



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Shendi University



Faculty of Graduate Studies and Scientific Research

**Assessment of Hypertensive Patient
Compliance Regarding anti-
Hypertensive Medications in Elmek
Nimer University Hospital**

*Athesis Submitted in requirements to fulfill master degree in Medical surgical
nursing.*

Submitted by:

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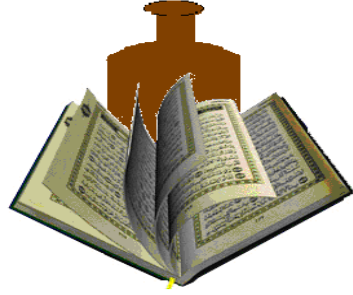
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الآية



قال تعالى :

﴿قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ

الْحَكِيمُ﴾

صدق الله العظيم
سورة البقرة الآية (33)

Dedication

I dedicated this study to

*My kind parents for their patience, helping and
encouragement*

*My brothers for their patience and endless
support*

My dear husband who stand behind me

*A family of academic nursing at University of
Shendi for their helping and endless patience.*

The dearest people in my life with my respect.

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study*

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Abstract:

Hypertension is one of the most important cardiovascular risk factors but its control is still a challenge all around the world. Control of blood pressure can reduce cardiovascular morbidity and mortality, so the compliance to antihypertensive drugs and life style modification play an important role for the control of hypertension.

The study was done among hypertensive patients attending referred clinic in ElmekNimer university hospital aimed to assess of hypertensive patient compliance to anti- hypertensive medications.

In this study data was collected using structured questionnaires. Data were analyzed Using SPSS software programme.

The study showed (42%) of patients are not forget to take medication, (64%) never stop medication because they feel better, (86%) never stop medication because feel worse, (94%) ` never stop medication because they belief that it is ineffective.

The study showed (58%) full aware about complication, compared with (8%) not aware this result indicate most of patients had good knowledge about hypertension, complication of hypertension and Lifestyle modification.

The conclusion of this study revealed that most of study groups have good compliance, full aware about the benefit of compliance and good awareness of complication of hypertension.

The patients must behaving compliance with medication; the nurses/doctors should give .

Heath education to the patients every clinic visit on the importance of complying with

Medication, patients should be educated that antihypertensive drugs are using under the doctors control.

ملخص البحث

يعد ارتفاع ضغط الدم من اكثر العوامل المؤهلة للاصابة بامراض القلب والشرايين والجلطات الدماغية وامراض الكلى. وما زال التحكم في ارتفاع ضغط الدم من التحديات التي تواجه العالم ، لذا يعتبر الالتزام بتناول الادوية وترقية اسلوب الحياة يلعبان دورا مهما في التحكم.

وقد اجريت هذه الدراسة على 50 عينة تم استهدافهم من بين الذين يراجعون بالعيادة المحولة بمستشفى المك نمر الجامعي لمعرفة مدى التزامهم بتناول الادوية المحددة تجاه صحتهم.

وتم جمع البيانات باستخدام الاستبيان والمقابلات ، وتم تحليلها تحليلا احصائيا.

واوضحت الدراسة ان 42% لم يتناسوا تناول ادويتهم ، بينما 64% لم يوقفوا تناول ادويتهم وان تحسنت حالتهم الصحية خوفا من المضاعفات . وان 58% من المرضى لديهم الوعي بمخاطر ارتفاع ضغط الدم ، بينما 8% لم يدركوا ان لهذا المرض مخاطر .

وخلصت الدراسة الى ان بعض من العينات المستهدفة لديهم الالتزام الجيد بتناول

الجرعات المحددة والوعي التام بالفوائد المترتبة على الالتزام .

واوصت الدراسة برفع الوعي الثقافي الصحي لدى المرضى بالمخاطر الناجمة عن عدم التزامهم بتناول الادوية

List of abbreviations

Abbreviations	Meaning
BP	Blood pressure
CO	Cardiac out put
PVR	Peripheral vascular resistance
ISH	Isolated systolic hypertension
DM	Diabetes mellitus
CVA	Cardio vascular accident
CAD	Coronary artery disease
GIT	Gastro intestinal tract
ACE	Angiotensin converting enzyme inhibit

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Introduction:

Blood pressure is the product of cardiac output multiplied by peripheral resistance. Cardiac output is the product of the heart rate multiplied by the stroke volume. In normal circulation, pressure is exerted by the flow of blood through the heart and blood vessels. High blood pressure, known as hypertension, can result from a change in cardiac output, a change in peripheral resistance, or both. The medications used for treating hypertension decrease peripheral resistance, blood volume, or the strength and rate of myocardial contraction

Hypertension is a systolic blood pressure greater than 140 mm Hg and a diastolic pressure greater than 90 mm Hg over a sustained period, based on the average of two or more blood pressure measurements taken in two or more contacts with the health care provider after an initial screening *.(Brunner and Suddarths , 2010)*

Hypertension is an important public-health challenge worldwide. Prevention, detection, treatment, and control of this condition should receive high priority

Hypertension is an important worldwide public-health challenge because of its high frequency and risks factor for cerebral vascular, cardiovascular and kidney disease. **(Kearney and Whelton, 2005).**

Hypertension is seen more commonly among people with a family history of hypertension. Indeed, people with a family history have almost twice the risk of developing hypertension as those with no family history. People with a family history of hypertension should be

encouraged to have their blood pressure checked regularly .Uncontrolled hypertension is caused by non-adherence to the antihypertensive drugs.

patients understanding their drug regimens help to improve their adherence, thus will help prevent the complications of hypertension which are debilitating and if not Prevented can increase the burden of a disease that is already on the increase

(Kumar & Halesh, 2010)

Hypertension is one of the most important cardiovascular risk factor

But its control is still a challenge all around the world. Control of blood pressure can Reduce cardiovascular morbidity and mortality, so the compliance to antihypertensive drugs and life style modification play an important role for the control of hypertension. **(WHO 2006).**

Hypertension is an important public-health challenge worldwide. Prevention, detection, treatment, and control of this condition should receive high priority. Hypertension is defined as an average systolic blood pressure 140 mm Hg or greater, diastolic blood Pressure 90 mm Hg or greater **(Kearney et al, 2005).**

Justification

Hypertension is one of the most important cardiovascular risk factor but its control is still a challenge all around the world, Control of blood pressure can reduce cardiovascular morbidity and mortality, so the compliance to antihypertensive drugs and life style modification play an important role for the control of hypertension (**WHO.2006**).

