensive emergencies, 12 patients, with mean age of 40.1 [9, 8], were examined and; it showed that the average diastolic blood pressure was 232 [32] mm/hg and the average systolic blood pressure was 146 [12] mm/hg and 83% of patients had hypertension and took no Anti-hypertension drug [23]; this was consistent with the results of the present study. The results of Garcia et al study, 2010, which was conducted in order to assess emergency hypertension of 123 patients aged 45 years and less, showed that 30.1% of hospitalized patients had emergency hypertension; the main risk factors introduced in the study included a history of hypertension (65.9%), consumption of alcohol (13%), and diabetes (4.9%) [24], which was consistent with the findings of the present study; however, the age limit of the present study was less than 45 years. In contrast with the findings of the present study, Garcia et al study showed that the incidence rate of hypertension is higher in men in young ages; another difference was the rate of consumption of alcohol based on which the rate was reported much lower in the present study. Based on Ellenga et al study, 2011, which was conducted to investigate emergency hypertension in Kongo, 4% of patients who referred to emergency rooms of hospitals suffered critical hypertension and 85% of them had a history of hypertension [25], which is consistent with the findings of the present study. Sanguar et al study, 2010, which was conducted to assess risk factors of critical hypertension in Sweden, showed that, in addition to a history of hypertension, several other factors, such as sex (76.9%), Hyperlipidemia (76.9%), stroke (23.1%), cardiovascular diseases (30.8%), psychological disorders (30.8%), hyperthyroidism (77.7%), smoking (38.5%), alcohol (13%), and improper use of anti-hypertension drugs, had role in the emergence and exacerbation of this disease [9]; this was consistent with the findings of the present study. Based on the results of Bennet et al study, 1998, which was conducted to assess emergency hypertension, 58 out of 100 patients who had referred to the emergency of New York hospital had critical hypertension, with an average systolic blood of 229.8 mm/hg and average diastolic blood of 143 mm/hg; 83.5% of these subjects had a history of hypertension [26]; this is, also, consistent with the findings of the present study.

CONCLUSION:
According to the results of the present study, it can be claimed that, among risk factors which might cause hypertension, history of high blood pressure, salty diet, and psychological disorder have the highest effect and importance. Thus, providing necessary instruction on the dangers of hypertension can be quite helpful in controlling the incident of this disease.

REFERENCES: