RESEARCH ARTICLE

A PROSPECTIVE OBSERVATIONAL STUDY ON OPTIMIZING STATIN DOSING IN CARDIOLOGY AND NEUROLOGY DEPARTMENT

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Manuscript Info	*Abstract*

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Background: Atherosclerosis is a disease in which plaque builds up inside your arteries. Plaque is made up of fat, Cholesterol, calcium, and other substances found in the blood. Risk factors may include high cholesterol and triglyceride levels, high blood pressure, smoking, diabetes, Obesity, physical activity, and eating saturated. Atherosclerotic Cardiovascular disease (ASCVD) encompasses four major diseases, including Coronary heart disease (CHD), cerebrovascular disease, peripheral artery disease (PAD), and aortic Atherosclerosis.
Objective: To assess risk based on ASCVD scale for prevention of CVD. To analyse the recommended statin therapy for individuals at increased risk according to ASCVD risk Score. To analyse the percentage of participant eligible for statin therapy.
Methodology: This is an observational study to know the better understanding of Statin Drug and Dose where patient eligible are Enrolled into the study after obtaining the consent. The data collection form will be prepared & used. This form mainly contains the demographic details of the patient and medication Chart. Patient Counselling will be done using leaflet and there will be constant follow up.

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RESULTS: A total of 120 cases of cardiology and neurology department were observed. Majority of cases were males 78 (65%) compared to female 42 (35%). Most of them between age group 51 to 70 (57%).The most of the cases are from cardiology department 80 (67%) compared to neurology department 40 (33%). The most commonly prescribed statin is atorvastatin 97 (81%) compared to the rosuvastatin 23(19%). The most commonly prescribed atorvastatin dose is 80 mg (56%) compared to 40 mg (37%). The most common prescribed rosuvastatin dose is 40 mg (14%) compared to the 20 mg (6%). The most common diagnosis in cardiology department is CAD TVD (27.5%) compared to the neurology department AIS (33.3%).

CONCLUSION: The study of 120 patients on statin therapy revealed a higher prevalence of male patients, predominantly aged 51–70 years, with an urban residency and occupational risk factors like driving. Cardiovascular comorbidities such as

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DM+HTN+CAD were more common, and AIS was the most frequently observed diagnosis. Atorvastatin was prescribed more often than rosuvastatin, with higher doses being more prevalent. Blood pressure readings indicated a significant number of patients within the 151/65–170/100 mmHg range. Based on ASCVD scores, most patients fell into the intermediate-risk category, while 19% showed deviations from expected patterns. These patients were successfully identified and effectively intervened upon, highlighting the importance of risk assessment tools in optimizing statin therapy and improving patient outcomes.

Introduction:-

STATIN:-

Statin-class therapy and HMG-CoA reductase have a great influence on declining serum cholesterol levels. It is incredibly well-known that there are multiple statin drugs that can be introduced in the treatment line for correcting hypercholesterolemia with different pharmacokinetic effects. All the statins in the family have the same MOA, as they work by slowing down the function of HMG-CoA reductase, thereby affecting the mevalonate pathway, which declines the cholesterol level in the liver. Hepatocytes react to the change of sterol declining by moving nuclear sterol governmental element binding protein-2, which maintains the copy of vital genes linked in cholesterol metabolism along with HMG-COA reductase and LDL receptor. Numerous clinical research and trials carried out that prove statin therapy by reducing the risk chances caused by cardiovascular events also in patients with CAD with hypercholesterolemia cases in both primary and secondary forestalment.
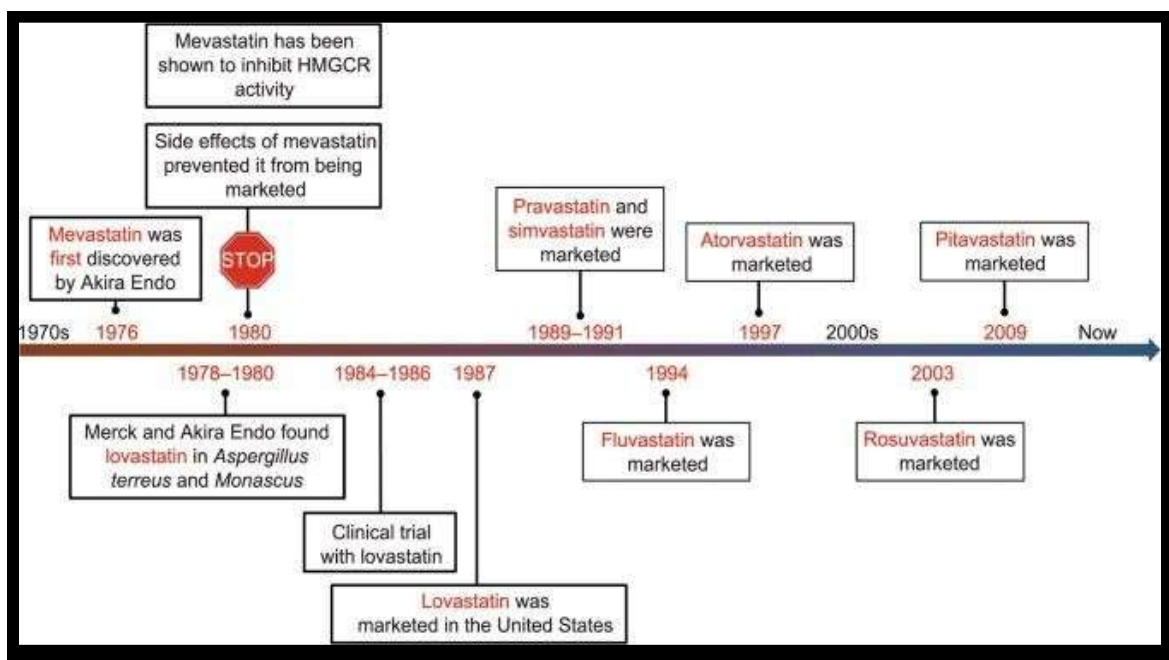

Chemistry of statin:

The Structure Of Statins:
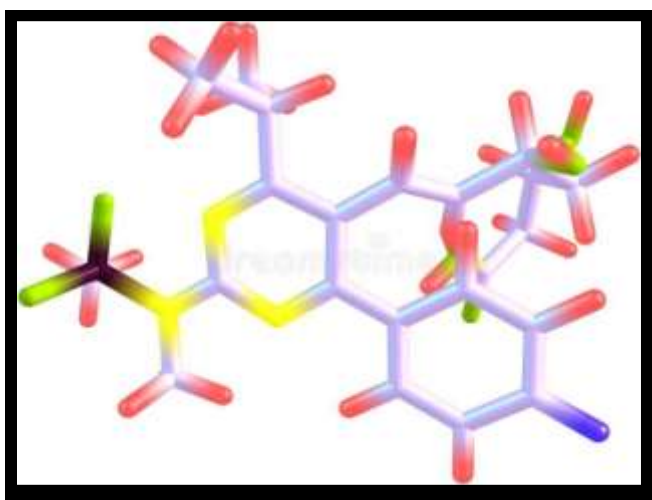
Depending on their form or synthesis, statins can be divided into classes. There are three types of synthesis: synthetic, semisynthetic, and natural. Lovastatin, compactin, and pravastatin are examples of natural statins that are made by fermenting fungus. Simvastatin and other semi- synthetic statins are made via alkylating lovastatin, which substitutes 2, 2-dimethylbutyrate for the 2-methylbutyrate molecule at the C-8 position in the naphthalene ring. The dihydroxyheptanoic acid pharmacophore (HMG-CoA-like) compound, that resembles the HMG-CoA precursor in HMGR binding, is the only compound with similarity among chemically manufactured synthetic statins. Atorvastatin, cerivastatin, rosuvastatin, fluvastatin, and pitavastatin are examples of synthetic statins. Lactonization is a reversible method of statin metabolism.

Structure Activity Relationship:
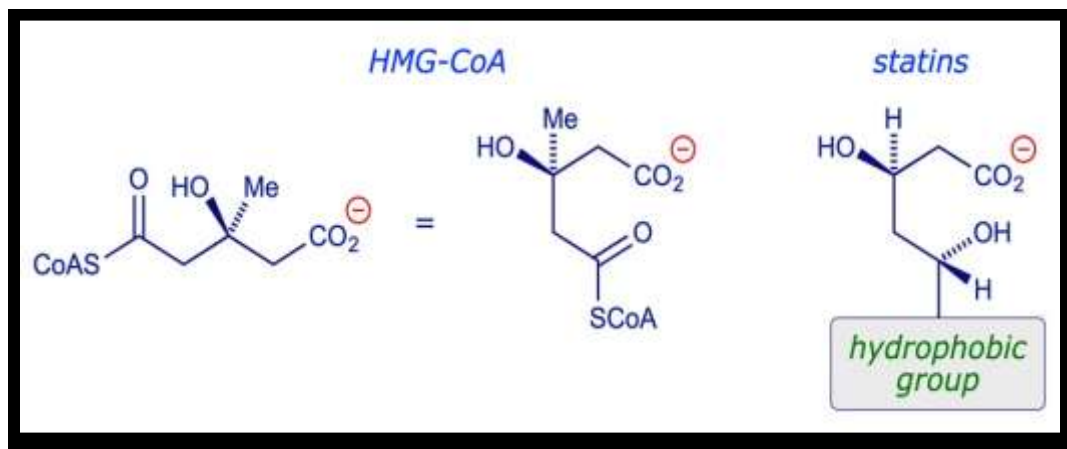
Activity of HMG-CoA reductase is sensitive to the stereochemistry of the lactose ring, the ability of the ring to hydrolyze, and the length of the bridge connecting the ring system. Bicycle ring can be replaced by other lipophilic rings, but the size and shape of the ring are important for the overall activity of the compound.

