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Malignant Hypertension in the Al-Thawarah Hospital-Sana'a

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ABSTRACT

Background: Malignant hypertension (MHTN) is characterized by very high blood pressure (BP), and organ damage. It is a complication of uncontrolled hypertension. Malignant hypertension requires immediate treatment and admission to the hospital to manage and control the high elevation of the blood pressure. Systemic hypertension is increasing in our society in recent years due to the changes in the lifestyle of the Yemenis and chewing Khat in large scale in most governments than before. Hypertension is a silent disease in which the majority of patients do not have symptoms. Lack of early detection, proper management of hypertension, routine medical check up and awareness of the society, lead to the malignant hypertension and its end organ damage.

Aim of the study: To study the clinical presentation and complications of the malignant hypertension in patients admitted to the cardiac centre at Al thawrah hospital (TMGH), Sanaa in one year time (May 2009-May 2010)

Method of the study: Descriptive Study including all patients admitted to the cardiac centre at TMGH, Sanaa with a diagnosis of MHTN between May 2009-May 2010.

Results: 16 cases were reported, with a mean age of 54.7± 7.8 years. 65.3% of them were male. A 62.5% (10 patients) discovered to have HTN on admission, and 37.5 % (6 patients) were presented with history of hypertension, only 2 of them (12.5%) were on antihypertension medication but with improper doses and 25% (4 patients) refused to take medications. The measurement of the systolic BP on admission showed 81.2% (13 cases) had systolic BP between 180-200 mmHg ,12.5% (2cases) were between 210-220 mmHg and 6.25%(1case) the reading was 240mmHg , 50% (8 patients) had a diastolic BP of 130 mmHg, 25% (4 cases) had >130mmHg and 18.7% (3 cases) was <130mmHg.

Conclusion: Malignant hypertension in Yemen presented with

high morbidity. This can be explained by an inadequate drug therapy, poor adherence and follow up, khat chewing, lack of society awareness and poverty. These findings emphasise the importance of early detection, patient education, proper treatment and close follow up of hypertensive patients.
Keywords: Malignant hypertension, Thamar university, Khat chewing.

INTRODUCTION

Hypertension (HTN) is a major risk factor for the development of cardiovascular diseases. It is associated with a high mortality all over the world. Hypertension still a major health problem worldwide. Each year, 7.1 million deaths in the world are attributed to HTN [1, 2]. Despite the advances in drug therapy, guidelines in management of hypertension, evidence-based data which provide better management of HTN that reduce the incidence of cardiovascular events; the control of hypertension in the United States and throughout the world has been grossly inadequate [3]. Severe HTN can lead to life-threatening complications that are usually considered hypertensive crisis. This is a serious condition which is associated with end-organ damage or may result in end-organ damage if left untreated. Prompt and rapid reduction of blood pressure is essential in patients who have acute end-organ damage [4].

The term hypertensive emergency is defined as severe HTN or a sudden increase in blood pressure with evidence of acute injury to target organs (i.e., cardiovascular, renal, and central nervous system).It implies the need for hospitalization to immediately lower blood pressure with parenteral therapy, in order to protect vital organs function [5]. Delay in treatment may cause irreversible organ damage and death [6].

The primary goal of intervention in a hypertensive crisis is to safely reduce BP. Immediate reduction in BP is required only in patients with acute end-organ damage (i.e. hypertensive emergency) which are best treated in an intensive care unit. Hypertensive emergencies frequently present with chest pain, dyspnea and neurological deficit, end-organ damage include cerebral infarction, acute pulmonary edema and hypertensive encephalopathy, as well as cerebral hemorrhage. The most important factor that limits morbidity and mortality from these disorders is prompt and carefully considered therapy [7]

It has been estimated that approximately 1% of patients may develop a hypertensive crisis during their lives[8]. The annual incidence of hypertensive emergencies being about 1-2 cases per 100000 patients [9]. Significantly higher rates have been recently reported in ethnic minorities (i.e., African Americans) and in low socio-economic states as well as in developing countries[10,11]. In the other hand the treatment of HTN has shown marked improvement and better control that reduces its complications mainly in developed countries[12].