Objectives :

General objectives:

To assess hypertensive patient compliance regarding anti-hypertensive medications.

Specific objectives:

- To assess awareness of patient about antihypertensive medication.
- To identify barrier that contribute patient to non-compliance.
- To identify patient knowledge about risks of complication of hypertension.
- To identify patient knowledge about benefit of compliance treatment.

Literature review:

Conceptual definition of terms:

Hypertensive patient:

In this study, hypertensive patient is the patient with high blood pressure and has already starting antihypertensive medication.

Compliance:

Is defined as “the extent to which a person’s behavior (taking medicines, or executing lifestyle changes) (Kaveh & Kimmel, 2001).

Describes compliance as an act of adhering to the regimen of care recommended by the clinician and persisting with it over time. (Bloom 2001)

Compliance with lifestyle modifications:

Compliance with lifestyle modifications aimed at lowering blood pressure includes regular exercise ,eating salt , fat free diets, cessation of smoking, and a reduction in alcohol consumption .(Svetkey et al, 2005).

Modification:

In this study modification refers to a change (adjustment) in lifestyle, namely attitudes, Habits and behaviors necessary for controlling hypertension.

Frequently:

In the context of this study frequently on compliance to medication and life style

Modification refers to three days and above of not taking antihypertensive medications within a week.

Rarely:

In this study rarely refers to one to two days of not taking antihypertensive medications within a week.

Definition:

Hypertension known as high blood pressure is a condition in which the blood pressure, on at least two or more readings on different dates after an initial screening, is found to be higher than normal. If the systolic blood pressure is above 140 mm Hg or the diastolic blood pressure is above 90 mm Hg. (*Lina. S and Pauta .D, 2003*)

Pathophysiology of hypertension:-

Normally the heart pumps blood through the body to meet the cells' needs for oxygen and nutrients. As it pumps, it forces blood through the blood vessels to the vital organs and tissues. The pressure exerted by blood on the walls of the blood vessels' is measured as blood pressure. Blood pressure is determined by cardiac output(CO). Peripheral vascularresistance (PVR; the ability of the vessels to stretch), the viscosity (thickness) of the blood, and the amount of circulating blood volume. Decreased stretching ability and increased viscosity and fluid volume increase blood pressure. Several processes influence blood pressure by controlling CO and PVR.

These processes include nervous system regulation, arterial bar receptors and chemoreceptors, the renin-angiotensin-Aldosterone mechanism, and balancing of body fluids. One way blood pressure is influenced is through adjustment of the CO, which is the amount of blood that the heart pumps out

each minute. The heart rate rises to increase CO in response to either physical or emotional activities that require more oxygen for the organs and tissue.

PVR also influences blood pressure; it is the opposition that blood encounters as it flows through vessels. Anything causing blood vessels to become narrower increases PVR. Any time PVR is increased, more pressure is needed to push the blood through the vessel, so blood pressure is increased as a result. If PVR is decreased, less pressure is needed. Increased arteriolar PVR is the main mechanism that elevates blood pressure in hypertension, *.(Lina. S and Pauta .D , 2003)*

Classification of hypertension:

Primary Hypertension:

Primary or essential hypertension is the chronic elevation of blood pressure from an unknown cause. These unknown causes influence the factors that control blood pressure, resulting in a hypertensive state.

Secondary Hypertension:

Secondary hypertension has a known cause. In other words, it is a sign of another problem, such as a kidney abnormality, a tumor of the adrenal gland, or a congenital defect of the aorta. When the cause of secondary hypertension is treated before permanent structural changes occur, blood pressure usually returns to normal. Treatment may include surgery or medication.

Isolated Systolic Hypertension

Is a systolic pressure of 160 mm Hg or greater and a normal diastolic pressure of 90 mm Hg or less. This is an abnormal finding. This type of hypertension occurs mainly in elderly people.

Treatment of ISH is recommended to decrease cardiovascular disease, especially risk of stroke. Lifestyle modifications are usually tried first if the systolic elevation is not too severe. If lifestyle modifications fail to reduce the

systolic pressure, antihypertensive medication is added (*Lina. S and Pauta .D , 2003*)

Hypertensive Emergencies = elevated blood pressure causing end organ damage.

Hypertensive Urgencies = elevated blood pressure (usually with diastolic >115mmHg) but no end organ damage.

Transient Hypertension = accompanies such conditions as pain, anxiety, alcohol withdrawal or intoxication (*lippincotwilliams, 2002*)

Other classifications of hypertension according to reading:-

- Normal <120 mmHg systolic / <80 mmHg diastolic
 - Pre hypertension: 120–139 mmHg systolic / 80–89 mmHg diastolic
 - Stage 1 hypertension: 140–159 mmHg systolic / 90–99 mmHg diastolic
 - Stage 2 hypertension: ≥160 mmHg / systolic ≥100 mmHg diastolic
 - In diabetic patients: hypertension is defined as 130/80 or higher
- (*Brunner and Suddarths , 2010*)

Risk Factors for Hypertension:

Non modifiable Risk Factors:

Family History of Hypertension:

Hypertension is seen more commonly among people with a family history of hypertension. Indeed, people with a family history have almost twice the risk of developing hypertension as those with no family history. People with a family history of hypertension should be encouraged to have their blood pressure checked regularly.

