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ANALYSIS OF THE RISK FACTORS OF HYPERTENSION AMONG THE PATIENTS VISITING NISHTAR HOSPITAL

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Abstract:

Hypertension is abnormal elevation of blood pressure. It's associated with significant morbidity and mortality from vascular disease (heart failure, ischemic heart disease, cerebrovascular disease and renal failure). Hypertension is asymptomatic, although rarely in severe hypertension, headaches and visual disturbances occur.

Aim of study: *The aim of the study was to assess the risk factors involved in hypertension among the patients visiting a tertiary hospital. To identify the role of major risk factors like smoking, hyperlipidemia, diet and exercise in hypertension, smoking in hypertension and also to identify the role of physical activity in hypertension.*

Study Design: *A cross sectional study*

Place and duration of study: *This study was conducted in Nishtar hospital, Multan Time period during which the study is conducted was three months from February 2019 to April 2019.*

Materials & Methods

This was an observational descriptive study conducted in the department of medicine Nishtar hospital, Multan. The study comprised of convenient samples of 100 patients above 40 years of age having hypertension. The duration of study was of about 3 months from February 2019 to April 2019.The data was tabulated and analyzed using SPSS version 13.

Results

Hypertension is more common among females. Maximum no of patients is between the age of 40-60 years. 20% hypertensives are government employe,16% self-employee, 25% housewives, retired 15% and 24% unemployed. Smoking is a common risk factor of hypertension among males that can affect in all the age groups. Physically inactive people are more prone to get hypertension. Hypertension is more prevalent among the people who take more fried food, salty and oily products.

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INTRODUCTION:

A person is said to be hypertensive if he/she is found to have high blood pressure indicated by a systolic blood pressure of 140 mm Hg or greater or a diastolic blood pressure of 90 mm Hg or greater.

Hypertension is abnormal elevation of blood pressure. It's extremely common, being present in 20-30% of the adult population with even higher rates in black Africans. It's associated with significant morbidity and mortality from vascular disease (heart failure, ischemic heart disease, cerebrovascular disease and renal failure). Hypertension is asymptomatic, although rarely in severe hypertension, headaches and visual disturbances occur.

In the year 2000 it is estimated that nearly one billion people or nearly 26% of the adult population have hypertension worldwide. It was common in both developed (333 million) and undeveloped (639 million) countries. However rates vary markedly in different regions with rates as low as 3.4% (men) and 6.8% (women) in rural India and as high as 68.9% (men) and 72.5% (women) in United States.

In 1997 it is estimated that 43 million people in the United States had hypertension or were taking antihypertensive medication, almost 24% of the adult population. The prevalence of hypertension in the United States is increasing and reached 29% in 2004.It is more common in blacks and less in whites and Mexican Americans, rates increase with age, and is greater in the south-eastern United States. Hypertension is more prevalent in men (though menopause tends to decrease this difference) and those of low socioeconomic status, over 90–95% of adult hypertension is essential hypertension.

Experimental and clinical observations on arterial hypertension are consistent with the theory that: Repressed psychic disturbances of a more or less specific nature lead to increased activity of the sympathetic nervous system; sympathetic stimulation may raise blood pressure acutely but also produces renal ischemia and stimulates the adrenal cortex to activity; renal ischemia leads to the production of presser substances and therefore hypertension; hypertension itself causes arteriolar sclerosis, especially in the kidneys, resulting in more renal ischemia; adrenal cortical activity can lead by itself to hypertension. When organic renal or urologic disease is also present, the hypertension may be more severe. When the predominant influence arises in the adrenal cortex, the disease presents different clinical manifestations

CAUSES OF HYPERTENSION

There are two types of high blood pressure:

1-Primary(essential) hypertension: there's no identifiable cause of high blood pressure. occurs in more than 90% of patients with hypertension.

2-Secondary hypertension: it's rare, occurring in less than 10% of the hypertensive population. Causes include: kidney problems (renal artery stenosis, polycystic kidney disease) , adrenal gland tumors(pheochromocytoma, cohn's syndrome, Cushing's syndrome), certain defects in blood vessels(coarctation of the aorta), certain medications(such as birth control pills, cold remedies, decongestants), illegal drugs(such as cocaine and amphetamines).

Individuals at risk for developing hypertension

hypertension is more common in people:

With diabetes. About 3 in 10 people with type 1 diabetes and more than half of people with

Type 2 diabetes eventually develops high blood pressure.

- From African-American origin.
- With advanced age.
- With a family history of high blood pressure.
- With certain lifestyle factors. That is, those who: are on stress, overweight, eat a lot of salt, don't eat many fruit and vegetables, don't take enough exercise, or drink a lot of alcohol (8).

Complications

1-Blood vessels: arteriosclerosis, atheroma, aneurysm, aortic dissection.

2-Central nervous system: stroke, carotid atheroma, cerebral ischemic attacks, subarachnoid hemorrhage

3-Eyes: hypertensive retinopathy.