Common For All Hmg Co A Reductase:-

➢ 35 dihydro carboxylate essential for any battery activity
➢ The absolute stereochemistry of the 35-dihydro group must be the same as that found in mevastatin and lovastatin.
➢ Alternating the two carbon distances between C5 and the ring system diminishes or fails to improve activity. Double double bond between C6 and C5 can either increase or decrease the activity.
➢ This compound can be subclassified based on the lower rings and structural activity.
➢ The ethyl group provides optimal activity.

RING 1:

➢ Replacement with cyclohexane drink decreases to activity 10000 field
➢ Stereochemistry of Easter chain is not essential but if change to either leads to decrease activity
➢ Methyl substitution at R2 increases activity

RING 2:
Substitution at a u x with carbonatogen, which serves as a 56-member heterocyclic ring.

Pharmacology Of Statins:
Statin Also known as HMG CoA reductase inhibitors, which function as lipid-lowering agents. This category of drugs serves a crucial function in managing and avoiding cardiac-related serious events in patients. They work by inhibiting enzyme 3-hydroxy-3-methyl-glut-aryl Coenzyme A (HMG-COA) reductase.

Mechanism Of Action:
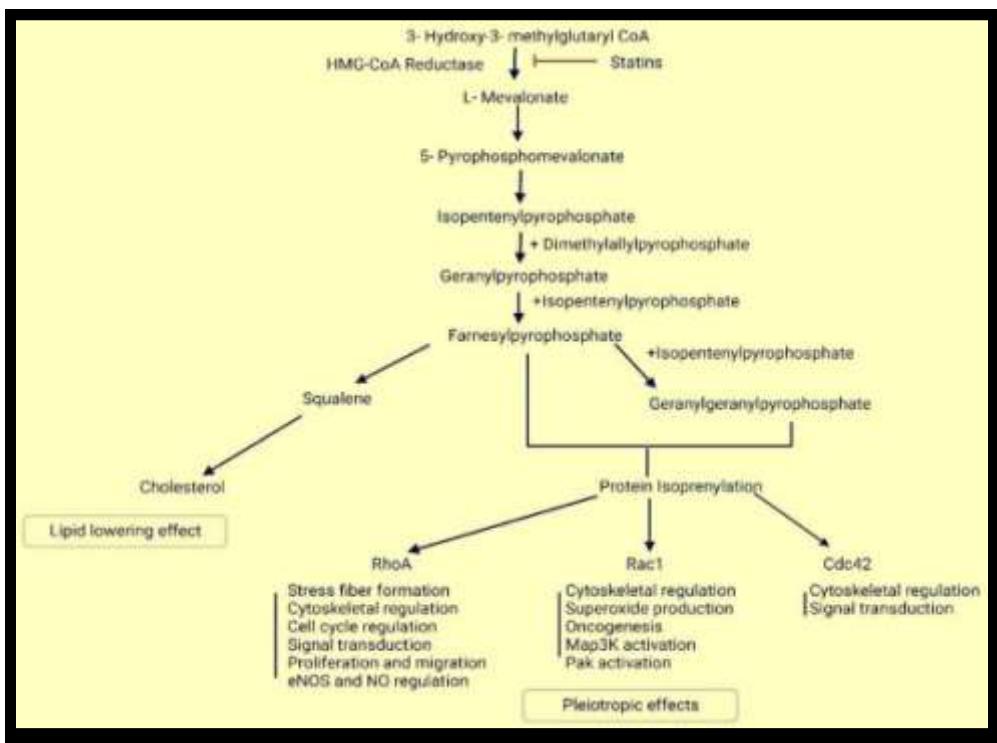
It works by lowering the mevalonate production, a precursor of cholesterol synthesis. Decreases the intracellular levels of cholesterol, activation of the LDL receptor on hepatocytes, and elimination of LDL-C from blood.
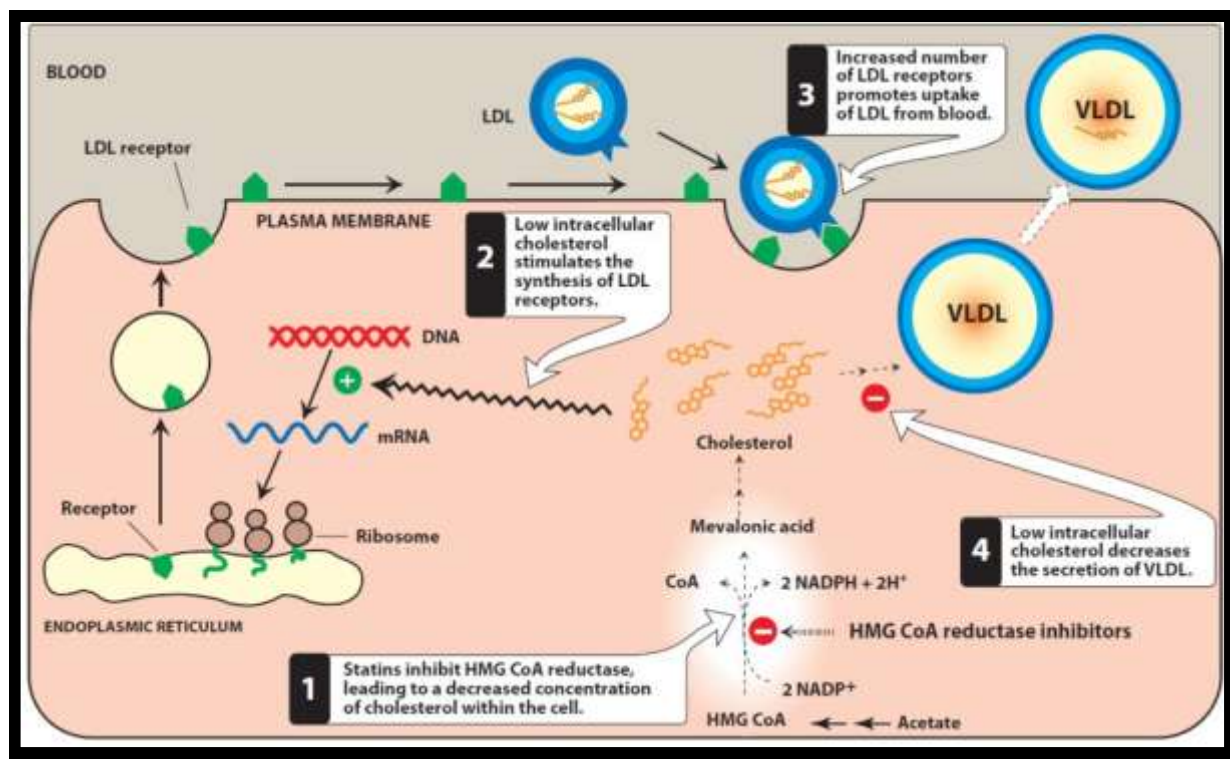
Pharmacokinetics:

ABSORPTION – These medications are taken orally and variably observed. Statin taken with food can increase its absorption chance, like in lovastatin.

DISTRIBUTION – Distribution is through OATPS (organic anion transporting polypeptide). These medications have a strong affinity for protein binding.

METABOLISM – It takes place by a cytochrome P 450 enzyme.CYP3A4: Atorvastatin, Simvastatin and lovastatin. CYP2C9:

Rosuvastatin and Fluvastatin.Pravastatin is metabolised by non CYP450 pathway which causes drug interaction. **EXCRETION –** Mainly through bile. Faeces and also sometimes by renal clearance. [11]

PHARMACODYNAMIC: Based on the dose and agent, the statin effect on the level of LDL-C lowering them by 20% increased**.**

Effect On Lipids:-
- Effect on LDL – C.
- Triglycerides are reduced directly.
- HDLC level get increased.
- Pleiotropic effects are seen like Anti-inflammatory properties, stabilisation of plaque.

Adverse Drug Reaction:-
- Can be tolerated.
- Myopathy myalgia and hepatotoxicity is rare.
- Rare cognitive effect include memory loss
- Abdominal discomfort, nausea and liver dysfunction.

Drug Interaction:-
- Drug Interaction occurs due to the metabolism by CYP enzyme and hepatic transporters.
- CYP3A4 Inhibitors like clarithromycin or consuming grape fruit increase Concentration of plasma in statin there by increasing toxicity risk.
- CYP3A4 With rifampin slow down the effect of statin.
- OATP Inhibitor such as Cyclosporine cause drug interaction.
- Use with niacin increase risk of myopathy.

