Study of Uncontrolled Hypertensive Patients At Sohag University Hospital

Mohammed A. Mohammed, Usama A. Arafa, and Ali M. Ahmed Kassem
Department of Internal medicine, Sohag Faculty of Medicine, Sohag University

Abstract

Introduction: Hypertension (HTN) is universally accepted as one of the most important risk factors in the development of cardiovascular disease (CVD), stroke and renal disease. There has been a considerable increase in the prevalence of HTN in the Middle East during the last few years. In some Arab countries HTN has become a major health problem. This drastic increase in incidence of HTN is specifically caused by a combination of many parameters, including family history, change in lifestyle, dietary habits and environmental factors.

Aim of the work: Investigate the frequency of uncontrolled HTN in sohag university hospital and determine the risk factors that may be responsible for the the poor control in the study participants.

Patients and Methods: Cross sectional study, included group of 500 hypertensive patients selected randomly from referral clinics in the Sohag university hospitals.

Results: Uncontrolled hypertension is a major health problem and accounts for a large percentage of total hypertensive patients.

Conclusion: Improving the awareness of hypertension, its control and causes and management of uncontrolled hypertension are major issues for the management of uncontrolled hypertension.

Keywords: Hypertension, Sohag university hospital.

Introduction

Hypertension (HTN) is universally accepted as one of the most important risk factors in the development of cardiovascular disease (CVD), stroke and renal disease. There has been a considerable increase in the prevalence of HTN in the Middle East during the last few years. In some Arab countries HTN has become a major health problem. This drastic increase in incidence of HTN is specifically caused by a combination of many parameters, including family history, change in lifestyle, dietary habits and environmental factors. Uncontrolled hypertension means those hypertensive populations having their BP above goal of 140/90. Which includes those with true resistance and pseudoresistance [1]. The issue of uncontrolled hypertension focuses on three groups of adults with: those who are unaware of their hypertension, those who are aware but not treated with medication, and those who are aware and treated with medication but still have uncontrolled hypertension. Resistant hypertension, defined as blood pressure (BP) remaining above goal despite the use of ≥3 antihypertensive medications at maximally tolerated doses (one ideally being a diuretic) or BP that requires ≥4 agents to achieve control, has received more attention with increased efforts to improve BP control rates and the emergence of device-based therapies for hypertension. This classically defined resistant group consists of patients with true resistant hypertension, controlled resistant hypertension and pseudo-resistant hypertension [1].

Many causes responsible for uncontrolled hypertension whether patient or physician factors. Increased awareness, follow up and control of

HTN in industrialized countries has resulted in a decreased tendency to morbidity and mortality from cardiovascular disease. To reach the level of improvement attained in developed countries, epidemiological studies on the risk factors, control methods, control levels, lifestyle, adherence to medication, and awareness will be crucial for setting control strategies. Egypt is considered one of the leading countries in Africa. However, a proper national registry on HTN is not available and evaluation studies are rarely done for the prevalence of HTN [1].

Aim of the work:

Investigate the frequency of uncontrolled HTN in Sohag university hospital and determine the risk factors that may be responsible for the poor control in the study participants.

Patients and Methods:

Design: Cross sectional study.

Patients:

Group of 500 hypertensive patients selected randomly from referral clinics in the Sohag university hospitals.

Methods:

The study population will be a group of 500 hypertensive patients on our study will be subjected to

- History taking
- Complete examination
- Measurement of blood pressure (using digital sphygmomanometers)
- Assist of BMI for assist of patients risk factors
- A questionnaire about hypertension was applied for all of the 500 patients in our study (appendix 1 for English version, and appendix 2 for its Arabic translation).

Inclusion criteria

Adult patients with primary hypetension at sohag university hospital clinic

Exclusion criteria

- Patients with chronic renal failure
- Secondary hypertension
- Patients refuse to include in study

Results

Males were more than females with a percentage difference of 12.8%, and there is non-significant difference between the two groups regarding gender of the patients. Mean age of the study groups is around 48 years in controlled group and 49 years in uncontrolled group, with non-significant difference. There was significant difference between the two groups in Salts in dairy meals and eating salty food of the patients. While 71.9% of the controlled group eat usual salt with family and 22.8% wat salty food, these figures increase in the uncontrolled group up to 93.7% and 89.8%; respectively. On the other hand, the level of physical activity had negative relation with the control of hypertension, it had non significant effect. The mean duration of HTN of the study groups is around 7 years in controlled group and 5.8 years in uncontrolled group, with a significant difference. There is a highly significant difference between the two groups in regularity of patients on medication. It shows that 93.2% of controlled cases are on regular medication compared to only 26.7% of the uncontrolled group. There is significant difference between the two groups in all the anti-hypertensive medication used. It shows that the uncontrolled group used already more medications than the controlled group. The percentages of uncontrolled patients received diuretics was 42%, of beta blockers was 41.6% and Calcium channel blockers was 41.5%; figures which are much higher than the controlled group (31%, 33% and 10%; respectively). On the other hand, the percentage of controlled patients receiving ACE inhibitors or ARBs was 80.6%, which is significantly higher than the uncontrolled group (69.3%).