METHODS

The study was a descriptive study; all patients admitted to the Cardiac centre at TMGH, Sanaa, with the diagnosis of malignant hypertension were enrolled during the period from May 2009 to May 2010.

Severe hypertension associated with; papilledema, exudates with or without haemorrhage. Patients with hypertensive encephalopathy, secondary malignant

hypertension, hypertension with cardiac disease and hypertension with kidney disease were included.

The study was built on the different age groups, both genders, patients presented with severe hypertension, previous history of hypertension with or without past drug history. Height, weight and BMI were measured, BP was taken on admission and then serially and fundoscopy was performed to all patients on admission. Drugs on admission and during hospital stay as well as investigations and the outcome were included.

RESULTS

16 cases were enrolled, with a mean age of 55 ± 8 years. 65% of them were males. 62.5% (10 patients) were discovered to have HTN for the first time on admission, and 37.5 % (6 patients) had a previous history of hypertension prior to admission. Among these 6 patients only 12.5% (2 patients) used to have antihypertensive medication but with improper doses. The other 25% (4 patients) refused to take their prescribed medications.

Forty four percent [44%] (7 patients) presented with pulmonary oedema, 37.5% (6 patients) with myocardial infarction, 18.8% (3 patients) with renal failure, 12.5% (2 patients) with hemiplegia and one patient presented in coma.

75% (12 patients) of our patients were khat chewers, and 50% (8 patients) were active smoker. BMI measurement was taken for all patients. 25% (4 cases) had a BMI less than 20; 37.5% (6 cases) between 21-25 and 37.5% (6 cases) had a BMI above 25. No one of our patients was obese.

The measurement of the systolic BP on admission showed 81.2% (13 cases) had systolic BP between 180-200 mmHg, 12.5% (2 cases) systolic BP was between 210-220 mmHg and 6.25% (1 case) the reading was 240mmHg. The diastolic BP was 130mmHg in 50% (8 patients), more than 130mmHg in 25% (4 cases) and less than 130mmHg in 18.7% (3 patients).

Fundus examination revealed grade IV retinopathy changes in 68.7% (11 patients), and 31.25% (5 patients) had grade III changes. Left ventricular hypertrophy was found in 56.2% of patients by ECG and in all patients (100%) by Echocardiography.

Intravenous antihypertensive drugs was given for 93.7% (15 patients), 43.75% (7 patients) had nitro-glycerine infusion, 18.7% (3 patients) nitroprusside and 31.25% (5 patients) had taken both. A 93.7% of the patients (15 patients) received angiotensin converting enzyme inhibitors (ACEI) on admission. B-blocker (BB) was given to 50% (8 patients), and Ca channel blocker (CCB) was given to 2 patients only (12.5%). BB and CCB were used in addition to ACEI (Table 1).

During the first 24 hours after admission and institution of antihypertensive medications, 43.7 % had a systolic BP <140mmHg, 31.2% 140 mmHg and 25% between 150-170mmHg Diastolic BP in the first 24 hours was 90 mmHg in 50% of them, 80 mmHg in 18.7%, 70mmHg in 12.5%, 100 mmHg in 12.5% and 6.25% had a diastolic BP of 120 mmHg.

The hospital course showed that 50% (8 patients) complicated with heart failure, 18.8% (3 patients) had CVA, 18.8% (3 patients) had pulmonary oedema and only 12.5% (2 cases) had no complications. One of the CVA patients died in the hospital representing 6.3% in-hospital mortality.

Table 1: In-Hospital Medications.

Sodium Nitrprusside	50 % (8 pts)
Nitroglycerine	75% (12 pts)
Lasix	75% (12 pts)
ACEI	93.8% (15 pts)
Calcium Channel Blocker	18.8% (3 pts)
B-Blockers	43.8 % (7 pts)
Spirinolactone	6.3% (1 pts)