Age:

People age differently because of their genetic and environmental risk factors and lifestyle habits. Thus the results of the aging process may be reflected in wide variations of blood pressure among elderly people. As a person ages, plaque builds up in the arteries and the blood vessels become stiffer and less elastic, causing the heart to work harder to force blood through the vessels. These vessel changes increase cardiac output to maintain blood flow into the circulation and subsequently raise blood pressure in the elderly.

Race and Ethnicity:

Cultural Consideration discusses hypertension among various ethnic groups.

Diabetes Mellitus:

Two-thirds of adults who have diabetes mellitus also have hypertension. The risk of developing hypertension with a family history of diabetes and obesity is two to six times greater than when there is no family history. Approximately 80 percent of people with type 2 diabetes mellitus (non-insulin dependent) are overweight.

Modifying Risk Factors:

These modifications include weight reduction, stress management, moderation of dietary sodium and alcohol intake, increased physical activity, and smoking cessation. Lifestyle modifications are most often used with antihypertensive drugs to control hypertension and enhance the drug effects.

Weight Reduction:

There is a strong relationship between excess body weight and increased blood pressure. Weight reduction is one of the most important, if not the most

important, lifestyle modification to lower blood pressure. The health care provider and dietitian should be consulted to help the patient develop a weight-reduction diet and other methods of weight loss.

Stress Management:

Reducing stress can play a major role in the treatment of patients with hypertension. Stress stimulates the sympathetic nervous system (fight-or-flight response). This stimulation causes the vessels to constrict and activates the rennin angiotensin mechanism.

Meal Planning:

Salt intake:

Research has shown that some people may develop high blood pressure by eating a diet high in salt. Patients whose blood pressure can be lowered by restricting dietary sodium are called salt sensitive. This sensitivity is particularly common among African-Americans, elderly persons, and patients with diabetes and obesity. Patients with hypertension should be instructed not to add salt while cooking and not to add table salt to their food. Processed foods or foods in which salt can be easily tasted (e.g., canned soups, ham, bacon, salted nuts) should also be avoided.

Intake of Potassium, Calcium, and Magnesium:

Recent studies are inconclusive as to the role that low dietary potassium, calcium, and magnesium intake play in the development of high blood pressure. A balanced diet that ensures adequate intake of these nutrients is important in maintaining general health. Foods rich in potassium include oranges, bananas, and broccoli. Milk, yogurt, and spinach are rich in calcium. Vegetables such as spinach, garbanzo beans, and lima beans are good sources of magnesium. Whenever possible, fresh or frozen foods should be selected rather than canned foods to increase intake of these nutrients.

Alcohol Consumption:

The regular consumption of three or more drinks per day can increase the risk of hypertension and cause resistance to antihypertensive therapy. The nurse should counsel hypertensive patients who drink alcohol to avoid it or at least limit their daily intake. Blood pressure may decrease or return to normal when alcohol consumption is limited or eliminated.

Exercise:

People with sedentary lifestyles have an increased risk of hypertension compared with people who exercise regularly. Exercise helps prevent and control hypertension by reducing weight, decreasing peripheral resistance, and decreasing body fat. Moderate activity, Patients with hypertension should be evaluated by a health care provider before starting any exercise program.

Smoking:

Smoking is a major risk factor for cardiovascular disease and is associated with a high incidence of stage 3 hypertension. Patients who smoke may show an increase in blood pressure because nicotine constricts the blood vessels. The nurse should instruct patients with hypertension to quit or decrease smoking to reduce the risk of myocardial infarction and stroke. A referral by the nurse to a smoking cessation program can be helpful(*Lina. S and Pauta .D , 2003*)

Signs and symptoms of hypertension:

Often hypertension causes no signs or symptoms other than elevated blood pressure readings. As a result, hypertension is referred to as the “silent killer.” Patients with hypertension are often first diagnosed when seeking health care for reasons unrelated to hypertension. In a small number of cases, a patient with hypertension may complain of a headache, bloody nose, or blurred vision, although it is usually impossible for a patient to correlate the absence

or presence of symptoms with the degree of blood pressure elevation. Most signs and symptoms of hypertension stem from long-term effects on the large and small blood vessels of the heart, kidneys, brain, and eyes. These effects are known as target organ disease. *(Brunner and Suddarths , 2010)*.

Diagnosis of hypertension:-

Diagnosis is based on a health history to assess a patient's risk factors for hypertension, any previous diagnosis of hypertension, presence of any signs and symptoms, history of kidney or heart disease, and current use of medications. Although there are no diagnostic studies specifically for hypertension, there are diagnostic tests that can be helpful in identifying related information, such as damage to organs or blood vessels. The types of diagnostic tests performed depend on the stage of the hypertension or other medical conditions that may be present at the time of evaluation .*(Brunner and Suddarths , 2010)*.

Diagnostic Tests:

Laboratory tests such as urinalysis, blood urea nitrogen, and creatinine may indicate kidney damage from high blood pressure. Serum levels of sodium, calcium, chloride, potassium, magnesium, and phosphate are essential to evaluate the patient's fluid, electrolyte, and acid-base balance. *(Brunner and Suddarths , 2010)*

Special considerations:

Blood pressure should be well controlled before any invasive procedure. Hypertensive patients are at greater risk for strokes, MI, kidney failure, and pulmonary edema. These patients should be instructed to continue their blood pressure medications until the time of the procedure, unless otherwise directed by their physician or health care provider.

They should resume their antihypertensive medications as soon as possible after the procedure, unless they are given new instructions by the physician.

