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Research Article

**INVESTIGATING CRITICAL BLOOD PRESSURE RISK FACTORS IN  
ZABOL, AMIR-AL-MOMENIN HOSPITAL PATIENTS IN 2015-2016****Zohreh Mahmoodi<sup>1</sup>, Mohamad Reza Havasian<sup>2</sup>, Bahareh Esmail-Zahikurin<sup>3</sup> and  
Morteza Salarzaei<sup>3\*</sup>**<sup>1</sup>Department of Cardiology, Faculty of Medicine, Zabol University of Medical Sciences, Zabol, Iran.<sup>2</sup>Department of Periodontics, School of Dentistry, Ilam University of Medical Sciences, Ilam, Iran.<sup>3</sup>Student 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.*

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**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 presents 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/m 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 mm/hg were excluded from the study. The results of the questionnaire were analyzed using SPSS Version 18 software [18].

**FINDINGS:**

230 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**

BMI	Frequency	Percent
Less than 25	94	37.6
25-29.5	107	42.8
More than 30	49	19.6
<b>Total</b>	<b>250</b>	<b>100</b>

**Table 2: Frequency distribution of critical blood pressure risk factors**

Critical blood pressure risk factor rate Variable	Positive case of critical blood pressure		Negative case of critical blood pressure	
	Frequency	Percent	Frequency	Percent
History of hypertension	216	86.4	34	13.6
Diabetes	99	39.6	151	60.4
dyslipidemia	84	33/6	166	66.4
Cardiovascular diseases	68	27.2	182	72.8
Kidney diseases	40	16	210	84
Stroke	33	13.2	217	86.8
Hyperthyroidism	21	8.4	229	91.6
Psychological disorders	121	48.4	129	51.6
Salty diet	165	66	85	34
Smoking	67	26.8	183	73.2
Alcohol	2	0.8	248	99.2

**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 others 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:

- 1.Havasian MR, Panahi J, Khosravi A. Correlation between the lipid and cytokine profiles in patients with coronary heart disease (CHD)(Review article). *Life Sci J-ACTA Zhe Uni Over Edi* 2012; 9(4): 5772-77.
- 2.Fauci AS. *Harrison's principles of internal medicine*. 17<sup>th</sup> med. New York: McGraw-Hill Medical; 2012, 1549-62.
- 3.Mohammadi M, Mirzai M. Population attributable fraction of hypertension associated with obesity in the Western Iran. *Razi Journal of Medical Sciences* 2016; 23(144): 81-8.
- 4.Aggarwal M, Khan IA. Hypertensive crisis: hypertensive emergencies and urgencies. *Cardiol clin* 2006; 24(1): 135-46.
- 5.Gifford R. Management of hypertensive crises. *JAMA* 1991; 266(6): 829-35.
- 6.Cherney D, Straus S. Management of patients with hypertensive urgencies and emergencies. *J Gen Intern Med* 2002; 17(12): 937-45.
- 7.Wang Y, Wang QJ. The prevalence of prehypertension and hypertension among US adults according to the new joint national committee guidelines: new challenges of the old problem. *Arch Intern Med* 2004; 164(19): 2126-34.
- 8.Tisdale JE, Huang MB, Borzak S. Risk factors for hypertensive crisis: importance of out-patient blood pressure control. *Fam Pract* 2004; 21(4): 420-24.
- 9.Saguner AM, Dür S, Perrig M, Schiemann U, Stuck AE, Bürgi U, et al. Risk factors promoting hypertensive crises: evidence from a longitudinal study. *Am J Hypertens* 2010; 23(7): 775-80.
- 10.Bennett NM, Shea S. Hypertensive emergency: case criteria, sociodemographic profile, and previous care of 100 cases. *Am J Public Health* 1988; 78(6): 636-40.
- 11.Vaughan CJ, Delanty N. Hypertensive emergencies. *Lancet* 2000; 356(9227): 411-17.
- 12.Zampaglione B, Pascale C, Marchisio M, Cavallo-Perin P. Hypertensive urgencies and emergencies

prevalence and clinical presentation. *Hypertension* 1996; 27(1): 144-47.

13. Azizi A, Abasi M, Abdoli G. The prevalence of Hypertension and its Association with Age, Sex and BMI in a Population Being Educated Using Community-Based Medicine in Kermanshah: 2003. *Iran J Endocrinol Metab* 2008; 10(4): 323-9.

14. Kearney PM, Whelton M, Reynolds K, Whelton PK, He J. Worldwide prevalence of hypertension: a systematic review. *J hypertens* 2004; 22(1): 11-9.

15. Azizi F, Hatami H, Janghorbani M. Epidemiology and control of common diseases in Iran. Tehran: Eshtiagh Publications, 2000, 602-16.

16. Mohammadi M, Mirzaei M, Barati H. The Estimated Joint Impact of Obesity and Abdominal Obesity in the Prevalence of Hypertension of Males of Qom City: The Study of Population-Attributable Fraction. *Military Caring Sciences* 2016; 3(2): 133-38.

17. Taler SJ. Secondary causes of hypertension. *Prim Care* 2008; 35(3): 489-500.

18. Havasian MR, Panahi J, Pakzad I, Davoudian A, Jalilian A, Zamanian Azodi M. Study of Inhibitory effect of alcoholic and aqueous extract of *Scrophularia striata* (tashne dari) on candida albicans in vitro. *J of Pejouhesh* 2013; 36(5): 19-23.

19. Benvan G, SedghiSabet M, Baghaei M, Roshan AE, Sedighi A. Correlation between Blood Pressure and vascular complications after coronary artery angiography. *Holistic Nursing And Midwifery Journal* 2016; 26(2): 9-18.

20. Havasian MR, Panahi J, Ruzegar MA. Ilam Lipid and Glucose Study: A cross-sectional epidemiologic study. *Nova Journal of Medical and Biological Sciences* 2014; 2(5): 1-6.

21. Perrinjaquet-Moccetti T, Busjahn A, Schmidlin C, Schmidt A, Bradl B, Aydogan C. Food Supplementation with an olive (*Olea europaea* L.) leaf extract reduces blood pressure in borderline hypertensive monozygotic twins. *Phyther Res* 2008; 22(9): 1239-42.

22. World Health Organization (WHO), International Society of Hypertension Writing Group (ISH). Statement on Management of Hypertension. *Journal of Hypertension*, 2003.

23. Nonaka K, Ubara Y, Sumida K, Hiramatsu R, Hasegawa E, Yamanouchi M, et al. Clinical and Pathological Evaluation of Hypertensive Emergency-Related Nephropathy. *Intern Med* 2013; 52(1): 45-53.

24. Garcia GM, Miúdo V, Lopes CdGAM, Gomes JV. Characterization of patients aged 45 or under admitted with hypertensive emergencies in the Hospital do Prenda. *Rev Port Cardiol (English Edition)* 2014; 33(1): 19-25.

25. Ellenga M, Gombet T, Mahoungou G, Otiobanda G, Ossou N, Ikama M, et al. Hypertensive emergencies at the University Hospital Center in Brazzaville, Congo. *Med Trop (Mars)* 2011; 71(1): 97-8.

26. Calhoun DA, Oparil S. Hypertensive crisis since FDR--a partial victory. *N Engl J Med* 1995; 332(15): 1029-30.