DISCUSSION

Systemic HTN is one of the common cardiovascular diseases in Yemen. Modernization and changing of the lifestyle of the Yemenis in recent years lead to increase prevalence of the HTN. Diet has been changed to be more unhealthy, fatty and salty food. Overweight, lack of physical activity and tension are among the other factors, which contributed to the increase prevalence of HTN. Khat chewing, an herb with sympathomimetic action, had been reported to increase heart rate and systemic hypertension [13]. This increase of BP and heart rate was concomitant with the level of the main gradient of khat leaves, the cathinone, in the blood [14]. Khat chewing not only increases BP but also leads to difficulty in controlling BP and it is a risk factor for cerebral hemorrhage [15]

There is a poor awareness in the society about the problem of HTN and its complications. The lack of routine medical checkup and medical services in the rural areas make HTN (the silent killer) under diagnosed and poorly managed. HTN discovered mainly in the medical clinics via BP measurement by the BP devices. Many hypertensive patients live with high BP without symptoms and without management and they present to the hospital with complications. Furthermore, some patients with diagnosed high BP are not adherent to the prescribed drugs and the instructions of their physicians for better BP control. Non-adherence to medication was reported to be the most important factor associated with hypertensive crisis [16].

Table (2) show the characteristics of our patients where the majority of them (62.5%) were discovered to have HTN for the first time and were not taking any drugs for their HTN. Among those who knew that they are hypertensive 12.5% (2 patients) refuse to take the antihypertensive therapy,12.5% (2 cases) stopped the antihypertensive drugs perhaps they believe that they are well as long as they do not have any symptoms, and 18.75% (3 patients) were taking antihypertensive drugs with an inadequate dose to control their high BP. Therefore, 81.3% of our patients were not taking any drugs for their severe HTN and 18.8% had inadequate therapy. As a result, 87.5% (14 patients out of 16) had complications (table 3). Uncontrolled HTN had been reported in patients with hypertensive urgency where the high BP without end organ damage was associated with an increase risk for subsequent cardiovascular events[17].

Despite the simplicity of diagnosis of malignant HTN, it still a common medical problem in particular in the developing countries where the hypertensive population is growing and patients present with clinical symptoms only at a late stage with the development of irreversible end organ damage[18].

Malignant HTN should be considered by the clinician as a sequel to various forms of benign HTN if not managed properly. Therefore early detection, proper hypertensive management, antihypertensive campaign, hypertensive clinics and close medical follow up may reduce the prevalence of malignant HTN.

Table 2: Baseline Characteristics of the malignant HTN patients.

Mean age	54.7± 7.8 years
Male	65.3%
Hx of HTN	37.5% (6 patient)
HTN discovered on admission	54.3% (9 patient)
Family Hx	12.5% (2 patients)
MI	37.5% (6 patients)
Pulmonary oedema	43.8% (7 patients)
CVA	18.8% (3 patients)
BMI;	
Overweight ≥25	50% (8 patients)
Normal weight ≤ 24.9	50% (8 patients)
Khat chewing	75% (12 patients)
Smoking	50% (8 patients)
1st Systolic BP;	
180-199	56.25%
200-240	43.75%
1st diastolic BP;	
>130	31.25%
100-130	68.75%

Table 3: Complications & in-hospital course.

Impaired Creatinine	31.3 % (5 patients)
Heart Failure	43.8 % (7 patients)
Pulmonary oedema	25.0% (4 patients)
EF < 50%	37.5% (6 patients)
CVA	18.8% (3 patients)
LVH	43.8% (7 pts)
Eye ;	
Papillae Oedema	75% (12 pts)
Flame shape Hge	18.8% (3 pts)
Exudates	6.3 % (1 pts)

Limitations of the study

The study done only on the patients admitted to ICU of cardiac center in AlThawra General Hospital and not involved patients those who may admitted to other ICUs in the hospital or other hospitals.

CONCLUSION AND RECOMMENDATIONS

Malignant HTN is a serious medical problem, which needs immediate and proper therapy to avoid its serious complications. Improving society awareness about the disease, change in patient's lifestyle including stopping khat chewing, routine checkup, early detection and proper management of the systemic HTN are the best ways to prevent malignant HTN and its complications.

We recommend the-health authorities to establish an educational programs about HTN that encourage regular routine BP chick up for every person above 18 years old.