(*Lina. S and Pauta .D , 2003*)

Treatment:

Treatment is aimed at decreasing the risk of CVA, CAD, heart failure, renal disease, and other long-term sequel of hypertension. Risk factors need to be assessed.

There is a four-step treatment plan:

• Step 1:

- Life style modification:-
- Lose weight if overweight.
- Limit alcohol intake
- Increase aerobic physical activity (30 to 45 minutes most days of the week).
- Reduce sodium intake to no more than 100 mmol per day (2.4 g sodium or 6 g sodium chloride).
- Maintain adequate intake of dietary potassium (approximately 90 mmol per day).
- Maintain adequate intake of dietary calcium and magnesium for general health.
- Stop smoking and reduce intake of dietary saturated fat and cholesterol for overall cardiovascular health for.

Step 2: Begin medication:

1- Administer diuretics to reduce circulating blood volume:

A- Loop Diuretics, e.g. Furosemide (Lasix) and Bumetanide (Bumex)

Sid effects:

Volume depletion is rapid—profound diuresis can occur. Electrolyte depletion—replacement is required. Thirst, nausea, vomiting, skin rash, postural hypotension. Sweet taste noted; oral and gastric burning.

B-Potassium-Sparing Diuretics Eg. spironolactone (Aldactone)

Side effects:

Drowsiness, lethargy, headache—decrease dosage. Monitor for hyperkalemia if given with ACE inhibitor.

Diarrhea and other GI symptoms—administer medication after meals. Skin eruptions, urticaria mental confusion, ataxia (with triamterene)—dosage may need to be reduced. Gynecomastia (not for triamterene)

C-Thiazide Diuretics E.g. Hydrochlorothiazide, Side effects include:

Dry mouth, thirst, weakness, drowsiness, lethargy, muscle aches, muscular fatigue, tachycardia, GI .Disturbance(*Lina. S and Pauta .D , 2003*

2- Beta-adrenergic blockers to lower heart rate and cardiac output:

Sid effects:

Mental depression manifested by insomnia, lassitude, weakness, and fatigue. Lightheadedness and occasional nausea, vomiting, and epigastria distress

E.g. Propranolol, metoprolol, atenolol

3- **Calcium channel blockers:** to cause peripheral vasodilatation, less tachycardia:

E.g. Verapamil, diltiazem, nicardipine

Sid effects:

Do not discontinue suddenly. Observe for hypotension. Report irregular heartbeat, dizziness, and edema. Instruct on regular dental care because of potential gingivitis. Administer on empty stomach or before meal. Do not discontinue suddenly. Depression may subside when medication is discontinued. To relieve headaches, reduce noise, monitor electrolytes. Decrease dose for patients with liver or renal failure

4- **Administer ACE:-** to inhibit the rennin angiotensin aldosterone system.

In diabetes, ACE inhibitors also delay the progression of renal disease.

- Enalapril, lisinopril, benazepril, captopril, fosinopril, quinapril, perindopril

Sid effects:

Renal impairment

Step 3:

- Increase dosages of currently administered medication

Step 4:

- Combination of agents in above classes
- Multiple drugs may be needed to control blood pressure (*lippincotwilliams, 2002*)

Complication of hypertension:

Uncontrolled high blood pressure can lead to:

- Heart attack or stroke. High blood pressure can cause hardening and thickening of the arteries (atherosclerosis), which can lead to a heart attack, stroke or other complications.

- Aneurysm. Increased blood pressure can cause your blood vessels to weaken and bulge, forming an aneurysm. If an aneurysm ruptures, it can be life-threatening.
- Heart failure. To pump blood against the higher pressure in your vessels, your heart muscle thickens. Eventually, the thickened muscle may have a hard time pumping enough blood to meet your body's needs, which can lead to heart failure.
- Weakened and narrowed blood vessels in your kidneys. This can prevent these organs from functioning normally.
- Thickened, narrowed or torn blood vessels in the eyes. This can result in vision loss.
- Metabolic syndrome. This syndrome is a cluster of disorders of your body's metabolism, including increased waist circumference; high triglycerides; low high-density lipoprotein or "good," cholesterol; high blood pressure; and high insulin levels.

If you have high blood pressure, you're more likely to have other components of metabolic syndrome. The more components you have, the greater your risk of developing diabetes, heart disease or stroke.

- Trouble with memory or understanding. Uncontrolled high blood pressure may also affect your ability to think, remember and learn. Trouble with memory or understanding concepts is more common in people with high blood pressure (**WWW.Wekepidia**).

Nursing intervention:

- Monitor blood pressure with multiple readings—lying, sitting, and standing,

Bilateral both arms.

- Record fluid intake and output.
 - Reduce stress by providing a quiet environment.
 - Explain to the patient:
 - No smoking—smoking contributes to cardiovascular disease, raising blood Pressure.
 - Change to a low-sodium and low-cholesterol diet—salt adds to elevated Blood pressure in some patients by contributing to fluid retention; lower Cholesterol intake lowers risk for associated hyperlipidemia.
 - Reduce alcohol intake—reduces risk for end organ damage .
 - Reduce weight—decreased risk for obesity, better BP control with better Weight control.
 - Exercise.
 - Call physician when BP is elevated.
 - Side effects of medications .(*Brunner and Suddarths , 2010*).

Compliance:

Is defined as “the extent to which a person’s behaviour (taking medicines or executing lifestyle changes) coincides with medical or health advice”.

(Kaveh &Kimmel, 2001).

Bloom (2001) described compliance as an act of adhering to the regimen of care recommended by the clinician and persisting with it over time.

Compliance with lifestyle modifications:

Compliance with lifestyle modifications aimed at lowering blood pressure includes regular exercise (at least 30 minutes thrice per week), eating salt and fat free diets, cessation of smoking, and a reduction in the daily

alcohol consumption to less than 20g of ethanol for men and less than 10g of ethanol for women. (Svetkey et al, 2005).