Half life:
Short Half Life: Simvastatin, Lovastatin (1-3 hrs.) Recommended at night time**.**
Long Half Life: Atorvastatin, Rosuvastatin (up to 20 hours) can be given anytime.

Indication:
- These medications are utilized for therapeutic purpose
- Dyslipidaemia – Reducing LDL cholesterol (LDL-C)
- Preventing cardiovascular disease (CVD)
- Primary prevention of risk in individuals with heart disease.
- Act as a follow-up preventive measure for coronary incidence.

Effects of statin therapy in cardiology:-
Effects Of Statin Therapy In Patients With Coronary Artery Disease: Focus On Single-Vessel Disease:
As we know, the administration of statins for CAD patients has been very effective; similarly, in individuals with single-vessel coronary disease, the use of statins has been very functional. They function by blocking the pathophysiological mechanism of atherosclerosis and vascular dysfunction that directs CAD procession. Statin works by reducing the LDL-C levels. LDL-C abnormality is somehow responsible for atherosclerosis. In single vessel disease, it works by declining the progression of coronary atheroma. It has been observed related in contributing to the.

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It has been observed related in contributing to the progression of white matter hyperintensities and rational decrease as a marker of CSVD. Also by a drop in LDL-C levels, which is a favorable mechanism of statin effect. Thereby, an alteration in the pathophysiological mechanism of myocardial ischemic attack, other risk conditions, and a decline in the death rate. During the progression of atherosclerosis, inflammation is also seen in patients. Administration of statin drugs helps by inhibiting adhesion molecules and decreasing the immuno cell investment within the vessel wall and decreasing the inflammation. Also, experimental and scientific studies have documented that statins improve endothelial dysfunction.

Effects of statin therapy in patients with coronary artery disease: double-vessel disease:
Statin medicine has been a keystone therapy for the control of CAD. It has been proven beneficial for individuals with a diagnosis of DVD (double vessel disease). Its mechanism is to lower the level of LDL-C and also to avoid the thickening of arteries. Decreasing LDL-C levels leads to a decline of atherosclerosis plaque, which leads to the rupture of plaque and thrombotic activity. As we know, statins also have anti-inflammatory properties; thereby, affecting these properties leads to plaque instability, which declines CRP (C-reactive protein) levels. Statin also serves a significant function in maintaining vascular homeostasis and lightens ischemia, which indirectly reduces the hazards of coronary incidents.
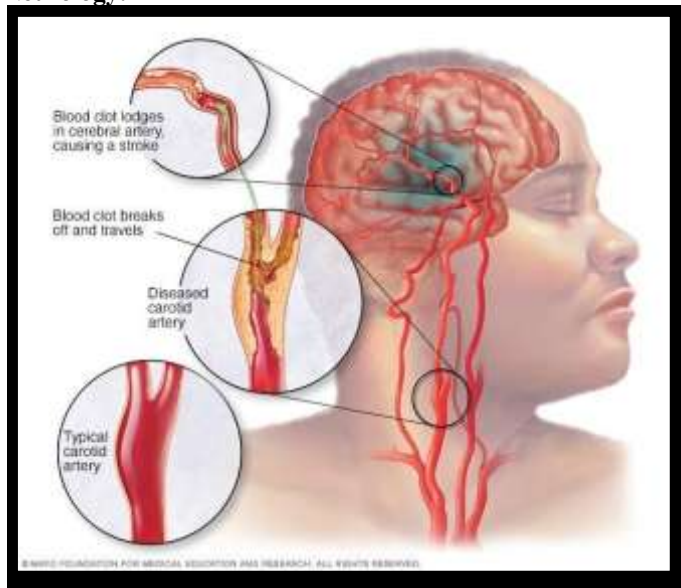
Effects of statin therapy in patients with coronary artery disease: triple-vessel disease:
Statins are also known to control triple vessel disease by interfering with the pathophysiology of atherosclerosis. It works by reducing the LDL-C levels and slowing down the function of plaque and stabilizing the atherosclerotic plaque, which decreases the risk of plaque damage and thrombotic seriousness. Statin also helps in declining pro-inflammatory cytokines such as CRP (C- reactive protein) due to its anti-inflammatory effects. Stabilization of plaques thereby decreases MACF (major adverse cardiovascular events).

Effects of statin therapy in patients with myocardial infarction:

MI, also called a heart attack happens when there is a decrease in blood supply in one of the coronary arteries to the heart, which has been a very serious health condition leading to a rise in the rate of mortality around the world. The risk of coronary incidence has been reoccurring still. The medical researchers and many clinical trials and therapies, PCI (Percutaneous Coronary Intervention), have contributed to the treatment of MI, increasing the chance of survival for the patient. Statin drugs were the most preferable drugs used in the management of MI, as they work by lowering the LDL-C levels. Apart from this statin works by blocking the particle or substance that is used for making cholesterol in body, also inflammation of artery wall is reduced, help in reducing the chance of stroke in patients, decreasing the risk of coronary incidence or decreasing adverse effect of CVD. There are numerous clinical studies which proved statin to be successful treatment for follow-up prevention like 4S, HPS etc... There have also been possible adverse effects of statins like nausea, muscle pain, fatigue, and abnormal liver enzyme.

Effects Of Statin Therapy In Neurology:

Effects Of Statin Therapy In Patients With Acute Ischemic Stroke:

AIS (acute ischemic stroke) is discovered to be the most dangerous health problem and is the the third leading cause of mortality or death around the world. It is defined as the loss of blood supply to the brain (typically in vascular territory), which causes ischemia and necrosis of brain tissue. Hence, necessary measures should be taken to avoid further strokes and complications; the therapy involved should have the characteristic of lowering lipid levels. Many studies have shown statins to be very effective in managing the levels of LDL-C and preventing reoccurring ischemic events in patients.

Apart from this, it is known that statins also play a vital role in benefiting by acting as an anti-inflammatory, antioxidant, and stabilizer of endothelium, acting on the vascular inflammation by improving cerebral blood circulation, and initiating the stabilization of atheromatous plaque, which then decreases the risk of thromboembolic events. Observational studies on statin drugs in AIS Proposed clinical trials like SPARCL (Stroke Prevention by Aggressive Reduction in Cholesterol Level) proved that the action of atorvastatin was considered, in which it worked by decreasing the chance of recurrence of stroke in individuals with a history of transient ischemic attack or recent stroke. However, time, dose, and duration of statin therapy in AIS patients. It also includes side effects like liver dysfunction and muscle toxicity, such as myopathy and rhabdomyolysis.

Prevention Of Coronary Events By Statins In Clinical Trials:

European WOSCOPS (West of Scotland Coronary Prevention Study) and US AFCAPS (Air Force Coronary Atherosclerosis Prevention Study) associations have performed many clinical examinations for primary avoidance of cardiac-related health complications by use of statins.On investigation for 4 to 5 years by WOSCOPS, it was found that the use of 40 mg/day of the pravastatin drug has been very deterrent for coronary events in male patients with a high level of lipids aged 45 to 65 years. No particular differences were noted in patients with non-cardiac death or death due to cardiac issues. Hence they evaluated pravastatin drug to be effective for decline in complication.Similarly AFCAPS Studies for

years have shown that the action of lovastatin drug have proven to be effective in decreasing of risk relating to cardiac disease.

There have been effective clinical studies to prevent complications by coronary artery disease as mentioned below:-
4S – (Scandinavian simvastatin survival study):
Clinical studies rule out the reaction of simvastatin administration for 5 to 4 years in 4444 hypercholesterolemia subjects. The outcome of this research on simvastatin group showed decline in repetitive coronary artery disease along with a decrease in death due to coronary artery disease.

LIPID – (Long term intervention with pravastatin in ischemic diseases study):
The lipid trial focused on the results of the use of pravastatin, which took nomolipidemic and low- to moderate-hyperlipidemic subjects into consideration; as a result, there was a decline in reoccurring coronary artery disease, and the rate of mortality got reduced.

CARE – (Cholesterol and reoccur-rent events):
The CARE research also observed the action of pravastatin, wherein the patients with post- myocardial infarction while having normal overall cholesterol levels and with mild to moderate LDL cholesterol levels were studied for 5 years, which resulted in a decline of coronary incidence by 24% and 27%, respectively.

AVERT – (Atorvastatin Versus Revascularization treatment):
It compared the PCI (Percutaneous Coronary Intervention) group and atorvastatin group (a lipid- levels reduction therapy) where atorvastatin with a dose of 80 mg/day was administered, where the drug atorvastatin was proven to be useful in decreasing the risk as a result of coronary events.

MIRACL – (Myocardial ischemia reduction with aggressive cholesterol lowering):
The research on atorvastatin drug with a dose of 80 mg/day was used to avoid complications from acute coronary syndrome. It was known to be very effective therapy as the therapeutic effect was seen within 24 to 96 hours of administration of the drug.

LIPS – (Lecco Intervention prevention study):
Compared the placebo group with the fluvastatin drug. They investigated the therapeutic effect of fluvastatin with a dose of 80 mg/day and compared it with the placebo group; the outcomes of fluvastatin were discovered to be effective in decreasing the likelihood of heart disease.