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ارتفاع الضغط الشرياني الخبيث عند المرضى الذين تم ادخالهم الى مستشفى الثوره العام بصنعاء

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ملخص

ضغط الدم الشرياني الخبيث يتميز بارتفاع شديد في ضغط الدم الشرياني ال\اي يسبب اعطاب او اصابه لبعض الاعضاء الهامه في جسم الانسان ، وهو يعتبر مضاعفات لارتفاع ضغط الدم الشرياني الذي لا يتم معالجته وضبطه الى المعدل الطبيعي.

ضغط الدم الشرياني الخبيث يحتاج الى ادخال المريض الى العناية المركزه بالمستشفى والى المعالجات السريعة والمباشرة وبدون تأخير لكي يتم ضبطه بشكل سريع ومن ثم تقليل اثاره ومضاعفاته على بقيه الاعضاء في الجسم.

حديثا هناك تزايد في حالات ارتفاع الضغط الشرياني في مجتمعنا ودلك بسبب التغيرات في نمط الحياة لدى المجتمع اليمني وكذلك بسبب زيادة تعاطي القات بشكل واسع في معظم محافظات الجمهوريه.

ارتفاع ضغط الدم الشرياني يعتبر القاتل الصامت لان كثير من المرضى لا يشعرون بأي اعراض له وكذلك لعدم فحص ضغط الدم لجميع المرضى الدين يزورون الاطباء ومن ثم عدم التشخيص المبكر والمعالجة المناسبة للمرض مما يؤدي الى حدوث خالات ارتفاع ضغط الدم الشرياني الخبيث.

هدف الدراسة: تهدف الدراسة الى معرفه الملامح السريريه والمضاعفات للضغط الشرياني الخبيث لدى المرضى الدين يتم ادخالهم الى العناية المركزه بمركز القلب بمستشفى الثوره بصنعاء حلال الفترة من (2009-2010).

طريقه عمل الدراسة: هي دراسة وصفيه تضم كل المرضى الدين يتم ادخالهم الى العناية المركزه بمركز القلب بمستشفى الثوره بصنعاء وتم تشخيصهم على ان لديهم ارتفاع ضغط الدم الشرياني.

نتائج الدراسة: ستة عشر حاله تم دراستها وبمتوسط عمر 55_+8 سنه. 62.5% منهم كانوا ذكور ، و 62.5% (10 حالات) تم اكتشاف ارتفاع الضغط الشرياني لديهم عند ادخالهم للمستشفى فقط ، 37.5% (6 حالات) كان لديهم تاريخ مرضي سابق بارتفاع ضغط الدم ، وحالتين منهم فقط (12.5%) كانوا يستخدمون علاجات للضغط ولكن بجرعات غير مناسبة او غير كافيه ، و 25% (4 حالات) كانوا يرفضون استخدام العلاج بالرغم من تشخيصهم سابقا بان لديهم ارتفاع في ضغط الدم الشرياني.

اظهر قياس ضغط الدم الشرياني الانقباضي للمرضى عند دخولهم للعناية ان 81.25% (13 حاله) كان لديهم ضغط الدم الانقباضي ما بين 180— 200 مم زئبقي ، و12.5% (حالتين) كان بين 210—220 مم زئبقي ، و6.25% (حاله واحده) كان 240 مم زئبقي. 50% (8 حالات) كان الضغط الانبساطي لديهم 130 مم زئبقي و 25% (4 خالات) كان عندهم الضغط الانبساطي اكثر من 130 مم زئبقي و 18.75% (3 حالات) كان اقل من 130 مم زئبقي.

الاستنتاج: تظهر الاصابه بارتفاع الضغط الشرياني الخبيث في اليمن بنسبه عاليه وهدا يمكن تفسيره بعدم المعالجه الدوائية الكافيه لمرضى ارتفاع الضغط الشرياني وبعدم المتابعه الطبية المنتظمة وتجاوب المرضى لاستخدام العلاج بصوره صحيحة ومنتظمة.

هده النتائج تشدد على ضرورة الاكتشاف المبكر لارتفاع الضغط الشرياني عند المرضى ، وأيضا ضرورة عمل برامج تثقيفية وتوعيه عن المرض وإخطاره وطرق المعالجه المناسبة والمتابعة الطبية المنتظمة لمرضى ضغط الدم الشرياني.