According to the World Health Organization (WHO), each year, at least 7.1 million people die as a result of increased blood pressure for the treatment of hypertension, a broad range of antihypertensive medications are currently available, as well as Therapeutic Lifestyle Changes such as weight reduction, increased physical activity, and reduction of dietary salt intake, which have proven to be important in disease management. Although there is evidence that increased blood pressure can actually be controlled with the cardiovascular risk factor being thus reduced, 75% of patients diagnosed with hypertension cannot achieve full control of their blood pressure. Poor blood pressure control is associated with higher healthcare resource utilization and costs and increased risk of cardiovascular diseases. Non adherence to antihypertensive medication is the main reason for failure to control blood pressure among those under treatment.

Perceived severity of hypertension:-

Perceived severity is the concept by which a disease can cause morbidity, disability or mortality. The Health Belief Model however believes that persons who accept hypertension to be a serious disease will be more compliant with medication and lifestyle modifications than the ones who do not feel this perception. (Glanz et al,2002).

Factors affecting compliance with antihypertensive therapy:

A study done by Almas et al (2006) February 2005 at Aga Khan University Pakistan on factors affecting compliance to antihypertensive therapy indicates that non compliance was affected by forgetfulness, deliberately missing doses, due to side effects, increased number of tablets, not properly counseled, and due to cost issues. Also factors can be grouped

into several categories, namely, patient-centered factors e.g. , age, , gender, education, and marital status , therapy-related factors, healthcare system factors, social and economic factors, and disease factors (**Jing et al, 2008**).

Methodology:

The design used for this was descriptive, cross-sectional study, aiming to assess hypertensive patient compliance regarding anti-hypertensive medication.

Technical Design:-

Technical design of the study includes Studydesign, study area, setting, study population, and tools of data collection.

Study Design:

This was observation (descriptive study) conducted at refer clinic (Shendi city in Elmek Nimer university hospital) to assess t hypertensive patient compliance regarding anti-hypertensive medication. .

Study Area:

This study was conducted in Elmek Nimer Hospital which located at River Nile state in Shendi town, the hospital was established in 2002 and contain the following departments: medicine, surgery, pediatric, Gynecology and obstetrics- unit .and outpatient clinic refer

Setting:

This study was conducted at clinic refer was established since 2009 .its consist of several part (obstetric , pediatric, medicine ,surgery oncology,)refer ,lab and dressing unti.it provides follow-up and care)for all patients from urban and rural ears .

Study Population:

This study involves hypertensive patient whom visiting to refer clinic.

The inclusion criteria:-

- 1-Patients of age 18 years and above
- 2-Participants with a diagnosis of hypertension for at least one month with or without other co-existing medical condition.
- 3-Participants who have been taking antihypertensive treatment for at least past one month ago.
- 4- Patients who agreed and consented to participate in the study

Exclusion criteria:-

- 1-Patients who had not started antihypertensive
- 2-Patients less than 18 years of age
- 3-Patients who refused to participate in the study.

Sampling:

Sample techniques:

The sample was taken from hypertensive patients who came to therefore during three days of the week.

Sample size:

50 patients were participated in this study.

Tools of Data Collection:

The data was collected by questionnaire designed by researcher based on reviewing of literature, it consists of four sections; the first section was designed to collect data about personal characteristics of patients. The second was designed to collect data about compliance with medication regimen, the third collect data about compliance with life style modification regimen and the four section collect data about benefit of compliance and aware of patient about complication of hypertension.

Operational Design:

Operational design includes data collection technique and ethical consideration

Data collection technique:

In this study the data was collected in one month, some of patients are illiterate, i explain the questionnaire items for them then late them to choose the item according their knowledge.

Ethical consideration:

The study was approved by ethical committee of research in the faculty of post graduate and scientific research.

Before conducting the study, verbal permission was taken from refer clinic administration and from staff delivering care in clinic refer for patients. The purpose of study was explained to each one of patient and is assured them that the data collected from the questionnaire will remain confidential and it's not allowed for any person to identify it

Statistical Design:

The collected data, organized, categorized, tabulated in tables using frequencies and percentage. The statistical package for social sciences (SPSS version 11.5) was used for statistical analysis.

Results:

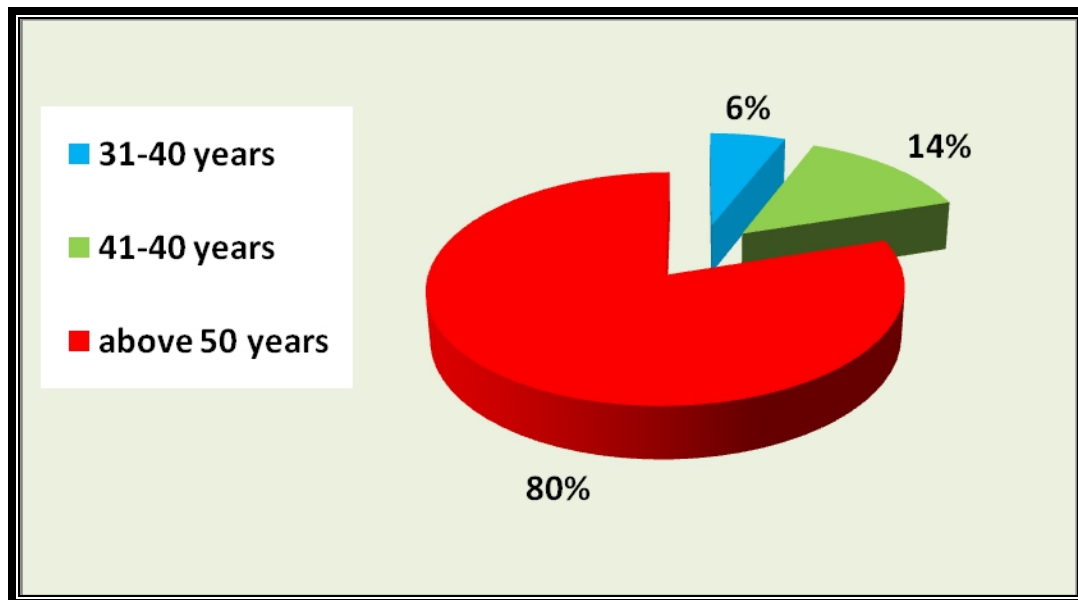


Figure (1): show study group according to their Age

This Figure showed that (80%) of patients their age (above 50 years), (14%) of them their age between (41-40 years), and (6%) of them between (31-40 years).

