APROSPECTIVEOBSERVATIONALSTUDYONOPTIMIZING STATIN DOSING IN CARDIOLOGY AND NEUROLOGY DEPARTMENT

ABSTRACT:

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 aorticAtherosclerosis.

OBJECTIVE: To assess risk based on ASCVD scale for prevention of CVD. To analyse the recommended statintherapyfor individualsat increased risk according toASCVDrisk 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 intothe studyafterobtaining the consent.The data collection formwill be prepared &used.This formmainlycontains the demographic details ofthe patient and medication Chart. Patient Counselling will be done using leaflet and there will be constant follow up.

RESULTS: Atotalof120casesofcardiologyandneurologydepartmentwereobserved.Majority ofcaseswere males78(65%)comparedtofemale 42(35%).Mostofthembetweenagegroup51 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%) comparedtotherosuvastatin23(19%).Themostcommonlyprescribedatorvastatindoseis80mg (56%)comparedto40mg(37%).Themostcommonprescribedrosuvastatindoseis40mg(14%) comparedtothe20mg(6%).ThemostcommondiagnosisincardiologydepartmentisCADTVD (27.5%) compared to the neurology department AIS (33.3%).

CONCLUSION: Thestudyof120patientsonstatintherapyrevealedahigherprevalenceofmale patients, predominantly aged 51–70 years, with an urban residency and occupationalrisk factors likedriving.CardiovascularcomorbiditiessuchasDM+HTN+CADweremorecommon,andAIS wasthemostfrequentlyobserveddiagnosis.Atorvastatinwasprescribedmoreoftenthan

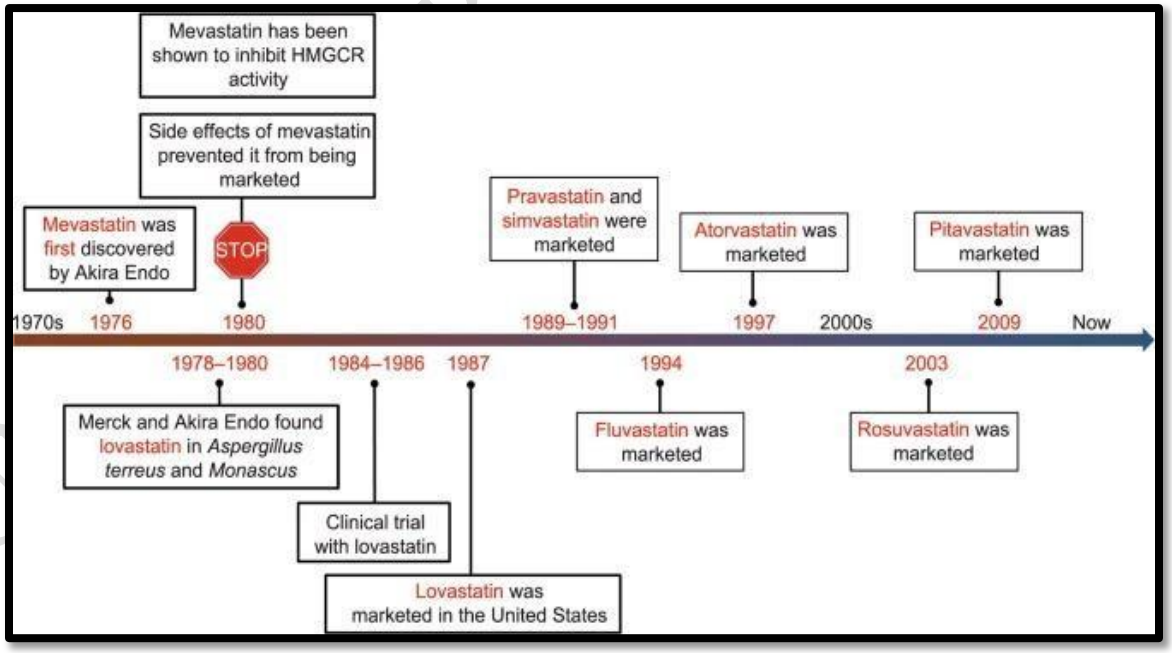
rosuvastatin, with higher doses being more prevalent. Blood pressure readings indicated a significantnumberofpatientswithinthe151/65–170/100mmHgrange.BasedonASCVDscores, mostpatientsfellintotheintermediate-riskcategory,while19%showeddeviationsfromexpected patterns.Thesepatientsweresuccessfullyidentifiedandeffectivelyintervenedupon,highlighting the importance of risk assessment tools in optimizing statin therapy and improving patient outcomes.