194

Table 1: show vital signs & Body mass index of the study groups

	Group	Mean	SD	T Test	P Value
BMI	Controlled	24.44	3.523	3.191	**0.002**
	Uncontrolled	25.40	2.528		
SBP	Controlled	138.46	18.178	21.698	**< 0.001**
	Uncontrolled	175.03	17.668		
DBP	Controlled	85.82	8.132	20.962	**< 0.001**
	Uncontrolled	99.35	3.625		
PULSE	Controlled	82.04	11.276	0.165	0.869
	Uncontrolled	81.88	8.307		

There is significant differences between the two groups in BP follow up. Two thirds of the controlled group had regular BP check, compared to only 6% of the uncontrolled group. The percentage of controlled patients having office BP measurement was 49%, which is significantly higher than the uncontrolled group (37%). Moreover, BP was measured at home by around 24% of the controlled group, compared to non of the uncontrolled group. On the contrary, uncontrolled hypertension patients had a much more percentage of BP measurement in pharmacies (69%) compared to the controlled group (54% only).

Table 2 show regularity of pulse of the study groups

			Group		Total	Chi square	P value
			Controlled	Uncontrolled			
Regularity of pulse	Regular	No.	314	169	483	0.276	0.6
		%	96.9%	96%	96.6		
	Irregular	No.	10	7	17		
		%	3.1%	4%	3.4		
Total		No.	324	176	500		
		%	64.8%	35.2%	100%		

Discussion

In our study, we diagnosed uncontrolled hypertension in 176 out of the total of 500 hypertension patients (35.2%), and controlled hypertension was seen in the rest 324 of our patients (64.8%).

Observational studies have reported a prevalence of uncontrolled or resistant hypertension of 12% to 15%, whereas randomized control trials have shown higher rates, leading some authors to conclude that the prevalence of uncontrolled hypertension in treated patients with hypertension is somewhere in the range between 15% and 30% [2]. Based on a recent meta-analysis by Achelrod et al. [3], the prevalence of RHT in this population is 13.72%, according to 20 observational studies and 16.32% according to 4 randomized control trials performed in Western Europe and North America. The results of the BP-CARE study allowed to assess the prevalence and main clinical features of RHT in a group of 1312 subjects from 9 countries of Central and Eastern Europe. The results based on the clinical values of BP showed that the prevalence of apparent resistant hypertension was 32.3%, but after implementation of screening based on 24-hour ambulatory BP measurement, the prevalence decreased to 19.4% [4].

Males were more than females with a male percentage of around 56%, and there is non-significant difference between the two groups regarding

195

gender of the patients. This was not similar to the data published by Prejbisz et al. [5] where females accounted for 59% of their controlled cases and 58% of uncontrolled group, and the difference in their study was non significant. On the other hand, Hung et al. [6] showed that males and females were nearly equally divided into males and females, with females accounted for 50.9% of resistant hypertension group and 49.4% of the controlled hypertension patients.

The mean age of the study groups is around 48 years in controlled group and 49 years in uncontrolled group, with non-significant difference. Our patients were much younger than those studied by Prejbisz et al. [5] whose mean age was 63.6 years in the controlled group, and 62.6 years in the non controlled group, with a significant difference between their groups. The significant difference in Prejbisz et al. [5] study and the non significant difference in our study may be due to the limited number in our study (324 controlled and 176 uncontrolled hypertension) compared to the very large number in Prejbisz et al. [5] study (5857 controlled and 3458 uncontrolled hypertension patients).

We found that there is significant difference between the two groups in marital status, level of education and employment status of the patients. It shows that 68.5% of the controlled cases are married but the ratio increased to 87.5% in the uncontrolled group.