4-Heart: left ventricular hypertrophy, left ventricular failure, atrial fibrillation.

5-kidneys: proteinuria, progressive renal failure.

Aim & Objectives

1. To study the risk factors of Hypertension among patients at Nishtar hospital, Multan.

2.To identify the role of major risk factors like smoking, hyperlipidemia, diet and exercise in hypertension smoking in hypertension.

3.To identify the role of physical activity in hypertension.

Literature Review

A person is said to be hypertensive if he/she is found to have high blood pressure indicated by a systolic blood pressure of 140 mm Hg or greater or a diastolic blood pressure of 90 mm Hg or greater. There are number of risk factors which have been recognized to cause Hypertension. In one of the studies in which 327 adults were approached, 165 (50.5%) were males and 162 (49.5%) females. Blood pressure was measured in 63 (38%) males and 135 (83%) females. Out of

which, 11 (17.5%) males and 19 (14%) females were screened hypertensive. Hypertensive's were older as compared to normotensives (p<0.001). The mean BMI of hypertensives (25.6 + 4.5 kg/m2) was significantly higher (p=0.008) than normotensives (22.9 + 5.0 kg/m2). Hypertensives were 9.7 times more likely to be diabetic as compared to normotensives in this study (p<0.001). On analyzing the relationship of hypertension with other variables, no significant difference was noticed for education (p=0.68), smoking status (p=0.46), family history (p=0.31) and occupation (p=0.27)

They concluded that the main focus should be on reducing weight and maintaining a healthy lifestyle to prevent hypertension.

In another study The overall prevalence of hypertension was 26% (95% C.I. 23, 29); the prevalence among males (34%) was higher than females (24%). The mean systolic and diastolic pressures of male and female subjects were different (p=0.002) i.e. systolic 124+17 and 119+20, diastolic 81+12 and 76+13, respectively. The mean pulse pressure (systolic-diastolic) was significantly (p=0.01) higher in males (62+8.7 mmHg) than females (60+9.3 mmHg). There was no statistical difference in mean arterial pressure (average systolic and diastolic) between both sexes. Substantially, more males were suffering from stage-1 hypertension than females (p=0.009). This difference was not found in stage-2 and stage-3 categories of hypertension

Few studies have reported on risk factors by blood pressure categories based on antihypertensive treatment in the general population. We examined the associations between blood pressure categories and other risk factors in Japan. Cross-sectional study, multicenter population-based study was designed. A total of 11,302 men and women were eligible. Data were obtained from April 1992 to July 1995 in 12 rural districts in Japan. Subjects were divided into three categories: normotensives (with blood pressure <140/90 mmHg), treated hypertensives (antihypertensive treatment regardless of current blood pressure), and nontreated hypertensive's (blood pressure ≥140/90 mmHg without hypertensive treatment). The proportions of normotensives, treated hypertensives, and nontreated hypertensives were 63%, 10%, and 27% among men, and 67%, 13%, and 20% among women, respectively. Total cholesterol, triglyceride, blood glucose, and body mass index were higher in treated or nontreated hypertensives than in normotensives. Fibrinogen, factor VIIc, and physical activity index were higher in treated hypertensives than in normotensives. High-density lipoprotein (HDL) cholesterol was higher in normotensives than in treated or nontreated hypertensives in women; but no tendency was shown in men. The proportions of dyslipidemia, impaired glucose tolerance, and metabolic syndrome were significantly higher in treated and nontreated hypertensives than in normotensive men and women. In conclusion, cardiovascular risk factors were higher in hypertensives with or without treatment than in normotensives in a general population in Japan.(1)

Mean age was 61 ± 10.3 years and 50.2% were males. The mean of average systolic and diastolic blood pressures (BP) were 133.04 ± 12.91 mmHg and 81.07 ± 6.41 mmHg respectively. Uncontrolled BP was present in 41.1% (n = 114) of patients, of which RHT was present in 19.1% (n = 53). Uncontrolled BP were due to 'therapeutic inertia' in 27.8% of the study population. Those with diabetes mellitus, obesity (BMI > 27.5 kg/m^2) and those who were older than 55 years were significantly higher in the RHT group than in the non-RHT group. In the binary logistic regression analysis older age (OR:1.36), longer duration of hypertension (OR:1.76), presence of diabetes mellitus (OR:1.67) and being obese (OR:1.84) were significantly associated with RHT. (2)

A significant proportion of the hypertensive patients were identified as having uncontrolled hypertension. Nearly one fifth of the population was suffering from RHT, which was significantly associated with the presence of obesity and diabetes mellitus. Therapeutic inertia seems to contribute significantly towards the presence of uncontrolled blood pressure and its role and causative factors needs further evaluation. (3)