KEYWORDS : Atherosclerosis ,Plaque,Ascvd,Cad,Pad,DM,Htn.

INTRODUCTION:

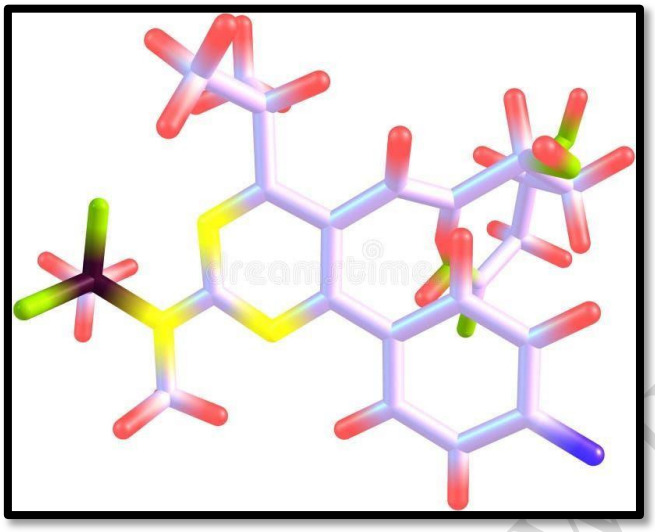
STATIN:

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 pharmacokineticeffects.AllthestatinsinthefamilyhavethesameMOA,astheyworkbyslowing 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 sterolgovernmentalelement binding protein-2, which maintainsthecopyofvital 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.



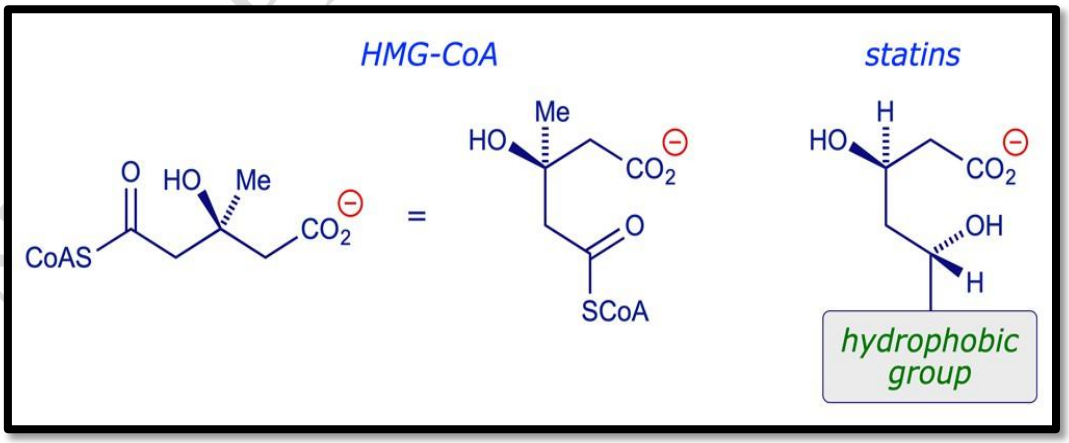
CHEMISTRYOFSTATIN:

THESTRUCTUREOFSTATINS:



Dependingontheir formor synthesis, statinscanbedivided into classes. Therearethreetypesof synthesis: synthetic, semisynthetic, and natural. Lovastatin, compactin, and pravastatin are examples of natural statins that are made by fermenting fungus. Simvastatin and other semi-syntheticstatinsaremadeviaalkylatinglovastatin,whichsubstitutes2,2-dimethylbutyrateforthe 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 onlycompound withsimilarityamong chemicallymanufactured synthetic statins. Atorvastatin, cerivastatin, rosuvastatin, fluvastatin, and pitavastatin are examples of synthetic statins. Lactonization is a reversible method of statin metabolism.