Table (1): show study group according to sex

Sex	Frequency	Percent
Male	22	44 %
Female	28	56 %
Total	50	100 %

This table illustrated that (56%) were female and (44%) were male.

Table (2): show study group according to marital status

Marital status	Frequency	Percent
Married	46	92 %
Un married	3	6 %
Divorced	1	2 %
Total	50	100 %

This table illustrated that (92 %) of patient have married, (6%) of patient UN married, and (2 %) of them divorced.

Table (3): show study group according to educational level:

Educational level	Frequency	Percent
Illiterate	21	42 %
Primary school	1	36 %
Secondary school	9	18 %
University	2	4 %
Total	50	100 %

This table illustrated that (42%) of patient had educational level illiterate, (36 %) of patient have primary school, (18%) of them had secondary school, and (4 %) of them had university.

Table (4): show study group according to occupation

Occupation	Frequency	Percent
Governmental employee	11	22 %
self-employee	21	42 %
Unemployed	18	36 %
Total	50	100 %

This table illustrated that (42%) of patient self-employee, (22%) governmental employee and(36%) unemployed

Table (5): show study group according to their habits:

Habits	Frequency	Percent
Smoking	13	26 %
Other	9	18 %
None	28	56 %
Total	50	100 %

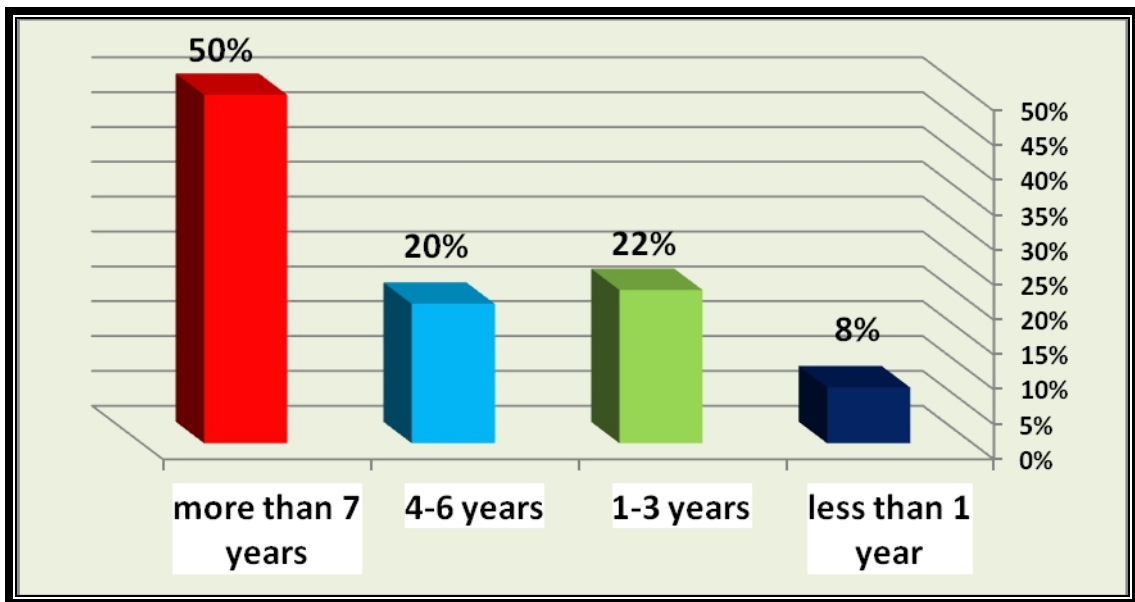


Figure (2): show study group according to Duration of hypertension

This figures showed that half (50%) of hypertensive patient more than seven years, (22%) of them from (1-3years), (20%) from (4-6years) and (8%) less than (1year).

Table (6): show study group according to their complains other than high blood pressure

Complains	Frequency	Percent
Heart problems	7	14 %
D.M	22	44 %
Paralysis of limbs	1	2 %
Visual impairment	23	46 %
Kidney problems	2	4 %
None	12	24 %

This table illustrated that (46%) of patient complain of Visual impairment , ,(44%) of them complain of DM , (24%) of them none complains ,(14%)of them complainof heart problem ,(4%) with Kidney problems, and (2%) with Paralysis of limbs .

Table (7): show study group according to type of medications used

Kinds of medicine taking	Frequency	Percent
Single drug	31	62 %
Combination drugs	19	38 %
Total	50	100 %

This table illustrated that (62%) of patient use single type of drug and (38%) use combination drugs.

Table (8): show study group according to Forgetting to take their medicine:-

Forget to take medicine	Frequency	Percent
Daily	1	2 %
Frequently	20	40 %
Rarely	8	16 %
Never	21	42 %
Total	50	100 %

This table illustrated that (42%) of patient never Forget to take medicine, (40%) of them frequently, (16%) rarely and (2%) daily.

Table (9): show study group according to stopping taking of medicine because of feeling better.

feelbetter	Frequency	Percent
Frequently	12	24 %
Rarely	6	12 %
Never	32	64 %
Total	50	100 %

This table illustrated that (64%) of patient never Stop taking of medicine because feel better, (24%) of them frequently (12%) rarely.