Three hundred and ten adults with hypertension were invited for the study, of which 277 consented to participate in the study and completed the questionnaires (response rate – 86.6%). Mean age was 61 ± 10.3 years (range 25–83), and 50.2% were males. Majority of the study population (75.5%) were the age of 55 years. Mean duration of hypertension was 9.2 years (range 1–38), majority of the patients were having hypertension for ≤ 9 years (n = 152/54.9%). The mean of average systolic and diastolic blood pressures of the population was 133.04 ± 12.91 mmHg and 81.07 ± 6.41 mmHg respectively and 73.3% (n = 203) of them were admitted to hospital at least once due to a complication arising from hypertension (heart failure, cardio-/cerebro-vascular disease, renal failure, hypertensive emergency, and etc.). The mean BMI in the study population was 25.02 ± 4.52 kg/m^2. Majority of the study population (n = 245/88.4%) had one or more co morbidities and ischemic heart disease (n = 214/77.3%), hyperlipidaemia (n = 144/52.0%) and

diabetes mellitus (n = 118/42.6%) were the commonest co-morbidities (4)

A significant proportion of the hypertensive patients were identified as having uncontrolled hypertension. Nearly one fifth of the population was suffering from RHT, which was significantly associated with the presence of obesity and diabetes mellitus. Therapeutic inertia seems to contribute significantly towards the presence of uncontrolled blood pressure and its role and causative factors needs further evaluation.(5)

MATERIALS & METHODS:

This was an observational descriptive study conducted in the department of medicine Nishtar hospital, Multan. The study comprised of convenient samples of 100 patients above 40 years of age having hypertension. The duration of study was of about 3 months from February 2019 to April 2019. The data was tabulated and analyzed using SPSS version 13.

Study sample:
study was carried out on 100 patients of Nishtar hospital, Multan.
Sampling technique:
Non probability, convenient sampling.
Study frame:
Patients of Nishtar hospital, Multan.

Variables
Quantitative Variables:

- Age
- Weight
- Smoking
- Alcohol intake
- Lipid profile

Qualitative Variables:

- Name
- Sex
- Family history
- Life styles
- Food intake
- Occupation

Study design

Cross sectional study.

Place of study

Nishtar hospital, Multan.

Data collection plan

Time frame:

From February 2019 to April 2019.

Method of Data Collection:
Interview
Data collection tool:
Questionnaire

Inclusion criteria
Hypertensive patients above 40 years of age visiting Nishtar hospital, Multan.

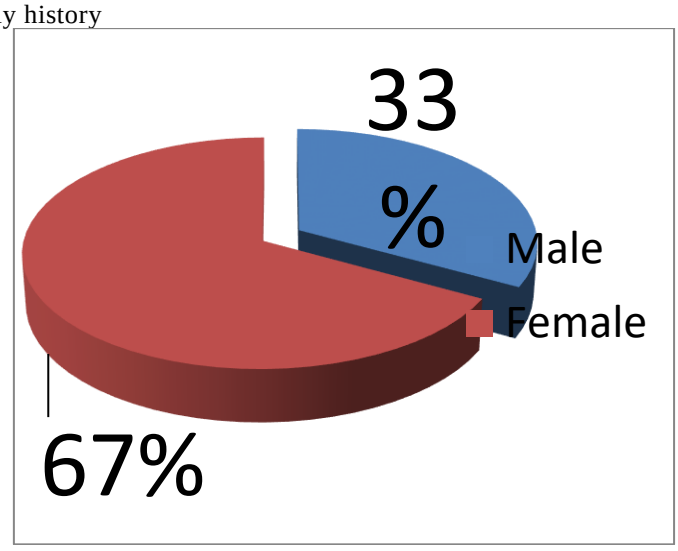
Exclusion criteria
Non Hypertensive's and hypertensive's below 40 years of age.

Data analysis
Data analysis was done by using Microsoft Excel.
Figures
Histograms and pie charts

Key words
Hypertension, Obesity, Hyperlipidemia,

RESULTS:

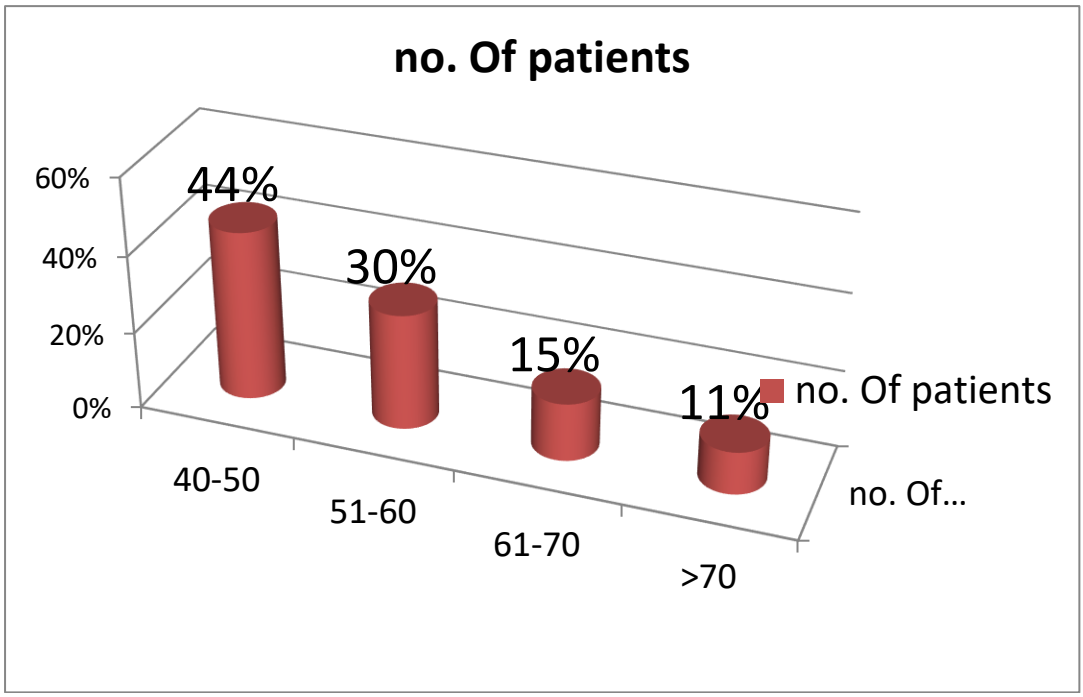
Pie chart showing Gender distribution of Hypertension.



Interpretation:

Above pie chart show that Hypertention is more common among females.

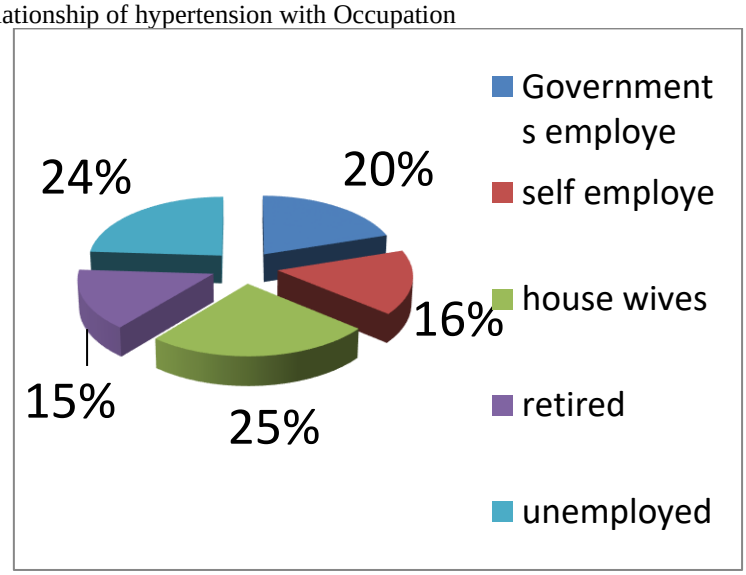
Histogram showing age distribution in Hypertensive patients.



Interpretation

Above histogram shows maximum no of patients are between the age of 40-60 years.

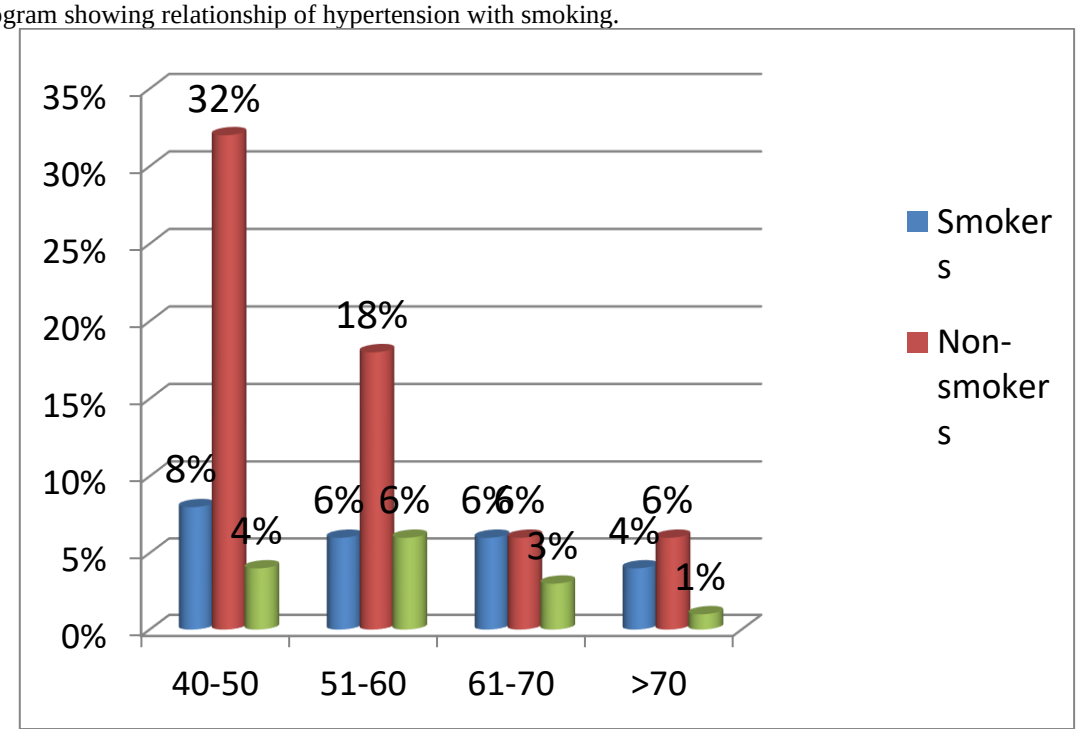
Pie chart showing relationship of hypertension with Occupation