STRUCTUREACTIVITYRELATIONSHIP:



ActivityofHMG-CoAreductase issensitiveto thestereochemistryofthe lactosering, theability oftheringtohydrolyze, andthelengthofthebridgeconnectingtheringsystem. Bicycleringcan

bereplacedbyotherlipophilicrings,butthesizeandshapeoftheringareimportantfortheoverall activity of the compound.

COMMONFORALLHMGCOAREDUCTASE

- 35dihydrocarboxylateessentialforanybatteryactivity
- 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.
- DoubledoublebondbetweenC6and C5caneither increaseordecreasetheactivity.
- Thiscompoundcanbesubclassifiedbased onthelowerringsandstructuralactivity.

- Theethylgroupprovidesoptimalactivity.

RING1

- Replacementwithcyclohexanedrinkdecreasestoactivity10000field
- Stereochemistry of Easter chain is not essential but if change to either leads to decrease activity
- MethylsubstitutionatR2increasesactivity

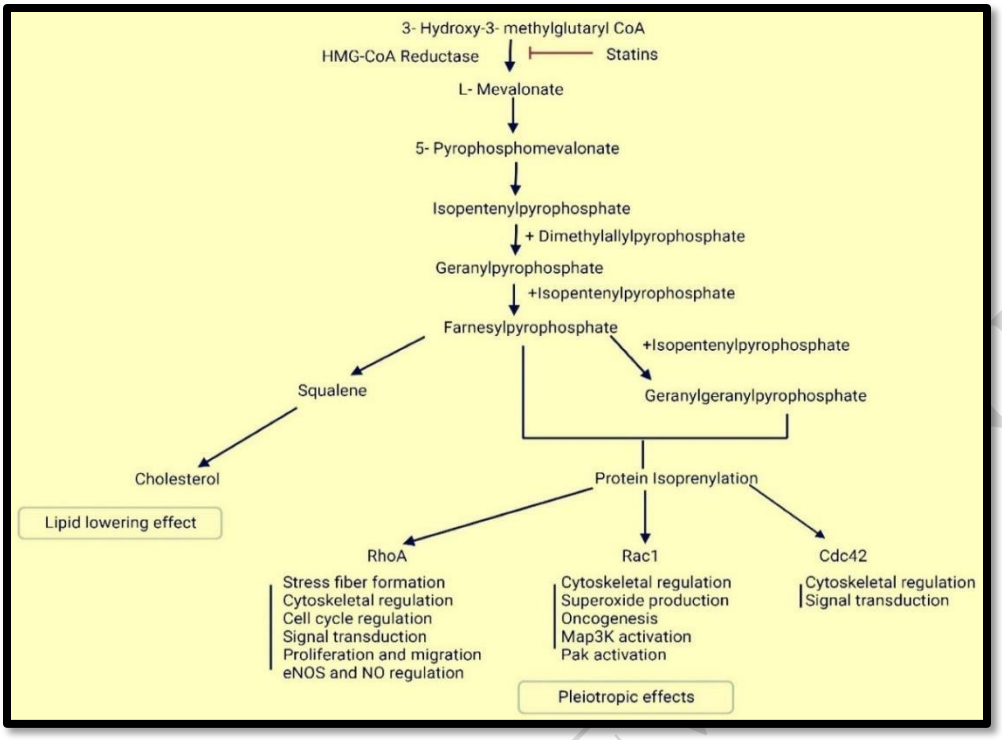
RING2

Substitutionatau xwithcarbonatogen,whichservesasa56-memberheterocyclicring.