Adverse Drug Reaction:
Statins have lately attracted boosting pharmacological significance for their broad spectrum of non-lipid (pleiotropic) goods in addition to the great variety of side goods, most of which are still yet to be well understood. In general, this family of composites is well permitted and adverse events Are generally mild similar as flatulence and gastrointestinal discomfort. The occurrence of additional severe adverse effects was documented to range between 1 and 7. A review of the available statins in the UK (pravastatin, simvastatin, atorvastatin, and rosuvastatin) revealed a similar rate of adverse events for the 4 composites performing in the medicine pull-out of about 3 (2.5–3.2).

Originally, the large studies involving ten thousands cases taking different statins failed to demonstrate a difference in muscular side between Serum and placebo, the factual rates of myotoxicity ranging below 1. [28] In 1999 we for the first time Described exercise- convinced muscle pain without CK- elevation. A review up to 2002 set up that accounts of muscle issues in statin clinical trials are highly rare. Phillips et al. verified the circumstance of myopathy with normal CK in association with statin remedy in muscle vivisection samples. Fatal rhabdomyolysis is extremely rare. 31 Cases after 9.8 million conventions have been reported in the United States. Meanwhile, after pull-out of cerivastatin and due to more careful tradition, this figure has indeed further bettered. Rhabdomyolysis was lower than one in 1 000 000, the prevalence being Similar among all statins. Elevation of CK to further than 10 times normal occurs in 1 out of 10 thousand cases/ time on statin use only. While the prevalence of serious muscle Problems is veritably low, the rate of mild side goods has been heavily undervalued so far.

Assessment Of Intensity Of Statin Therapy Based On Ascvd Score:
Risk Assessment And Management:
For adults aged between 40 and 75 years with a background of ASCVD PCE (Pooled Cohort Equations), are utilized to detect the risk factors. It is divided into low (< 5%), borderline (5-7.5%), intermediate (7.5-20%), or high (> 20%) risk groups. For the individuals with categories of borderline or medium risk their family history, chronic conditions or biomarkers were also considered to detect the risk factors. CAC (coronary artery calcium) was included for the treatment, especially for borderline or intermediate risk conditions.

Younger Adults And Lifetime Risk:

For adults aged between 20 and 39 years, the risk monitoring of ASCVD was done repeatedly for 4 to 6 years. A count of 10 years of risk may be low; hence, observing for 30 years or a lifetime ASCVD risk can help in lifestyle changes and management. ACC/AHA Risk detector used for patient's health management from ASCVD.

Limitation Of Risk Calculators:

PCE is considered for risk calculation in certain populations, like in individuals with persistent inflammatory conditions or socioeconomic disparities. However, for individuals with a family history of hypercholesterolemia risk calculations are not used instead clinical management is done.

Coronary Artery Calcium (Cac) Scoring:

In risk assessment for ASCVD, CAC scoring is taken to estimate the risk and manage the treatment. The risk levels are considered in consideration. If the score suggests zero, then it is regarded as no risk. But coronary calcium is not the sole factor considered for the detection of all risks; clinical research or trials also play an important role.

Impact Of Nutrition On Ascvd:

It is sound that in the year 2015, cardiac problems lead to many deaths in the US. It was nearly around 6, 30,000, where obesity with cardiac issues was the main reason for mortality. The impact of good nutrition in decreasing the ASCVD contributors such as excess weight, high blood pressure, and diabetes is necessary. Based on the observational studies, dietary patterns are more liable to cause the risk factors and cardiovascular mortality.

Gender And Race Adjustments:

Different point adjustments based on gender and race (e.g., African American, White, etc.) Calculating Risk

- Add up the points from each category.
- Use the total points to estimate the 10-year ASCVD risk using a risk table or online calculator

This is a simplified version, and specific tools or calculators (like the ASCVD Risk Calculator by the American College of Cardiology) should be utilized for a more precise risk assessments, as they incorporate additional factors and adjustments.

Risk In Secondary Prevention:

The principle involves that a patient diagnosed with ASCVD is at high risk, but according to the US and European guidelines, definitions differ. The U.S defines cholesterol guidelines for extremely elevated danger as a patient having ASCVD with multiple major events or high risk health conditions. Thus, they are small to subjects with clinically manifest ASCVD. They have compared the patient who faces an extremely elevated danger and has a 3-fold or greater risk of the following events as compared to those not at very high risk, and individuals with a past record of 2 or more serious ASCVD events have a 5-fold greater risk. The patient known to be at very high risk has also been through PCSK-9.The 2016 ESC joint guidelines on the prevention of CVD With patient at extremely elevated risk has been focusing on all the risk factors as mentioned above

Very High Risk: Patient of CVD with history of DM with an End organ damage or a patient suffering with Serious CKD have a score risk of 10% or more.
High Risk : Patient with single risk factor or having moderate CKD the score risk is 5 – 9%
Moderate Risk : The score of risk here is 1 – 4 %
Low Risk : A Score risk of less than 1%

Materials and Methods:-

STUDY DESIGN	PROSPECTIVE OBSERVATIONAL STUDY
SAMPLE SIZE	100
STUDY SITE	MULTI SPEACIALITY HOSPITAL
DEPARTMENT	CARDIOLOGY AND NEUROLOGY
STUDY DURATION	6 MONTHS

Source Of Data and Materials:
➢ Patient consent form
➢ Patient data collection form
➢ Patient case note/prescription

Inclusion Criteria:
➢ Those aged 30-79 years with LDL-C levels of 70-95 mg/dL without clinical ASCVD
➢ Those with primary elevations of LDL-C of 190 mg/dL or greater (eg, familial hyperlipidaemia)
➢ Those without clinical ASCVD or different comorbidities 30-95 years who have LDL-C levels of 70-189 mg/dL and greater increased values of LDL-C
➢ If they have 1 or more CVD risk factors (i.e., dyslipidaemia, diabetes, hypertension, or smoking)

Exclusion Criteria:
➢ Contraindications of Statin Therapy
➢ Age below 30yr, adults 79 years and older with no history of CVD
➢ Pregnant, Breastfeeding, Liver Disease, and Kidney Disease patients

Method Of Data Collection:
Data was obtained from prescriptions, laboratory reports and treatment / medication charts.
1. Text option
2. Nursing Station
3. Progress chart

Study Procedure:
• The purpose of this observational study is to better understand statin drugs and dosages. Eligible patients are enrolled in the trial after providing their permission. The form for gathering data will be created and utilized.
• This form mostly includes the patient's demographic information and medication history. Leaflets will be used for patient counseling, and follow-up will be ongoing.
• The research will be carried out at the Care Hospital. From the time of admission until the review follow-up date, all pertinent data will be gathered for the research. The data will then be entered into a Microsoft Excel sheet for analysis,and frequency tables will be computed using an appropriate statistical analysis approach.

## Results:-
Distribution Of Patients Based On Sex
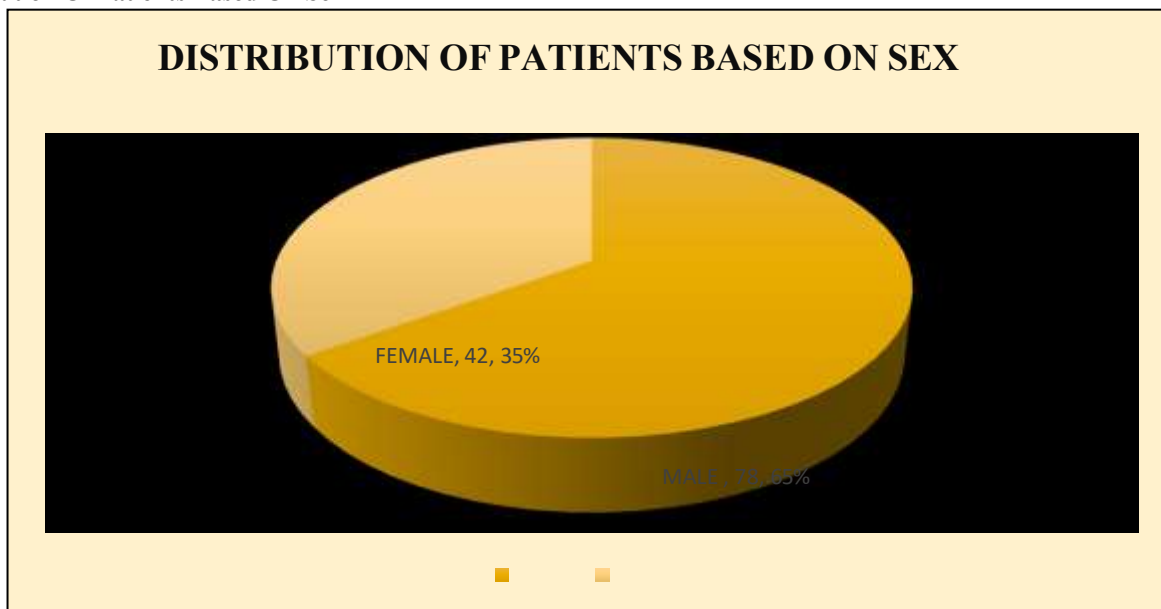
From the sample size of 120 patient, number of male patients were found to be 78 (65%) and female patients were 42 (35%). Hence below study shows higher count in male patient.