Table (10): show study group according to stop taking your medicine because of feelingworse.

feel worse	Frequency	Percent
Frequently	3	6 %
Rarely	4	8 %
Never	43	86 %
Total	50	100 %

This table illustrated that (86%) never to stop taking your medicine because you feelworse, (8%) of them rarely and (6%) frequently.

Table (11): show study group according to stopping the medication because of believing they are ineffective:

believe that are ineffective	Frequency	Percent
Frequently	1	2 %
Rarely	2	4 %
Never	47	94 %
Total	50	100 %

This table illustrated that (94%) of patient never stop taking the medication because you believe that they are ineffective, (4%) of them rarely and (2%) frequently

Table (12): show study group according to stop taking your medicine because of fearing side effects:

fear side effects	Frequency	Percent
Frequently	1	2 %
Rarely	1	2 %
Never	48	96 %
Total	50	100 %

This table illustrated that (96%) of patient never stop taking your medicine because use you fear side effects, (2%) of them frequently and (2%) rarely.

Table (13): show study group according to you stop taking medicine because you try to avoid addiction:

try to avoid addiction	Frequency	Percent
Frequently	1	2 %
Never	49	98 %
Total	50	100 %

This table illustrated that (98%) of patient never you stop taking medicine because you try to avoid addiction and (2%) frequently

Table (14): show study group according to stopping medication because of using traditional medicine or Religions belief.

using traditional medicine or Religions belief	Frequency	Percent
Frequently	7	14 %
Rarely	8	16 %
Never	35	70 %
Total	50	100 %

This table illustrated that (70%) of patient never stop medication because you are using traditional medicine or Religions belief, (16%) of them rarely and (14%) frequently.

Table (15): show study group according to stopping medication because of cost of medication.

cost of medication	Frequency	Percent
Rarely	11	22 %
Never	39	78 %
Total	50	100.0

This table illustrated that (78%) of patient never stop medication because cost of medication and (22%) of them rarely.

Table (16): show study group according to smoking habit:-

Smoking	Frequency	Percent
Daily	1	2 %
Frequently	5	10 %
Rarely	7	14 %
Never	37	74 %
Total	50	100 %

This table illustrated that (74%) of patient never smoking, (14%) of them rarely, (10%) frequently, and (2%) daily.

Table (17): show study group according to drink alcohol:

drinking alcohol	Frequency	Percent
Frequently	1	2 %
Rarely	3	6 %
Never	46	92 %
Total	50	100 %

This table illustrated that (92%) of patient never drinks alcohol, (6%) of them rarely and (2%) frequently.

Table (18): show study group according to exercise:

physical exercise	Frequency	Percent
Daily	4	8 %
Frequently	26	52 %
Rarely	13	26 %
Never	7	14 %
Total	50	100 %

This table illustrate that (52%) of patient engage in physical exercise frequently, (26%) of them rarely, (14%) of them never and (8%) of them daily.

Table (19): show study group according to added salt

added salt	Frequency	Percent
Daily	1	2 %
Frequently	18	36 %
Rarely	28	56 %
Never	3	6 %
Total	50	100 %

This table illustrated that (56%) rarely eat salt, (36%) of them frequently, (6%) never of them and (2%) daily.

Table (20): show study group according to eat fat

eat fat	Frequency	Percent
Daily	1	2 %
Frequently	9	18 %
Rarely	17	34 %
Never	23	46 %
Total	50	100 %

- This table illustrated that (46%) of patient eat meat with high animal fat, (34%) of them rarely, (18%) frequently and (2%) daily.

Table (21): show study group according to keeping blood pressure under control:

Keeping blood pressure under control	Frequency	Percent
Yes	48	96 %
No	2	4 %
Total	50	100 %

This table illustrated that (96%) of patient compliance of medication to Keeping my blood pressure under control and (4%) no of them.

Table (22): show study group according to increasing quality of life:

Increasing quality of life	Frequency	Percent
Yes	47	94 %
No	3	6 %
Total	50	100.0

This table illustrated that (94%) of patient compliance of medication to Increasing my qualityoflife and (6%) no of them.

Table (23): show study group according to increasing sense of well-being

Increasing sense of well-being	Frequency	Percent
Yes	48	96 %
No	2	4 %
Total	50	100.0

This table illustrated that (96%) of patient compliance of medication to Increasing sense of well -being and (4%) no of them.

Table (24): show study group according to prevention from complications:

prevention from complications	Frequency	Percent
Yes	50	100 %
No	0	0.0%
Total	50	100%

This table illustrated that (100%) of patient compliance of medication to prevention from complications

Table (25): show study group according to Avoiding added financial burden to treat complications:

Avoiding added financial burden	Frequency	Percent
Yes	48	96 %
No	2	4 %
Total	50	100 %

This table illustrated that (96%) of patient compliance of medication to avoiding added financial burden to treat complications and (4%) no of them.

Table (26): show study group according to fear of death:

Fear of death	Frequency	Percent
Yes	18	36 %
No	32	64 %
Total	50	100 %

This table illustrated that (36%) of patient compliance of medication compliance from fear of death and (64%) no of them.