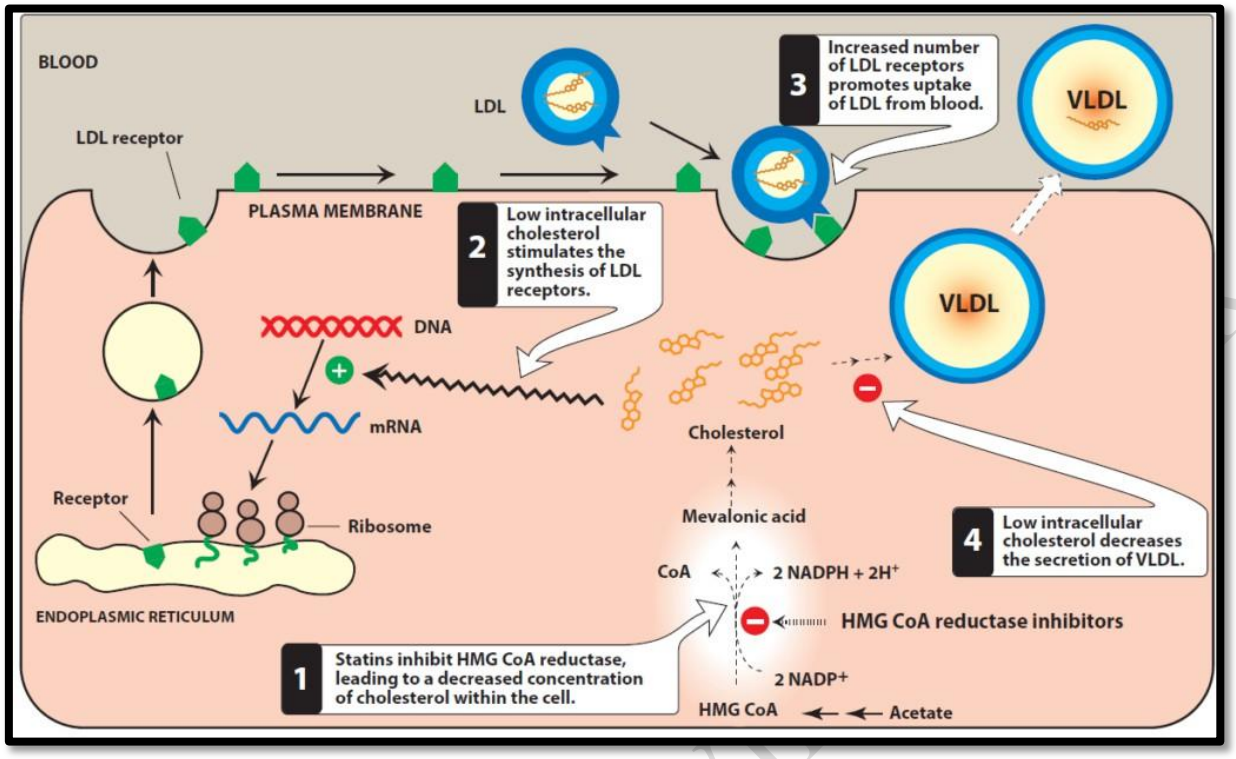
PHARMACOLOGYOFSTATINS:

Statin Also known as HMG CoA reductase inhibitors, which function as lipid-lowering agents. Thiscategoryofdrugsservesacrucialfunction 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.

MECHANISMOFACTION:



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 withfood can increase its absorption chance, like in lovastatin.

DISTRIBUTION–DistributionisthroughOATPS(organicaniontransportingpolypeptide). These medications have a strong affinity for protein binding.

METABOLISM–ItakesplacebyacytochromeP450enzyme.

CYP3A4:Atorvastatin,Simvastatinandlovastatin. CYP2C9:

Rosuvastatin and Fluvastatin.

Pravastatinismetabolised bynonCYP450pathwaywhichcausesdrug interaction.

EXCRETION – Mainly through bile. Faeces and also sometimes by renal clearance.

(11)**PHARMACODYNAMIC:**

Basedonthedoseandagent,thestatineffectonthelevelofLDL-Cloweringthemby20% increased**.**

EFFECTONLIPIDS:

- EffectonLDL–C.
- Triglyceridesarereduceddirectly.
- HDLClevelgetincreased.
- PleiotropiceffectsareseenlikeAnti-inflammatoryproperties,stabilisationofplaque.

ADVERSEDRUGREACTION:

- Canbetolerated.
- Myopathymyalgiaandhepatotoxicityisrare.
- Rarecognitiveeffectincludememoryloss
- Abdominaldiscomfort,nauseaandliverdysfunction.