Interpretation:

Above pie chart shows that 20% hypertensives are government employe,16% self employe, 25% housewives,retired 15% and 24% unemployed.

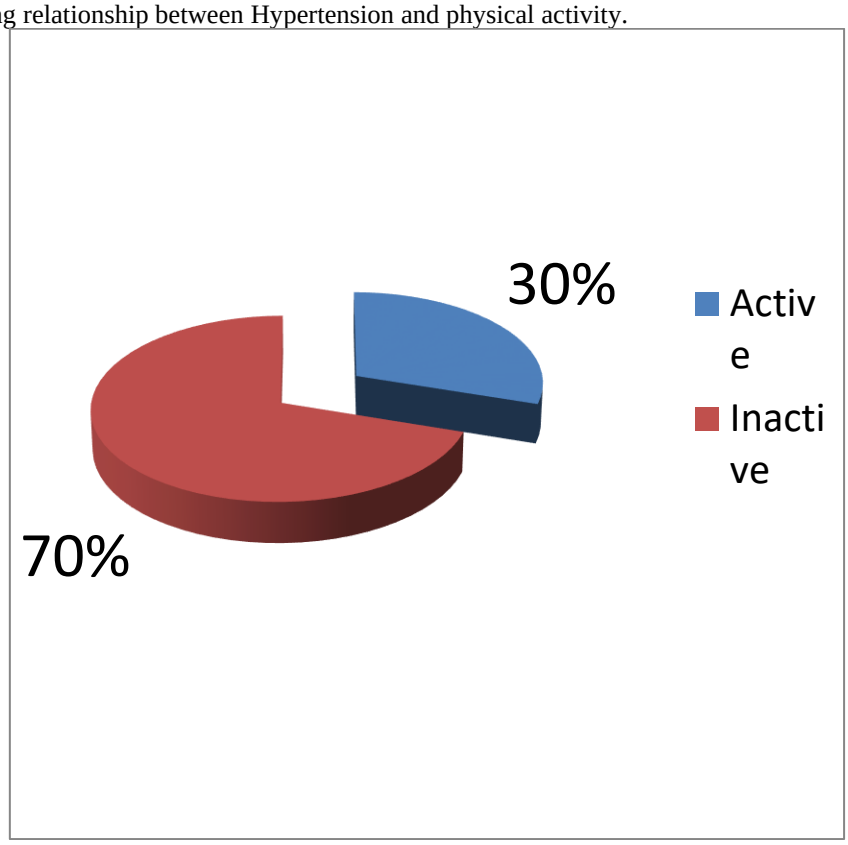
Histogram showing relationship of hypertension with smoking.



Interpretation:

Above histogram shows that smoking is a common risk factor of hypertension among males that can affect in all the age groups.

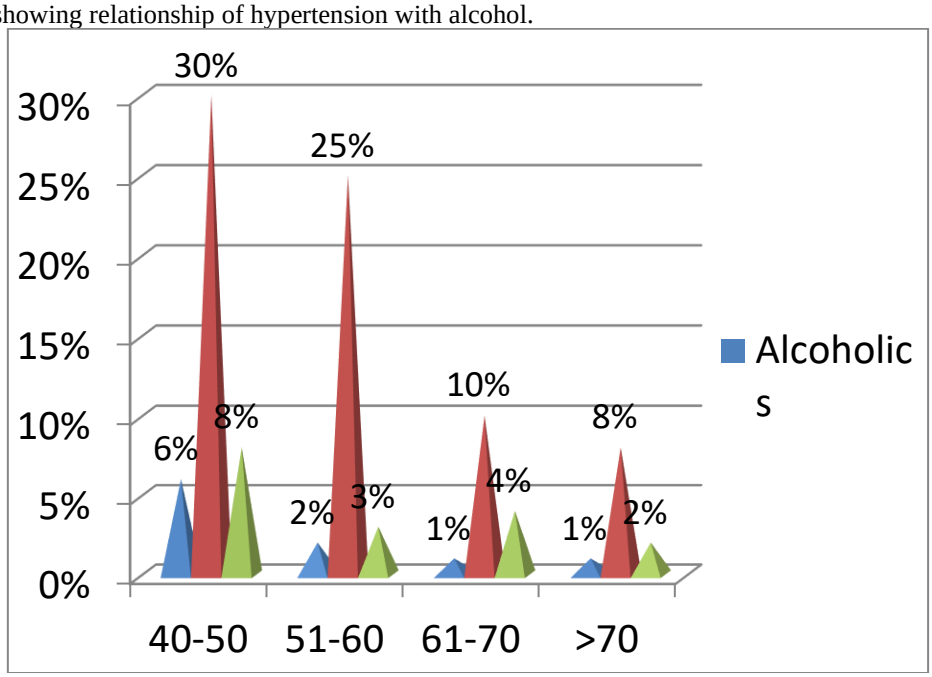
Pie chart showing relationship between Hypertension and physical activity.



