

HYPERTENSION – A CARDIOVASCULAR RISK FACTOR. AN EPIDEMIOLOGICAL STUDY IN A RURAL AREA OF BIHOR COUNTY

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Abstract

The cardiovascular diseases have a high prevalence worldwide, and the prevention thereof by intervention on the risk factors results in decreased morbidity and mortality from cardiovascular disease. Knowing it, the early identification and intervention on risk factors performed by the medical staff allow long term improvement of the quality of life and decrease the risk of disease. The present epidemiological study aims to contribute with data on the risk of hypertension occurrence and prevalence in the adult population in a rural area of Bihor County. In this study, 1101 men and 1288 women were involved. In subjects with a family history of hypertension, the prevalence of hypertension was lightly significantly higher than in subjects without such a history (21.50% vs 14.86%) ($p = 0.061$). In women the difference was not significant (20.96% vs 16.33%) ($p = 0.210$) and in men the difference was significant (22.11% vs 12.50%) ($p = 0.004$). The prevalence of the hypertension in women was significantly lower than in men, both in population with a family history of hypertension (20.96% vs 22.11%) ($p = 0.781$) and in population without a family history of hypertension (16.33% vs 12, 50%) ($p = 0.247$). The prevalence of hypertension was 18.96%, slightly higher in women than in men (19.02% vs 18.88%). Regarding the type of hypertension, there are significant differences between men and women ($p < 0.001$). Thus, systolic hypertension is found in 74.07% of hypertensive men, as in women 48.57%, and the diastolic hypertension in 3.70% of the men and 22.86% in women. The risk of hypertension in people with a family history of hypertension is 1.4 times higher than in people without a family history ($RR = 1.447$, $R = 0.066$), being higher for men than for women ($RR = 1.768$, $RA = 0.096$, $RR = 1.284$, respectively, $RA = 0.046$).

Key words: hypertension, cardiovascular risk factors, epidemiological study.

INTRODUCTION

Hypertension is a major and independent cardiovascular risk factor. There are relationships demonstrated by epidemiological studies between the increased blood pressure and the deaths caused by cardiovascular

diseases (Kumar J., 2013)(Holt Piron G., 2010).The American and the European classifications, approaches and interpretations of the cardiovascular risk factors may differ, but it is very significant that their importance was recognized by all the competent scientific authorities in the field. Regardless of which value of the blood pressure is increased (systolic/diastolic), the cardiovascular risk of hypertension is kept. Most individuals have average values of blood pressure, so, at the population level, the risk is higher with these average values, although the relative risk at very high values is greatly increased(Kumar J., 2013)(Holt Piron G., 2010). Epidemiological studies on cardiovascular topics admit that the cardiovascular diseases are epidemic, and the cardiovascular risk factors may be assessed by statistical and mathematical studies and may be clearly defined, as they are prevalent and measurable(Hâncu N., 2010). Epidemiological research enables the development of preventive medicine. The cardiovascular prevention addresses both patients with manifest cardiovascular disease and individuals at cardiovascular risk (Cerghizan A., 2011).

MATERIAL AND METHOD

The present epidemiological study aims to contribute with data on the risk of hypertension occurrence and prevalence in the adult population in a rural area of Bihor County. The population studied between 2011 and April 2014 is located in a rural area of the county – Curtuișeni, with two villages (Curtuișeni and Vășad) with 3768 inhabitants, of which 2356 are adults. 1101 men and 1288 women were voluntarily involved in this descriptive observational study.

RESULTS AND DISCUSSIONS

We studied the family history of cardiovascular disease, as it is well-known that they may have an influence on the occurrence of the hypertension. We also took in the study the filiation (male, female or both) of the family history (table 1).

Table 1

Case distribution according to family history (1st degree relatives)

Family history	Total		Women		Men	
	No.	%	No.	%	No.	%
Cardiovascular diseases	1512	66,06	805	62,50	707	70,63
Male filiation	448	19,57	189	14,67	259	25,87
Female filiation	483	21,10	294	22,83	189	18,88
Male+Female filiation	581	25,38	322	25,00	259	25,87
Without family history	511	22,32	322	25,00	189	18,88

In subjects with a family history of hypertension (table 2), the prevalence of hypertension was significantly higher than in subjects without such a history (21.50% vs 14.86%) ($p = 0.061$). In women, the difference was not significant (20.96% vs 16.33%) ($p = 0.210$), but in men the difference was significant (22.11% vs 12.50%) ($p = 0.004$).

The prevalence of hypertension in women was significantly lower than in men both in the population with family history of hypertension (20.96% vs 22.11%) ($p = 0.781$) and without family history of hypertension (16.33% vs 12.50%) ($p = 0.247$).

Table 2

Prevalence of hypertension according to family history of cardiovascular disease

	Total		Women		Men	
	No.	%	No.	%	No.	%
With family history of hypertension	304	21,50	157	20,96	147	22,11
Without family history of hypertension	130	14,86	88	16,33	42	12,50

The risk of hypertension in people with a family history of hypertension is 1.4 times higher than in people without with family history ($RR = 1.447$, $R = 0.066$), the risk being higher for men compared to women ($RR = 1.768$, $RA = 0.096$, $RR = 1.284$, respectively, $RA = 0.046$).

Heredity plays a significant role in the emergence and maintenance of hypertension, as shown by other studies (Holt Piron G., 2010) (Mitu F. et al, 2011) (Kumar J., 2013).

Family history of hypertension shows an increased risk for hypertension and cardiovascular disease in the offspring, in some studies, while others can not establish a cause-effect relationship (Holt Piron G., 2010) (Kumar J., 2013) (as well as our study).