DRUG INTERACTION:

- DrugInteractionoccursduetothemetabolismbyCYPenzymeandhepatic transporters.
- CYP3A4 Inhibitors like clarithromycin or consuming grape fruit increase Concentration of plasma in statin there by increasing toxicity risk.
- CYP3A4Withrifampinslowdowntheeffectofstatin.
- OATPInhibitorsuchasCyclosporinecausedrug interaction.
- Usewithniacinincreaseriskofmyopathy.

HALFLIFE:
SHORT HALFLIFE: Simvastatin, Lovastatin (1-3 hrs.) Recommended at night time**.**
LONGHALFLIFE: Atorvastatin,Rosuvastatin(upto 20hours)canbegivenanytime.

INDICATION:

- Thesemedicationsareutilizedfortherapeuticpurpose
- Dyslipidaemia–Reducing LDLcholesterol(LDL-C)
- Preventingcardiovasculardisease(CVD)
- Primarypreventionofriskin individualswithheart disease.
- Actasafollow-uppreventive measureforcoronaryincidence.

EFFECTSOFSTATINTHERAPYINCARDIOLOGY:

EFFECTSOFSTATINTHERAPYINPATIENTSWITHCORONARYARTERY DISEASE:
FOCUS ON SINGLE-VESSEL DISEASE:

As we know,the administration ofstatins for CAD patients has been veryeffective; similarly, in individuals with single-vesselcoronarydisease, 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 decliningtheprogressionofcoronaryatheroma.Ithasbeenobservedrelatedincontributingto the

progressionofwhite matter hyperintensities and rationaldecrease as a marker ofCSVD.Also by adropinLDL-C levels,whichisa favorable mechanismofstatineffect.Thereby,analterationin 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.Administrationofstatindrugshelpsbyinhibitingadhesion moleculesanddecreasingthe immuno cell investment within the vessel wall and decreasing the inflammation. Also, experimentalandscientificstudieshavedocumentedthatstatinsimproveendothelialdysfunction.

EFFECTSOFSTATINTHERAPYINPATIENTSWITHCORONARYARTERY DISEASE: DOUBLE-VESSEL DISEASE:

Statinmedicine hasbeenakeystonetherapyforthecontrolofCAD.It hasbeenprovenbeneficial 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 declineofatherosclerosisplaque,whichleadstotheruptureofplaqueandthromboticactivity.As weknow, statinsalso haveanti-inflammatoryproperties;thereby, affecting theseproperties leads toplaque instability,whichdeclinesCRP(C-reactiveprotein) levels.Statinalso servesasignificant function in maintaining vascular homeostasisand lightens ischemia, which indirectlyreducesthe hazards of coronary incidents.

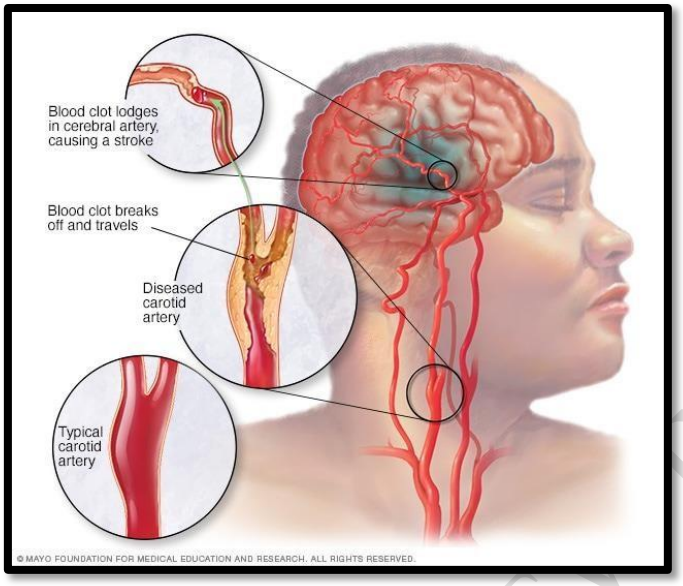
EFFECTSOFSTATINTHERAPYINPATIENTSWITHCORONARYARTERY DISEASE: TRIPLE-VESSEL DISEASE:

Statins are also knownto controltriple vesseldisease by interfering with the pathophysiologyof atherosclerosis. It works byreducing the LDL-C levels and slowing downthe functionofplaque and stabilizing the atherosclerotic plaque, which decreases the risk of plaque damage and thromboticseriousness.Statinalsohelpsindeclingpro-inflammatorycytokinessuchasCRP(C-reactive protein) due to its anti-inflammatory effects. Stabilization of plaques thereby decreases MACF (major adverse cardiovascular events).