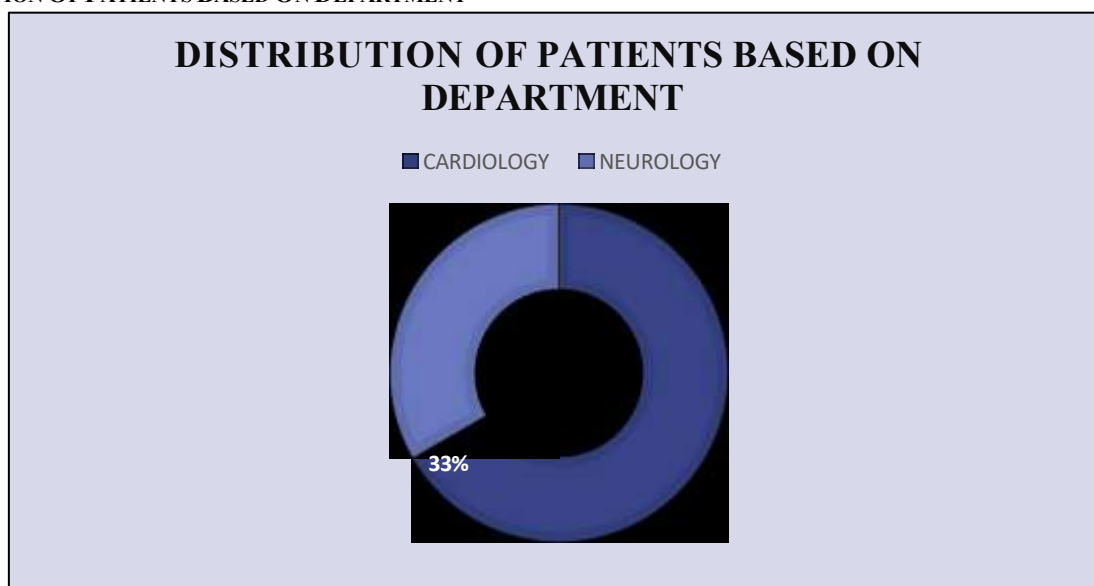**DISTRIBUTION OF PATIENTS BASED ON AGE**
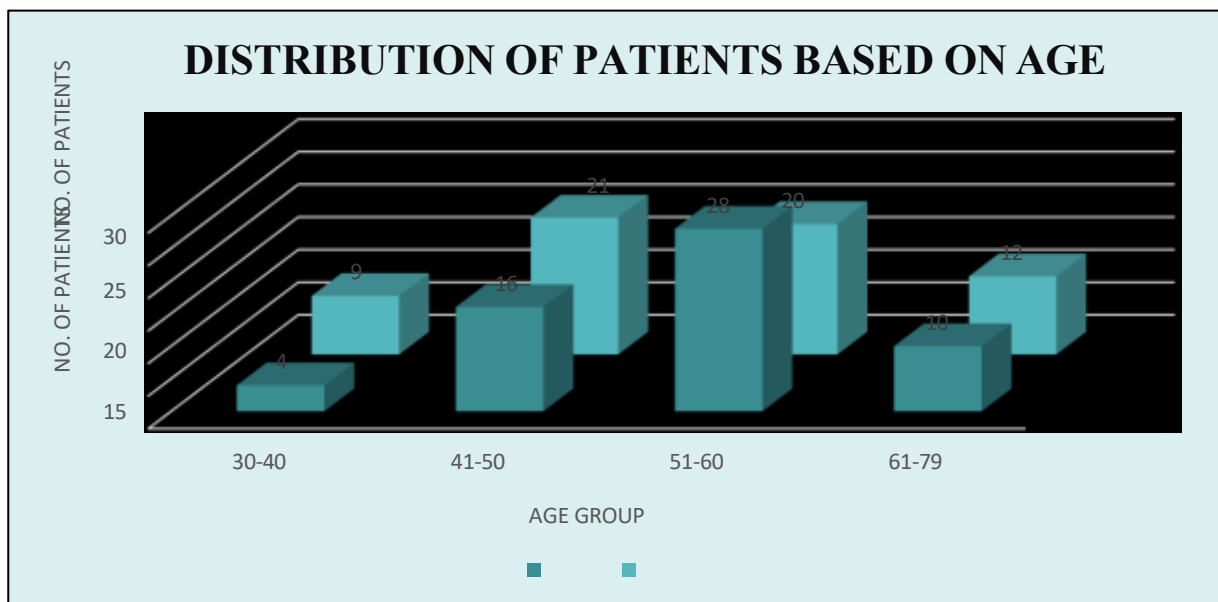
The below table shows the study of distribution of patient based on age. Recorded age criteria was between 30 to 79 yrs. Below 30 years and above 79 years patients were excluded from the criteria   or were not considered. The patient with age group between 51-60 years were more in male sex and less in age group of 30-40 yrs in male patients.

DISTRIBUTION OF PATIENTS BASED ON OCCUPATION
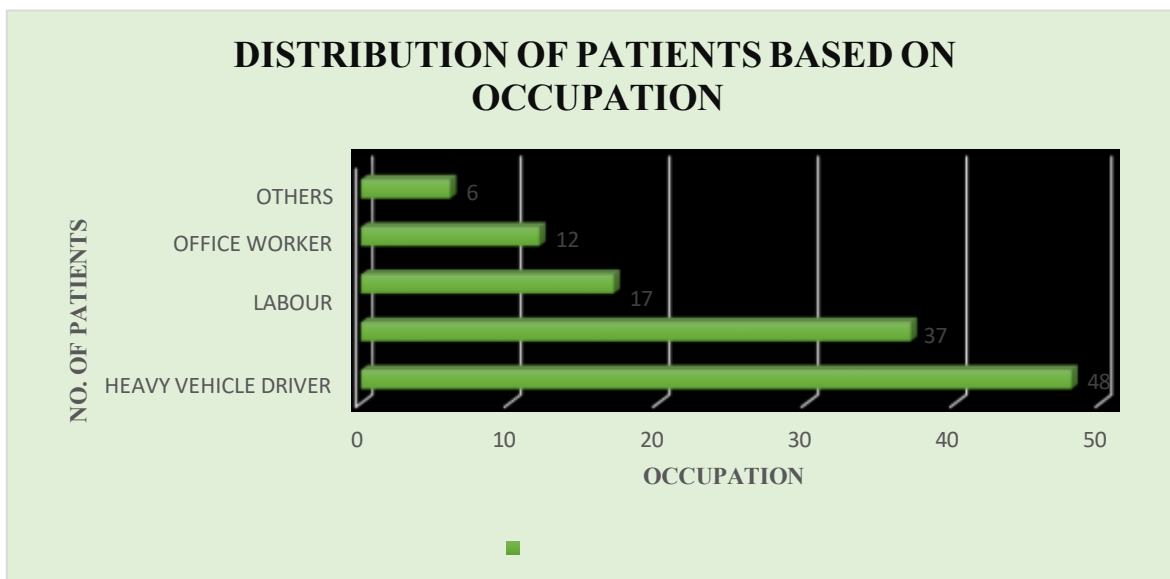
Occupational criteria (FIG NO. 4) was taken into studies where the people Like drivers, housewife, laborers, and office workers others etc...Were taken into consideration. It has been seen that high value (i.e. 48 pts.) Was in drivers as they have elevated ASCVD risk when compared with others.

**DISTRIBUTION OF PATIENTS BASED ON SOCIAL HISTORY**
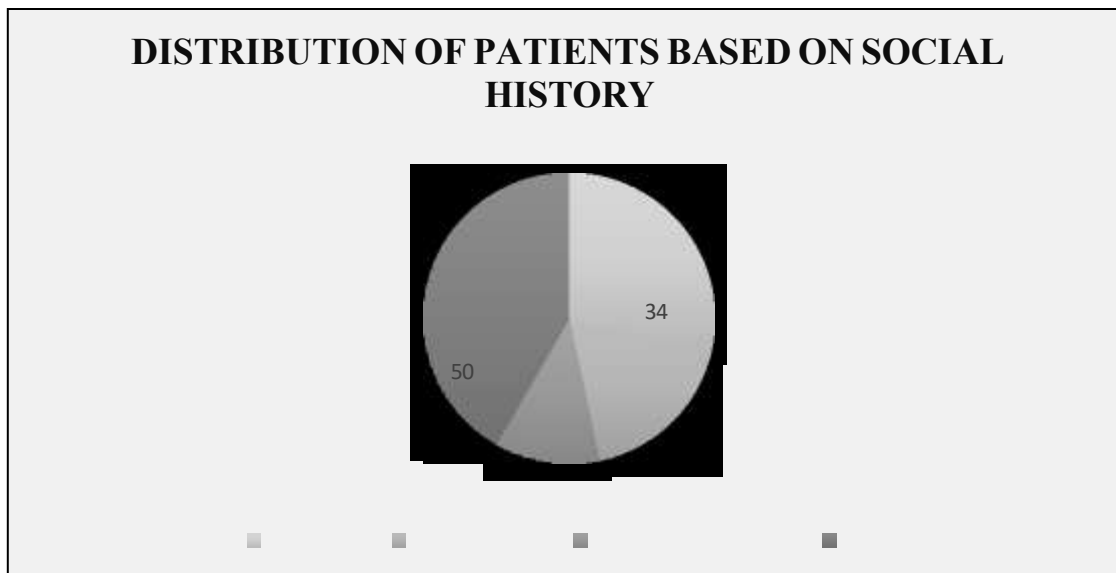
It can be seen in above table that the social history was studied of patients. Number of patient Who smokes are total 34, Number of patients who has the socio history of alcoholism are total 22, Number of patients with tobacco chewing history are 14 and patient with no socio history are total 50 in number.