The study of the angina treatment pattern conducted in 2001-2004 showed that in our country the prevalence of cardiovascular risk factors was as follows: 81% hypertension, 65% dyslipidemia, 35% obesity, 21% diabetes, 9% smoking, 67% inactivity, 45% family history of ischemic heart disease, that means an increased prevalence of cardiovascular risk factors compared to other countries surveyed, where the values were lower, for example, 71% hypertension, 58% dyslipidemia, 24.5% obesity (Gaiță D, Hâncu N., 2013).

Children whose parents have cardiovascular disease may develop an increased cardiovascular risk (Cerghizan A., 2011). Studies show that African Americans are more affected by increases in blood pressure compared with Europeans, developing an increased cardiovascular risk. Because diabetes and obesity, the Hispanics, the Native Americans and the Native Hawaiians have a high risk for cardiovascular disease (Eckel RH., 2014).

Cardiovascular diseases in young people (especially myocardial infarction) have a poor prognosis (Holt Piron G., 2010). The presence of hypertension among young people who have had a myocardial infarction takes its toll (Holt Piron G., 2010) (Mitu F. et al, 2011).

In developed countries over the past 20 years, the mortality from cardiovascular disease decreased, but in countries with low socioeconomic level, the mortality and morbidity from cardiovascular disease remains in first place (Gaiță D, Hâncu N., 2013).

The prevalence of hypertension was 18.96% (table 3), slightly higher in women than in men (19.02% vs 18.88%). In the Romanian population, the prevalence is 62.8%, with no significant differences between men and women (64.5% vs 61.5%). It is to be noted that the study population is far below the national average prevalence of hypertension (Gaiță D., Hâncu N., 2013).

Table 3

The prevalence of hypertension

	Total		Women		Men	
	No.	%	No.	%	No.	%
Without hypertension	1855	81,04	1043	80,98	812	81,12
With hypertension	434	18,96	245	19,02	189	18,88
Systolic hypertension (HTs)	259	59,68	119	48,57	140	74,07
Diastolic hypertension (HTd)	63	14,52	56	22,86	7	3,70
Systolic+diastolic hypertension (HTs+HTd)	112	25,81	70	28,57	42	22,22

The hypertension shows variability between different populations, but blood pressure values increase progressively with age (Holt Piron G., 2010). In the US, the overall prevalence of hypertension is about 20% (Cerghizan A., 2011). In Romania, the SEPHAR study shows a prevalence of 40.1% at about 22 million people, so we can say that in our country, 8.8 million individuals are living with hypertension. There is a doubling of the prevalence of hypertension, from 20% in the past compared to 2005 when the SEPHAR study was conducted (Dorobanțu M. et al, 2012).

The hypertension is a risk for morbidity and mortality from cardiovascular disease (Holt Piron G., 2010). Hypertension associated with other risk factors results in increased absolute risk for cardiovascular disease (atherosclerosis, left ventricular hypertrophy, coronary heart disease, chronic obliterative arterial disease, stroke, kidney disease). Left ventricular hypertrophy, atherosclerosis are consecrated risk factors for the ischemic heart disease, and according to recent studies atherosclerosis is a risk factor in thoraco-abdominal trauma, increasing the risk of mortality (Pusta C., Dura H., 2013).

The risk of hypertension for fatal coronary events is not related to age, race, total cholesterol, smoking, and diabetes (Holt Piron G., 2010).

Among the hypertensive subjects, most of them had elevated systolic blood pressure (59.68%). The diastolic pressure was increased in 14.52% of the respondents, while both values were elevated in 25.81% of the subjects.

Regardless the value of the blood pressure increased (systolic or diastolic), the cardiovascular risk of hypertension remains. Most individuals have average values of blood pressure, so, at the population level, the risk is higher with these average values, although the relative risk at very high values is greatly increased (Holt Piron G., 2010) (Kumar J., 2013).

It is considered that the risk of coronary heart disease increases to 1 in the sBP (systolic blood pressure) of 120 mmHg and dBP (diastolic blood pressure) of 80mmHg; to 3.23 when dBP is 100 mmHg and 4.19 when sBP is 160 mmHg. A decrease of 1 mmHg in dBP value reduces with 2-3% the risk of mortality (Cerghizan A., 2011). Hypertension is a major and independent cardiovascular risk factor. There are relationships demonstrated by epidemiological studies between the increased blood pressure and the deaths caused by cardiovascular diseases (Holt Piron G., 2010). Ischemic heart disease would be caused in approximately 45% by increased blood pressure, and the cerebral-vascular disease in 51% (Holt Piron G., 2010) (Kumar J., 2013).

Hypertension is a significant and independent risk factor for the ischemic cardiomyopathy. It is shown that the risk of hypertension for cardiovascular events is not related to age, race, gender, socioeconomic status, smoking and other metabolic abnormalities: diabetes and hypercholesterolemia (Gaiță D., Hâncu N., 2013), (Holt Piron G., 2010).

CONCLUSIONS

The prevalence of high blood pressure was of 18,96%, only slightly higher in women than in men (19,02% vs 18,88%).

There are significant differences in the types of hypertension between women and men ($p < 0,001$). The systolic high blood pressure has a prevalence of 74,07% in hypertensive men and 48,57% in women, and the diastolic high blood pressure is found in 3,70%, of men and 22,86% of women.

The risk of high blood pressure in individuals with a family history of hypertension is 1.4 times greater than in individuals without family history of hypertension ($RR=1,447$, $RA=0,066$), being higher in men than in women ($RR=1,768$, $RA=0,096$, respectively $RR=1,284$, $RA=0,046$).

The big differences between the low percentage in our study and the country average may refer to the fact that the national studies take into account individuals belonging to urban areas as well, where the risk factors for hypertension are different and maybe more numerous than in the rural areas.

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