EFFECTSOFSTATINTHERAPYINPATIENTSWITHMYOCARDIALINFARCTION:

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. Statindrugs werethe most preferable drugs used inthe management ofMI, astheywork bylowering the LDL-C levels. Apart fromthis statinworks byblocking the particle or substance that is used for making cholesterol in body, also inflammation of artery wall is reduced, help in reducing the chance ofstroke inpatients, decreasing the risk ofcoronaryincidence or decreasing adverse effect of CVD. There are numerous clinicalstudies 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.

EFFECTSOFSTATINTHERAPYINNEUROLOGY:



EFFECTSOFSTATINTHERAPYINPATIENTSWITHACUTEISCHEMIC STROKE:

AIS (acuteischemic stroke) isdiscovered to bethe most dangeroushealthproblem and isthe the thirdleadingcauseofmortalityordeataroundtheworld.Itisdefinedasthelossofbloodsupply to the brain (typically in vascular territory), which causes ischemia and necrosis of brain tissue. Hence,necessarymeasuresshouldbetakentoavoidfurtherstrokesandcomplications;thetherapy involved should have the characteristic oflowering lipid levels. Manystudieshave shownstatins tobeveryeffective inmanagingthe levelsofLDL-Candpreventingreoccurring ischemicevents inpatients.Apart fromthis, it isknownthat statins also playavitalrole inbenefiting byactingas 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 AggressiveReductioninCholesterolLevel)proved thattheactionofatorvastatinwasconsidered, in which it worked bydecreasing the chance ofrecurrence of stroke in individuals with a history oftransient ischemic attack or recent stroke. However, time, dose, and duration ofstatin therapy in AIS patients. It also includes side effects like liver dysfunction and muscle toxicity, such as myopathy and rhabdomyolysis.

PREVENTIONOFCORONARYEVENTSBYSTATINSINCLINICALTRIALS:

EuropeanWOSCOPS(WestofScotlandCoronaryPreventionStudy)andUSAFCAPS(AirForce 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 coronaryevents in male patients with a high levelof lipidsaged45to65years.Noparticulardifferenceswerenotedinpatientswithnon-cardiacdeath ordeathduetocardiac issues. Hencetheyevaluatedpravastatindrugtobeeffective fordecline in complication.

SimilarlyAFCAPSStudiesforyearshaveshownthattheactionoflovastatindrughaveprovento be effective in decreasing of risk relating to cardiac disease.

Therehavebeeneffectiveclinicalstudiestopreventcomplicationsbycoronaryarterydisease as mentioned below

1. 4S–(Scandinaviansimvastatinsurvivalstudy)

Clinical studies rule out the reaction of simvastatin administration for 5 to 4 years in 4444 hypercholesterolemiasubjects.Theoutcomeofthisresearchonsimvastatingroupshoweddecline inrepetitivecoronaryarterydiseasealongwithadecrease indeathduetocoronaryarterydisease.

2. LIPID–(Longterminterventionwithpravastatininischemicdiseasesstudy)

Thelipidtrialfocusedontheresultsoftheuseofpravastatin,whichtooknomolipidemicandlow- 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.

3. CARE–(Cholesterolandreoccur-rentevents)

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 LDLcholesterollevelswerestudied for5 years,whichresulted inadeclineofcoronaryincidence by 24% and 27%, respectively.

4. AVERT–(AtorvastatinVersus Revascularizationtreatment)

It compared the PCI (Percutaneous CoronaryIntervention) group and atorvastatingroup(a lipid-levels reduction therapy) where atorvastatin with a dose of 80 mg/day was administered, where thedrug atorvastatinwasprovento beuseful indecreasing therisk asaresult ofcoronaryevents.

5. MIRACL–(Myocardialischemia reductionwithaggressivecholesterollowering)

Theresearchonatorvastatindrugwithadoseof80 mg/daywasusedtoavoidcomplicationsfrom acute coronarysyndrome. It was knownto be veryeffective therapyas thetherapeutic effect was seen within 24 to 96 hours of administration of the drug.