DISTRIBUTION OF PATIENTS BASED ON DEPARTMENT

Case type of patient was involved in the study and compared, patient with history of cardiac issue and neuro issue was studied. Where distribution of 80 patients with cardiac issue and 40 number of patients with neuro was seen. High value was recorded in the patient having cardiac history.

DISTRIBUTION OF PATIENTS BASED ON COMORBIDITIES

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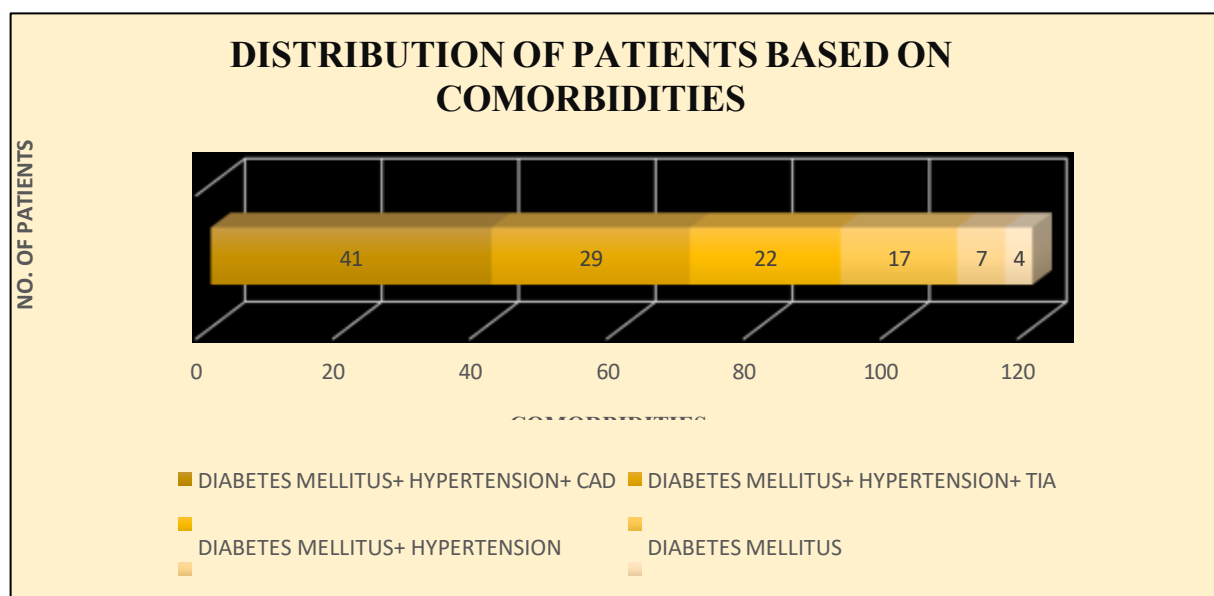
As we can see in above table patients medical history was seen. Were patient with DM +HTN + CAD history was total 41 in number. Patient with DM + HTN were 22 in number, pt. only with DM was 17 in number and pt. with HTN were 7 in numbers. Less cases a recorded in patient with only history of hypertension and more cases were recorded in patient with history of DM + HTN+ CAD.

DISTRIBUTION OF PATIENTS BASED ON STATIN PRESCRIBED

DISTRIBUTION OF PATIENTS BASED ON STATIN PRESCRIBED
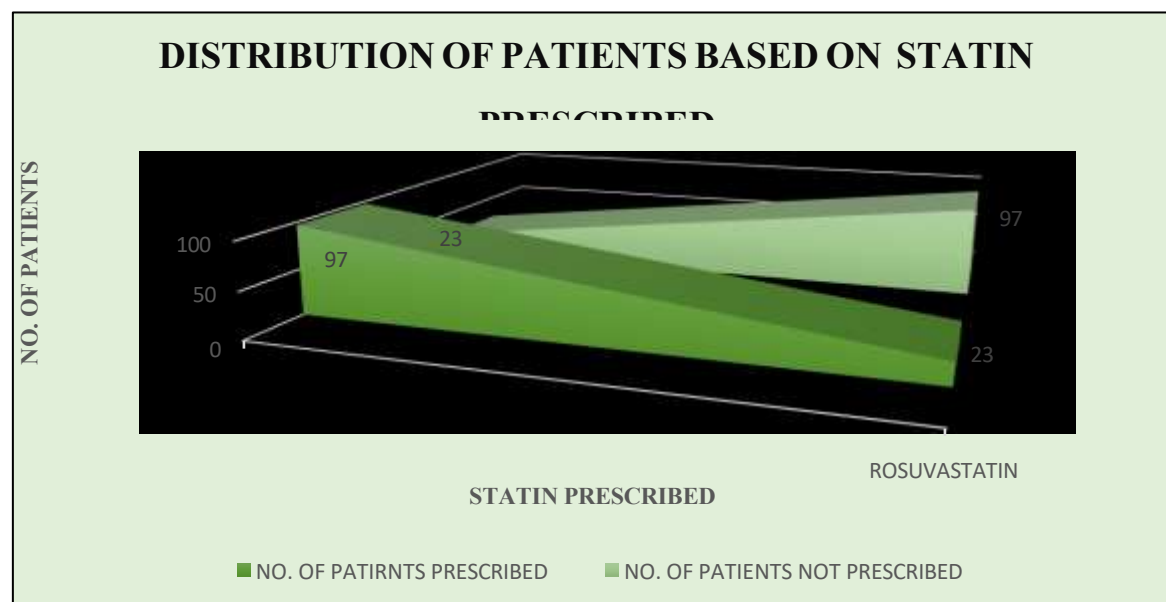
The above paragraph show that the included patients in the Research depends on the type of statin therapy being administered, the 2 drugs prescribed were compared from the class of statin. Atorvastatin was prescribed to 97 patients and rosuvastatin was prescribed to 23 patients. Atorvastatin was prescribed more to patients when compared with rosuvastatin

DISTRIBUTION OF PATIENTS BASED ON ATORVASTATIN DOSING
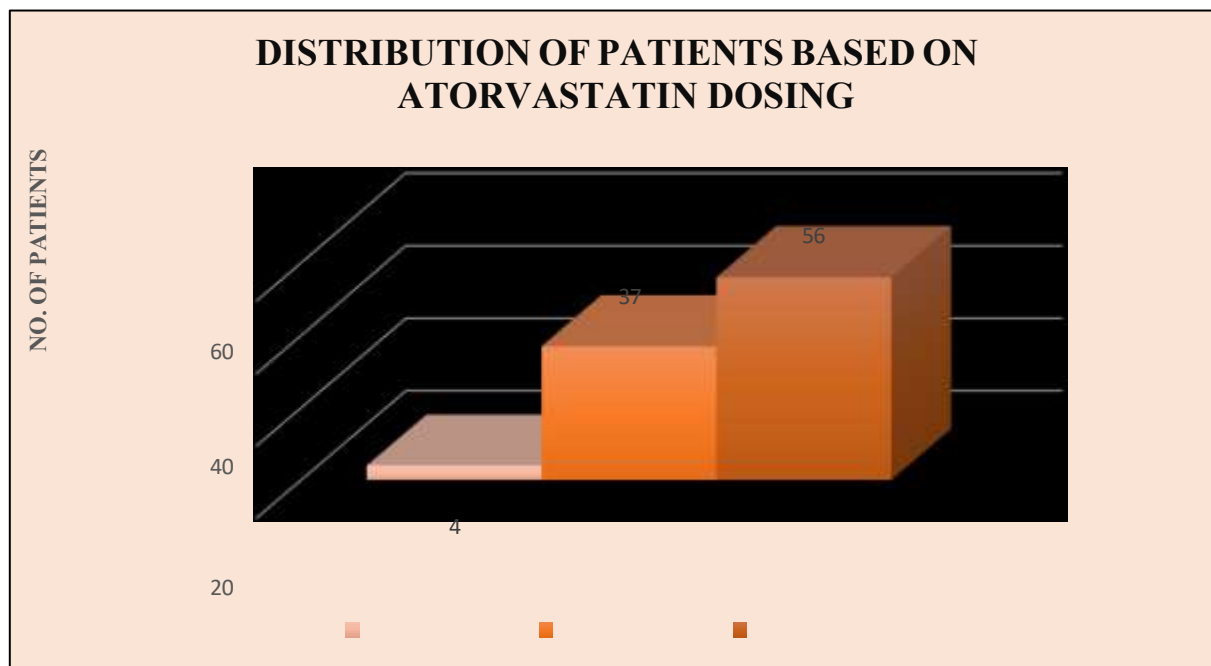
The observational studies were seen based on dose management of atorvastatin. Patient prescribed with atorvastatin with the dose of 80 mg in total 56 patients and with dose of 40 mg in total 37 patient And dose of 20 mg were prescribed to only 4 patients. Patient with dosing of an 80 mg was prescribed more and 20 mg atorvastatin drug was less prescribed to patients.