The education level is significantly higher among controlled compared to uncontrolled group. In our study, manual workers tended to have more controlled hypertension while employees tend to have more uncontrolled hypertension, with a highly significant difference. In our study, there were significant differences between the two groups

regarding salts in dairy meals and eating salty food of the patients. While 71.9% of the controlled group eat usual salt with family and 22.8% wat salty food, these figures increase in the uncontrolled group up to 93.7% and 89.8%; respectively. This was not similar to the results seen by Brambilla et al. [4] who stated that high salt intake was higher among resistant hypertension compared to non resistant hypertension, but with non significant difference (22.6% compared to 21.9%; respectively).

The level of physical activity had negative relation with the control of hypertension, but with non significant effect.

Family history of hypertension was positive in around half of our cases, it was positive for DM in around 65% of our cases, 20% for cardiac diseases and less than 10% for obesity. For all these, the difference was non significant between controlled and uncontrolled cases. On the other hand, family history of CNS problems was seen in 8.8% of our cases, with a significant difference between the two groups, as it was positive in only 6.8% of the controlled group but in up to 12.5% of the uncontrolled group. Mother was significantly more affected by family history of one or more of the above diseases in the controlled group, either alone or with the father. The study done by Brambilla et al. [4] showed that family history of hypertension was present in 55% of resistant hypertension and 43% of non resistant hypertension patients, but with non significant difference.

The mean BMI of our study groups is around 24.44 in controlled group and 25.4 in uncontrolled group, with significant difference. This was much lower than the BMI seen by Prejbisz et al. [5] in their study, as they reported a BMI of 28.5 in controlled and 28.8 in uncontrolled hypertension. They found

196

a significant difference between the two groups.

The mean SBP of the study groups is around 139 mmHg in controlled group and 175 mmHg in uncontrolled group, with highly significant difference. Also, the mean DBP of the study groups is around 86 mmHg in controlled group and 99 mmHg in uncontrolled group, with a highly significant difference. Our patients showed higher mean blood pressure compared to Prejbisz et al. [5] as the mean systolic blood pressure in their study was 128 mmHg in controlled and 150 mmHg in uncontrolled patients; and the mean diastolic blood pressure was 80 mmHg in controlled and 89 in uncontrolled blood pressure patients.

Regarding the co-morbidities present in our study population, we found that cardiac, CNS and liver diseases were significantly more present among uncontrolled group compared to the controlled ones. Cardiac diseases were more present in the controlled group (34%) compared to uncontrolled (17%). On the contrary, CNS and asthma were significantly more in the uncontrolled group as in the uncontrolled group; CNS was seen in 15% and liver diseases in 13% of the uncontrolled group; figures which are much higher than those seen among the controlled group (3% and 7%; respectively). On the other hand, DM was present in around one third of cases, obesity in 5% of cases and asthma in 7%; all with non significant differences between the two groups.

Our results showed some differences compared to Prejbisz et al. [5] study where there is up to 88% in their controlled and 87% of their uncontrolled patients received ACEIs and/or ARBs; with non significant difference. All other drugs in their study were significantly more used by controlled patients than uncontrolled patients, as they reported that the 56%

of their controlled groups used beta blockers, 32% used calcium channel blockers, 54% used diuretics; compared to figures recorded by them in the uncontrolled patients (43%, 28% and 26%; respectively).

Also, we found that there is a highly significant difference between the two groups regarding the number of anti-hypertensive drugs used. While more than half of the controlled group used only one drug, around 72% of the uncontrolled group used two or even 3 drugs in the same time. This was totally different from the study of Prejbisz et al. [5] where all of their patients; either controlled or uncontrolled; used at least 2 antihypertensive drugs, and moreover, the controlled hypertension patients in their study used medications more than the uncontrolled patients, with a significant difference.

We found significant differences between the two groups as regards presence of problems while taking medication. It shows that only 10% of controlled cases had problems when taking medication, compared to more than 81% in the uncontrolled group. The cause of these problems was also higher in the uncontrolled group, with significant differences regarding financial problems (16% in the uncontrolled group and 3% only in the controlled group), drug side effects (78% and 7%; respectively) and problems due to multidrug intake (32% in the uncontrolled group versus zero in the controlled one). The only exception is the problem of doctor compliance, which, although still higher in the uncontrolled group (6%) as compared to controlled group (3%), the difference was non significant.

As expected, the awareness of hypertension control was significantly higher among controlled group compared to the uncontrolled group. Around 71% of the controlled group

were aware of controlled hypertension and 74% of them were aware of lifestyle for controlled hypertension, compared to 53% and 59% of the uncontrolled group; respectively.

Conclusion

Uncontrolled hypertension is a major health problem and accounts for a large percentage of total hypertensive patients in our locality. Improving the awareness of hypertension, its control and causes and management of uncontrolled hypertension are major issues for the management of uncontrolled hypertension.

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199

200