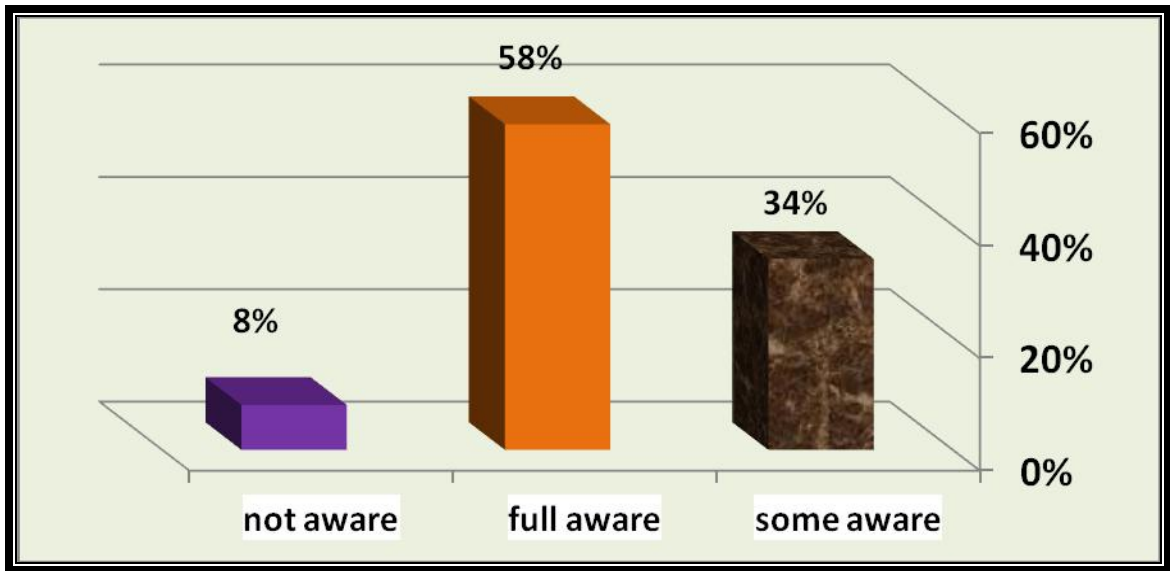


Figure (3): show study group according to Awareness about Complication of hypertension

This figure showed (58%) of patient good aware about Complication of hypertension, (34%)some aware of them and (8%) not aware about Complication of hypertension.

Discussion:

This study was done on 50 patients attended to refer clinic of Elmek Nimer university hospital to assess hypertensive patient compliance regarding anti-hypertensive medication.

The data obtained through self-reporting using questionnaires on compliance to medication regimen and lifestyle modification.

In this study the age of included hypertensive patients was (80%) their age (above 50 years), this is not surprising since hypertension is more common in older people, as the same study done by Almas et al on factors affecting the compliance to antihypertensive therapy, who found the mean age of 58 years of hypertensive patients.

In this study females were (56%) compared with males (44%). As a study done by Sulbarán and others on epidemiologic aspects of arterial hypertension in Maracaibo Venezuela support the above point that females were more complicated than males.

In this study most of patients have married (92%), (42%) illiterate and (42%) of patients have self-employment.

The study showed that (56%) of patients duration of hypertension more than 7 years and (46%) complain of visual impairment, (44%) diabetes mellitus this refers to long duration of hypertension and it occurs as a complication of hypertension, and (62%) of patients use single type of drugs.

The study showed (42%) of patients do not forget to take medication, (64%) never stop medication because of feeling better, (86%) never stop medication because of feeling worse, (94%) never stop medication because of belief that they are ineffective, (97%) never stop medication

because fear of side effect, (98%) never stop medication because to avoid addiction, (70%) never stop medication because of using traditional medicine and (78%) never stop medication because of cost.

This result indicates most of patients are good compliance about medication because the medication are cheap and available and most of patient health assurance.

Distribution of participants by reasons of not complying with antihypertensive medication were determined, the reasons for stopping medication due to, are cost of the medications, feeling well, fear of the side effect, avoiding addiction of drugs and using of traditional medicine. The study was done by Almas et al, 2005; Hashim et al 2007 supported the point above.

This study showed most of patients had stopped their drugs by forgetting, no other reasons are found.

The study showed that (74%) of patient never smoke compared of (2%) frequently smoke, (92%) never drink alcohol compare of (2%) frequently drink alcohol that because of most of patient were females, (52%) frequent exercise compared with (8%) daily exercise, regarding diet (2%) daily eat salt

(56%) rarely eat salt, compared with (46%) never eat fat, (2%) daily eat fat that indicate majority of study group are good aware about risk factor of hypertension and complication

The study showed that (96%) are compliance to keep their blood pressure under control, (94%) to increase quality of life, (96%) to increase sense of well-being, and (100%) to protect from complication.

The study showed that (58%) were full aware about complication compared to (34%) some aware and (8%) not aware.

It was indicated that most of patient have good knowledge about hypertension, complication of hypertension and Lifestyle modification.

Conclusion:

The study showed that compliance to antihypertensive treatment was high

Among study participants, female were being more compliant to treatment than males. The study showed that most of study group good compliance to protecting from complication. Keep were blood pressure under control, to increasing quality of life, increasing sense of well-being .

The study showed that more than half of study group full aware about complications of hypertension this result indicate most of patient good knowledge about complication of hypertension, risk factor of hypertension and Compliance with Lifestyle Modification regimen.

Recommendations:

1-Patients need advice, support and information from health professionals in order to beAble to understand the importance of using drugs as prescribed.

2- It is recommended that Hypertensive patients should be counseled every time whenever they visit to physician to improve the compliance to anti-hypertensive drugs, salt restriction and to do exercise daily, so that they should have better control of hypertension.

3- It also demonstrates that compliance is an important factor related to optimal blood Pressure control. This requires health providers to orient themselves towards patients'behaviors (i.e. Barriers to compliance) that may interfere with compliance with therapy.In order to achieve the control of hypertension in the community .

4- It is also recommended that health education should be stressed to improve the rate of compliance by improving Patients' knowledge about hypertension and its consequences.

5- Doctors/Nurse must educate hypertensive patients about their disease on the importanceof complying with hypertensive medications, the consequences of non-compliance withtreatment. Patients should be told that the drugs are for long term use for life.

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