DISTRIBUTION OF PATIENTS BASED ON ROSUVASTATIN DOSING
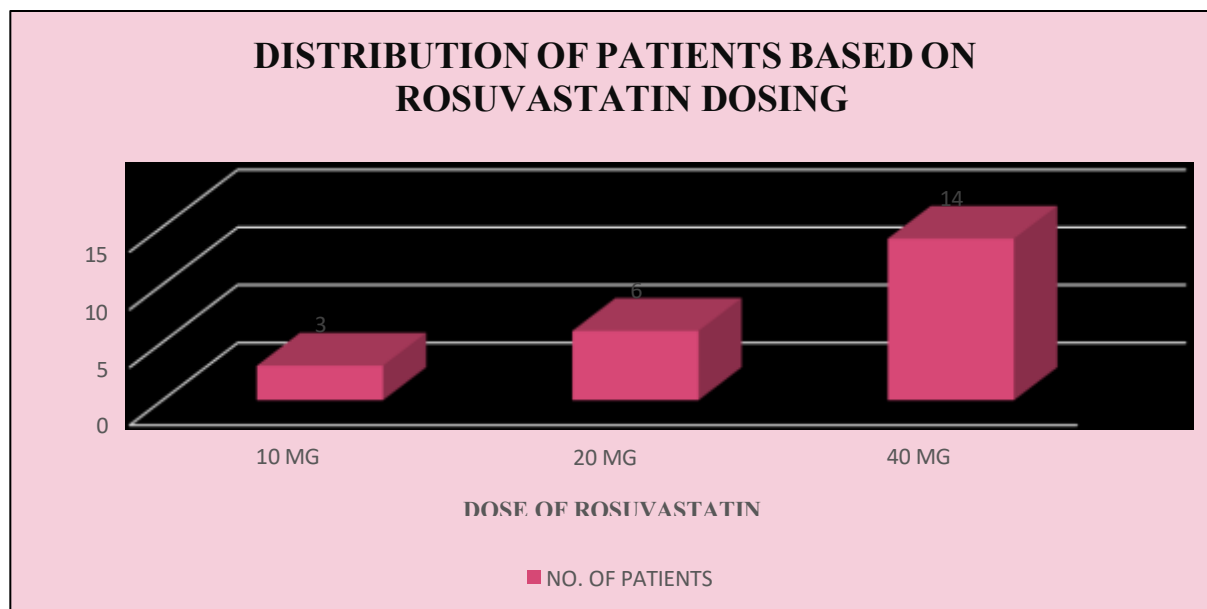
Observational studies were seen based on dose management of rosuvastatin. 14 patients were prescribed with the dose of 40 mg rosuvastatin , 6 patients were prescribed with dose of 20 mg, 3 patients were prescribed with dose of 10 mg. Dose of 40 mg rosuvastatin Was more prescribed.

DISTRIBUTION OF PATIENTS BASED ON DURATION OF STATIN THERAPY
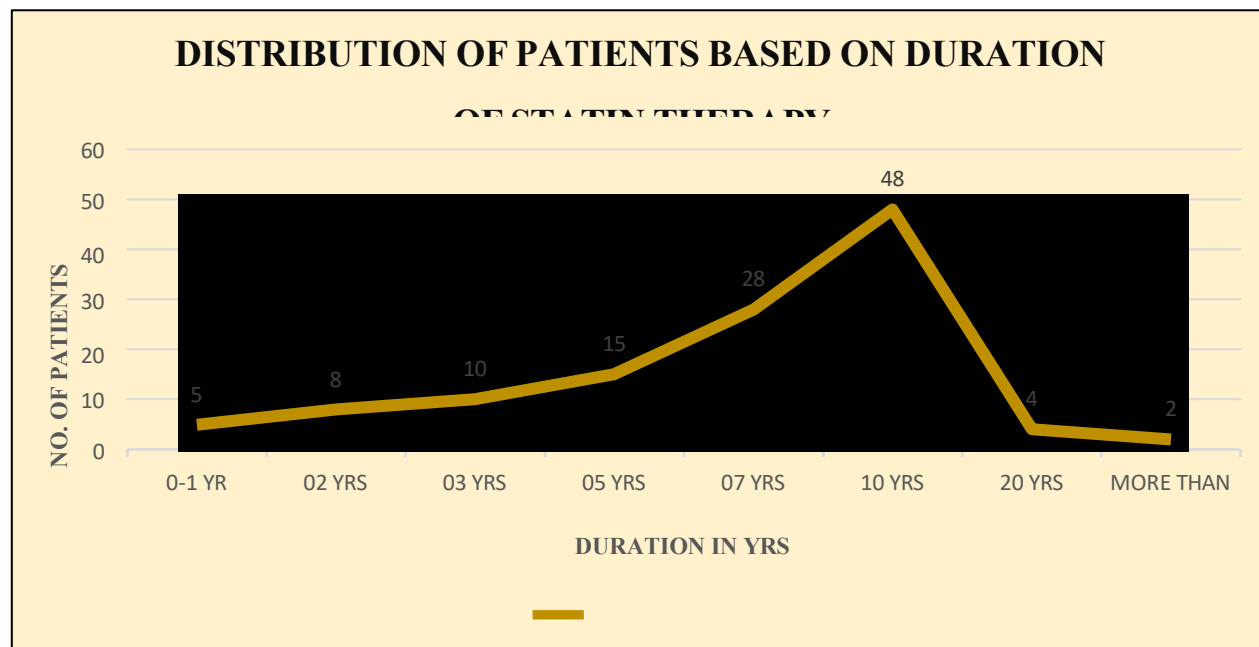
The sample size above shows the duration i.e. since how long the patient is being on statin therapy. A comparison graph can be seen were 5 patients were seen on statin therapy for one year, 8 patients for 2 years, 10 patients for 3 years, 15 patients for 5 years, 28 patients for 7 years, 48 patients for 10 years, 4 patients for 20 years, only 2 patients who has been on statin therapy for more than 20 years.

DISTRIBUTION OF PATIENTS BASED ON DIAGNOSIS
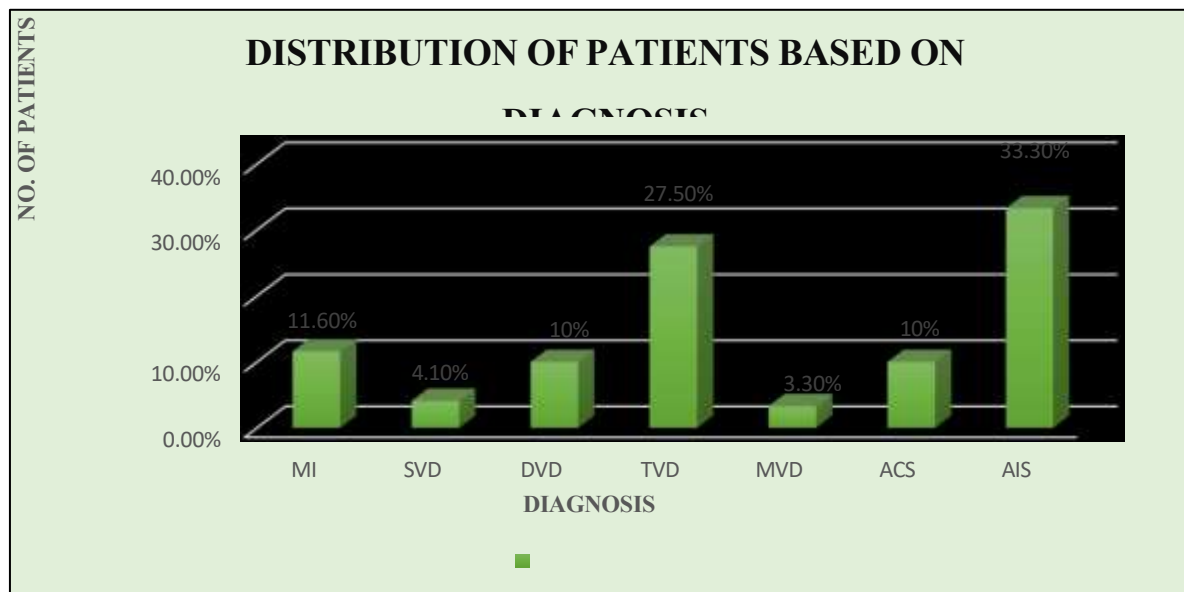
The research was proceeded based on patient's diagnosis. Diagnosis criteria seen were myocardial infraction (MI) , Single vessel disease (SVD), Double vessel disease (DVD), Triple vessel disease (TVD), Micro vascular disease (MVD), acute coronary syndrome (ACS), acute ischemic stroke (AIS) . Highest percentage i.e. 33.3% Patients were diagnosed with AIS And less patients were diagnosed with SVD i.e. 4.1%