6. LIPS–(LeccoInterventionpreventionstudy)

Comparedtheplacebo groupwiththefluvastatindrug.Theyinvestigatedthetherapeuticeffectof 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.

ADVERSEDRUGREACTION:

Statins have lately attracted boosting pharmacological significance for their broad spectrum of non-lipid (pleiotropic) goodsinadditionto the great varietyofside goods, most ofwhichare still yet to be well understood. In general, this family of composites is well permitted and adverse eventsAregenerallymildsimilarasflatulenceand gastrointestinaldiscomfort.Theoccurrenceof 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 rateofadverseeventsforthe4compositesperforming inthe medicinepull-outofabout 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 painwithout CK- elevation. Areview up to 2002 set upthat accountsofmuscle issues in statin clinical trials are highly rare.Phillips et al. verified the circumstance of myopathy with normalCKinassociationwithstatinremedyinmusclevivisectionsamples.Fatalrhabdomyolysis is extremelyrare. 31 Cases after 9.8millionconventions have beenreportedinthe United States. Meanwhile, after pull-outofcerivastatinand due to more carefultradition, this figure has indeed further bettered. Rhabdomyolysis was lower than one in1 000 000, the prevalence being Similar among allstatins. ElevationofCKto further than 10 times normaloccurs in1 outof10 thousand cases/ time onstatinuse only. While the prevalence ofserious muscle Problems is veritably low, the rate of mild side goods has been heavily undervalued so far.

ASSESSMENTOFINTENSITYOFSTATINTHERAPYBASEDONASCVDSCORE:

1. RISKASSESSMENTANDMANAGEMENT:

For adults aged between 40 and 75 years with a background of ASCVD PCE (Pooled Cohort Equations),areutilizedtodetecttheriskfactors.Itisdividedintolow(<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 consideredtodetecttherisk factors. CAC(coronaryarterycalcium)was included forthetreatment, especially for borderline or intermediate risk conditions.

2. YOUNGERADULTSANDLIFETIMERISK:

Foradultsagedbetween20and39 years,theriskmonitoringofASCVDwasdonerepeatedlyfor 4to6years.Acountof 10yearsofriskmaybelow;hence,observingfor30yearsoralifetime

ASCVD risk can help in lifestyle changes and management. ACC/AHA Risk detector used for patient's health management from ASCVD.

3. LIMITATIONOFRISKCALCULATORS:

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 historyofhypercholesterolemiariskcalculationsarenotusedinsteadclinicalmanagementisdone.

4. CORONARYARTERYCALCIUM(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 norisk. But coronarycalciumis notthe sole factorconsidered forthe detectionofall risks; clinical research or trials also play an important role.

5. IMPACTOFNUTRITIONONASCVD:

It is sound that in the year 2015, cardiac problems lead to many deaths in the US. It was nearly around6,30,000,whereobesitywithcardiacissueswasthemainreasonformortality.Theimpact of good nutrition in decreasing the ASCVD contributors such as excess weight, high blood pressure, and diabetes is necessary. Based onthe observational studies, dietarypatterns are more liable to cause the risk factors and cardiovascular mortality.

6. GENDERANDRACEADJUSTMENTS:

Differentpointadjustmentsbasedongenderandrace(e.g.,AfricanAmerican,White,etc.) Calculating

Risk

1. Addupthe pointsfromeachcategory.
2. Usethetotalpointstoestimatethe10-yearASCVDriskusingarisktableoronline calculator

Thisisasimplifiedversion,andspecifictoolsorcalculators(likethe ASCVDRiskCalculatorby the American College of Cardiology) should be utilized for a more precise risk assessments, as they incorporate additional factors and adjustments.