Interpretation:

Above pie chart shows that physically inactive people are more prone to get hypertension.

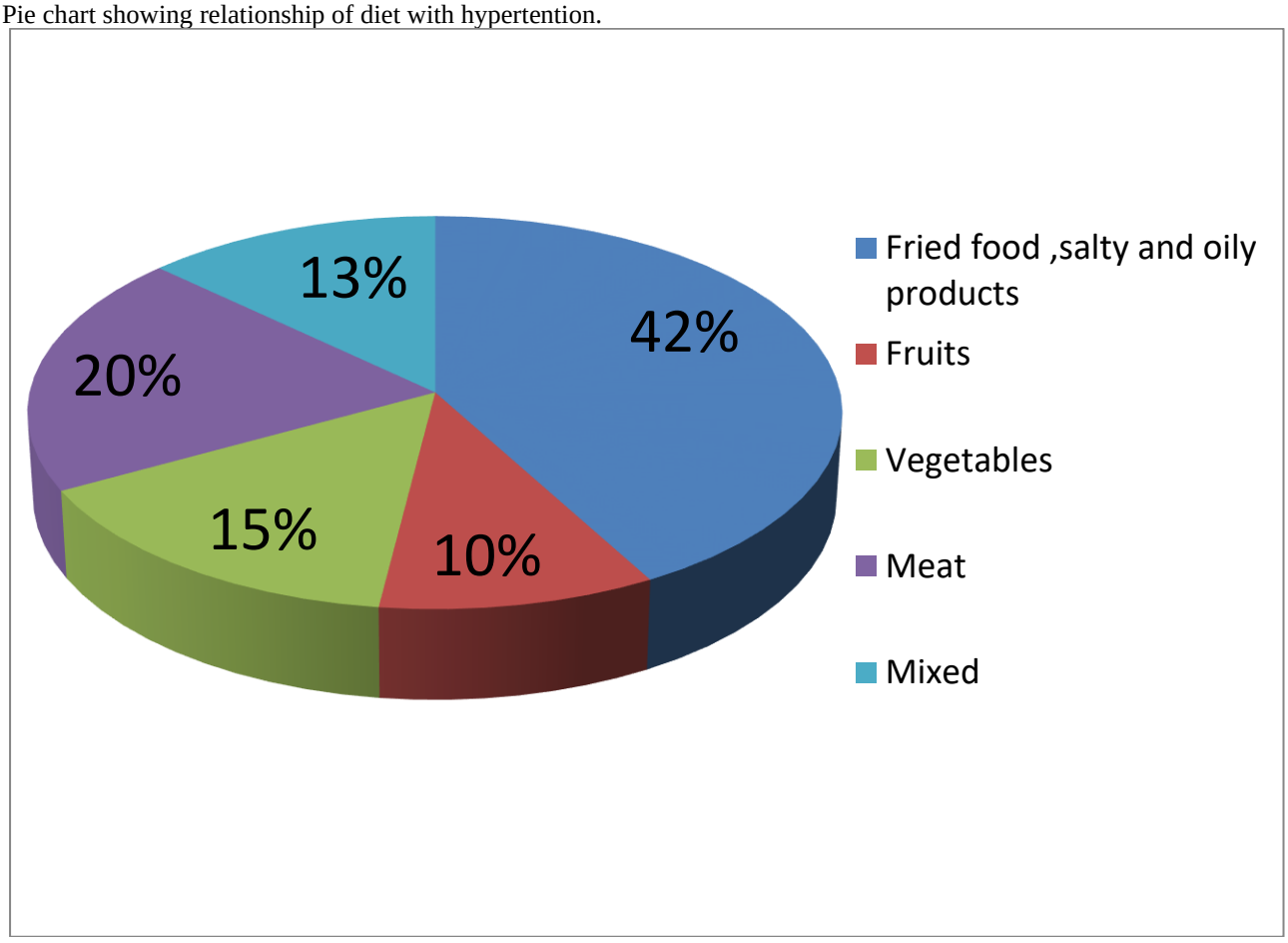
Histogram showing relationship of hypertension with alcohol.