DISTRIBUTION OF PATIENTS BASED ON ASCVD SCORE
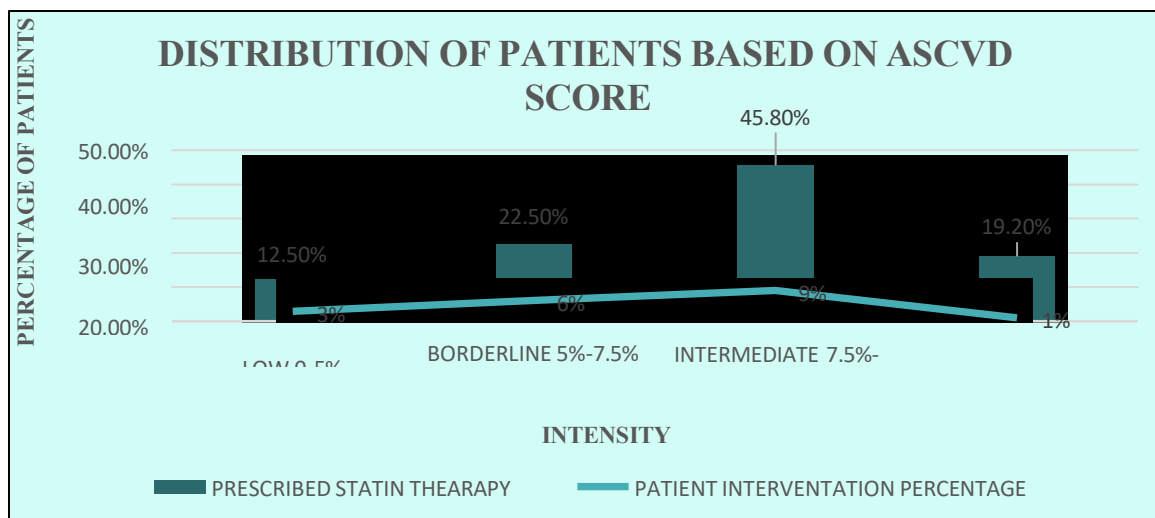
Total 120 patients has taken in study of statin dosing by using ASCVD score estimator tool (https://tools.acc.org/ascvd-risk-estimator) based on all factor including pathological and physiological factor patients are taking under 4 intensities.

1. Low risk 12.5 %(15 pt.) 12. Borderline risk 22.5 %(27 pt.) . Intermediate risk 45.8 (55 pt.) 4. High risk 19.2% (22pt.).

CHI- SQUARE TEST – DISTRIBUTION OF PATIENTS BASED ON AGE GROUP
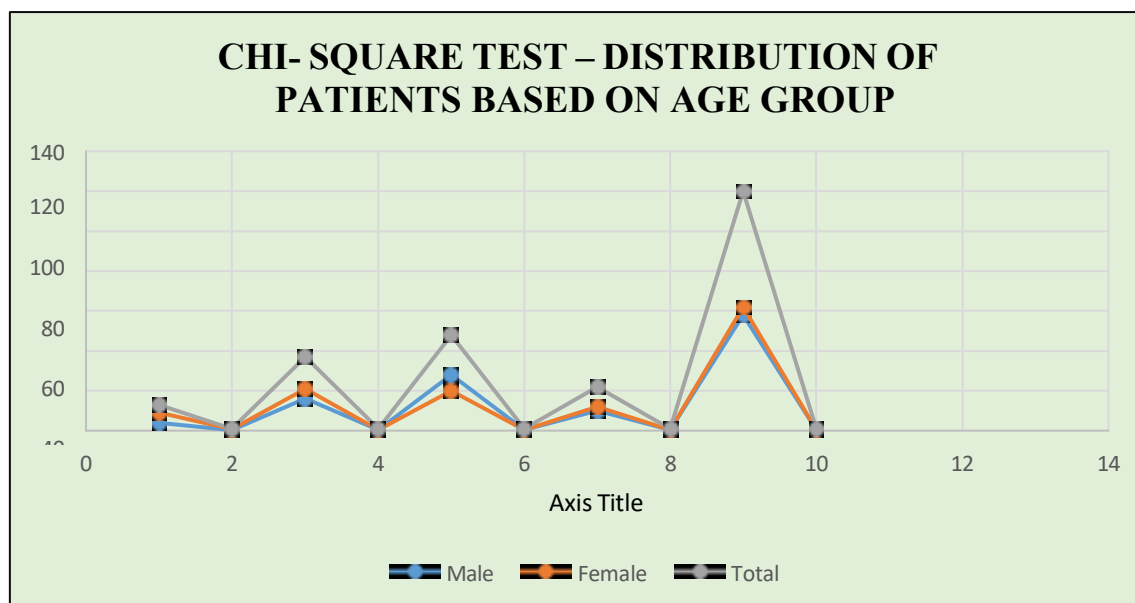
There is no statistically significant association between age groups and gender.

DISCUSSION:-

- From the sample size of 120 patient, number of male Individuals were discovered to be 78 (65%) and Female patients were 42 (35%). Hence below study shows higher count in male patient.
- The study of distribution of patient based on age. Recorded age criteria was between 30 to 79 yrs. Below 30 years and Patients older than 79 years were excluded from the criteria or were not considered. The patient with age group between 51-60 years were more in male sex and less in age group of 30-40 years in male patient.
- Occupational criteria was taken into studies where the people Like drivers, housewife, labourers, office workers others etc. were taken into consideration. It has been observed that elevated Value (i.e. 48 patients) was in drivers as they have elevated ASCVD risk when compared with others.
- The social history was studied of patients. Number of patient Who Smokes are total 34, Number of patients who has the socio history of alcoholism are total 22,Number of Individuals with a history of chewing tobacco are 14 and patient with no socio history are total 50 in number.
- Case type of patient was involved in the study and compared, patient with history of cardiac issue and neurological issue was studied. Where distribution of 80 patients with cardiac issue and 40 number.
- The Patient with DM +HTN +CAD history was total 41 in number. Patient with DM + HTN were 22 in number, patients only with DM was 17 in number and patients with HTN were 7 in numbers. Less cases a recorded in patient with only history of hypertension and more cases were recorded in patient with history of DM + HTN + CAD.
- The included patients in the Research depends on the type of statin Therapy being administered, the 2 drugs prescribed were compared from the class of statin. Atorvastatin was prescribed to 97 patients and rosuvastatin was prescribed to 23 patients. Atorvastatin was prescribed more to patients when compared with rosuvastatin
- The observational studies were seen based on dose management of atorvastatin. Patient prescribed with atorvastatin with the dose of 80 mg in total 56 patients and with dose of 40 mg in total 37 Patient And dose of 20 mg were prescribed to only 4 patients. Patient with dosing of an 80 mg was prescribed more and 20 mg atorvastatin drug was less prescribed to patients.
- Observational studies were seen based on dose management of rosuvastatin. 14 patients were Prescribed with the dose of 40 mg rosuvastatin , 6 patients were prescribed with dose of 20 mg, 3 Patients were prescribed with dose of 10 mg. Dose of 40 mg rosuvastatin Was more prescribed
- The sample size above shows the duration i.e. since how long the patient is being on statin therapy. A comparison graph can be seen were 5 patients were seen on statin Treatment for a duration of one year therapy. 8 Patients for 2 years,10 patients for 3 years , 15 patients for 5 years, 28 patients for 7 years, 48 Patients for 10 years, 4 patients for 20 years, only 2 patients who has been on statin therapy for More than 20 years .
- The research was proceeded based on patient's diagnosis. Diagnosis criteria seen were myocardial Infraction (MI) , Single vessel disease (SVD), Double vessel disease (DVD), Triple vessel Disease (TVD), Micro vascular disease (MVD), acute coronary syndrome (ACS), acute ischemic Stroke (AIS) . Highest percentage i.e. 33.3% Individuals were identified with AIS, while fewer were diagnosed with SVD i.e. 4.1%
- Observational studies is based on ASCVD score, Patient with risk associated to ASCVD With low risk (0.5%) are 12 patients, Borderline risk (5% to 7.5%) are seen in 23% of patient, Intermediate risk (7.5% to 20%) is seen in 46% of patient . 19% of patient were recorded with High risk >20 %.
- Total 120 patients has taken in study of statin dosing by using ASCVD score estimator tool (https://tools.acc.org/ascvd-risk-estimator) based on all factor including pathological and physiological factor patients are taking under 4 intensities.

Low risk 12.5 %(15 pt.) 2. Borderline risk 22.5 %(27 pt.) 3. Intermediate risk 45.8(55 pt.) 4. High risk 19.2% (22pt.).

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