Interpretation:

Above chart shows relationship of alcohol with hypertension.

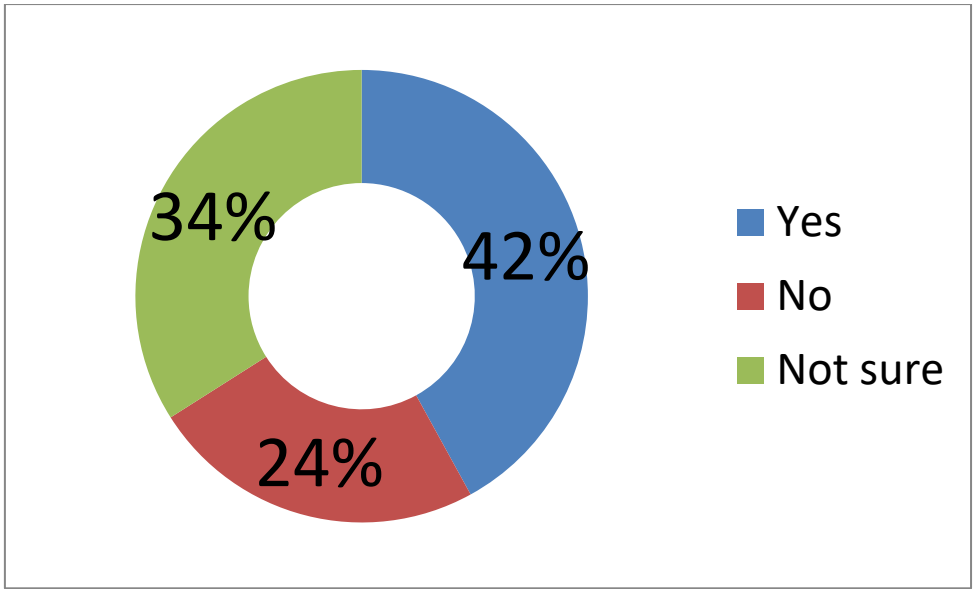
Pie chart showing relationship of diet with hypertention.



Interpretation:

Above chart show that hypertension is more prevalent among the people who take more fried food, salty and oily products.

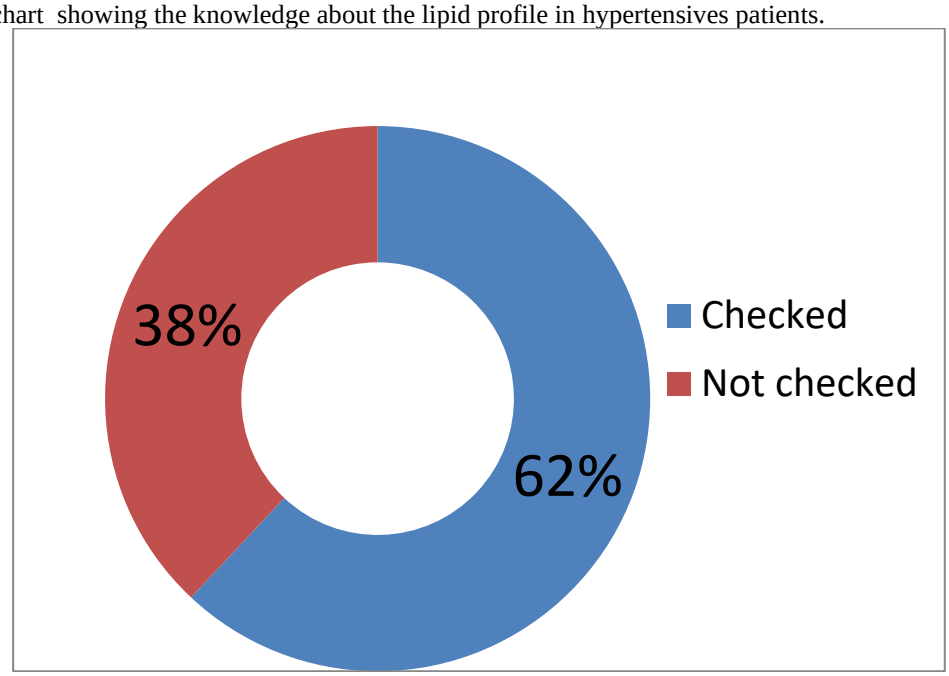
Doughnut chart showing family history of Hypertension.



Interpretation:

Above chart shows that 42% patients shows family history of hypertension.

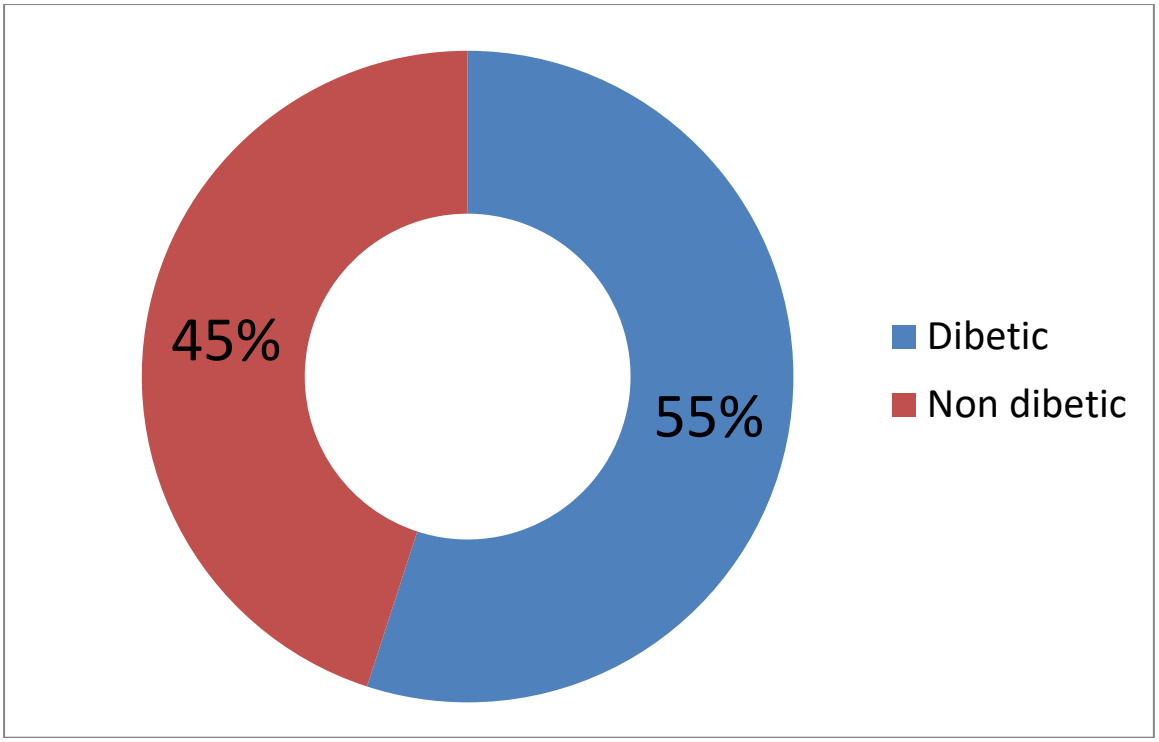
Doughnut chart showing the knowledge about the lipid profile in hypertensives patients.



Interpretation:

Above chart shows that mostly hypertensive patients checked their lipid levels regularly.

Doughnut chart showing the relationship of hypertension with diabetes.



Interpretation:
Above chart depicts that mostly hypertensive patients have diabetes.

Final Extract

- A total of 100 cases belonging to different age groups were included in this study.
- The age range was above 40 years.
- The majority of patients were between the age group 40-45 (44%) followed by age group 51-60(30%).
- Hypertension is more common in female 67% than in males 33%.
- 34% have family history of hypertension while 42% have no family history.
- Patients who have no physical activity have more percentage 70% of hypertension.
- 42% patients have hypertension that uses fried foods and oily products.
- 55% of the patients have diabetes.

DISCUSSION:

The study provides information about the prevalence of hypertension due to various risk factors smoking, age, family history, physical activity to increase the risk of hypertension.

First noticeable symptom of hypertension is increase in blood pressure. More than 80% cases of hypertension discovered when blood pressure increase beyond 130/90. In our study 100 patients were included. 90% of patients have primary hypertension and 10% have secondary hypertension. Female (67%) are more involve than males (33%). The range of age group is maximum between 40-50 and minimum above 70. 44% cases have age between 40-50 and 11% above 70%. Risk factors of hypertension are obesity, overweight, diabetes, renal disease, age, race, alcohol, stress.
In Some cases there is positive family history of hypertension.

Rise in blood pressure occurs due to activation of sympathetic nervous system leading to renal ischemia that leads to production of pressure substances that cause hypertension. Hypertension itself causes arteriosclerosis which leads to renal ischemia and hence hypertension.

Patients may produce the risk of hypertension by maintaining a healthy weight and reducing smoking, taking less salts and water and using anti-hypertensive drugs.

These interventions might prevent 67% of hypertensive cases. The management plane is preorganized having positively family history of hypertension.
A number of screening test have been employed including self-blood pressure measurements, genetic screening and renal function test.

CONCLUSION:

The patients are at risk of hypertension who have positive family history, smoking, sedentary life style, should undergo various screening test for

hypertension to detect high blood pressure before it is rooted.

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