RISKINSECONDARYPREVENTION:

The principle involves that a patient diagnosed withASCVD 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 anextremelyelevated dangerand has a 3-fold or greater risk of thefollowingeventsascomparedtothosenotatveryhighrisk, andindividualswithapast record

of 2 or more seriousASCVD 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 guidelinesonthe preventionofCVD Withpatient at extremelyelevated risk has been focusing on all the risk factors as mentioned above

A) **VERYHIGHRISK:**Patient ofCVDwithhistoryofDMwithanEndorgandamageora patient suffering with Serious CKD have a score risk of 10% or more.
B) **HIGHRISK:**Patient withsinglerisk factororhaving moderateCKDthescorerisk is5 – 9%
C) **MODERATERISK:**Thescoreofriskhereis1–4%
D) **LOWRISK:**AScoreriskoflessthan 1%

MATERIALSANDMETHODS:

STUDYDESIGN	PROSPECTIVEOBSERVATIONALSTUDY
SAMPLESIZE	100
STUDY SITE	MULTI SPEACIALITY HOSPITAL
DEPARTMENT	CARDIOLOGY AND NEUROLOGY
STUDY DURATION	6 MONTHS

1. SOURCEOFDATAANDMATERIALS:

- ✓ Patientconsentform
- ✓ Patientdatacollection form
- ✓ Patient casenote/prescription

2. INCLUSIONCRITERIA:

- ✓ Thoseaged30-79 yearswithLDL-Clevelsof70-95mg/dLwithoutclinicalASCVD
- ✓ ThosewithprimaryelevationsofLDL-Cof190mg/dLorgreater(eg,familial hyperlipidaemia)
- ✓ Those without clinicalASCVD 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 riskfactors (i.e., dyslipidaemia, diabetes, hypertension, orsmoking)

3. EXCLUSIONCRITERIA:

- ✓ ContraindicationsofStatinTherapy
- ✓ Agebelow30yr, adults79yearsandolderwithnohistoryofCVD
- ✓ Pregnant,Breastfeeding,LiverDisease,andKidneyDiseasepatients

4. METHODOFDATACOLLECTION:

Datawasobtainedfromprescriptions,laboratoryreportsandtreatment/medicationcharts.

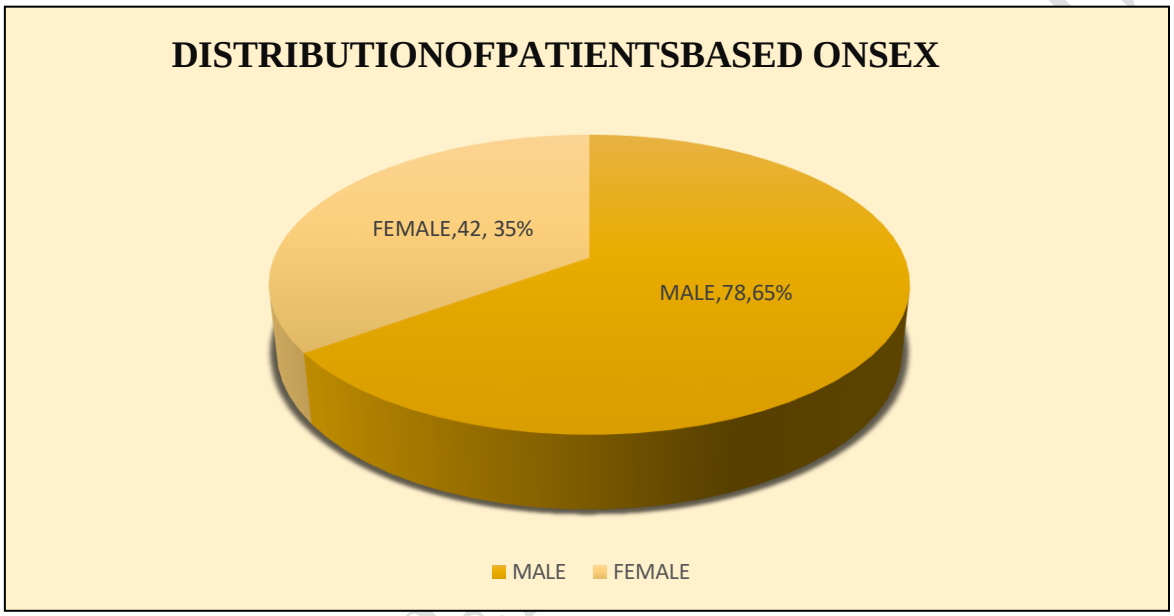
1. Textoption
2. NursingStation
3. Progresschart

5. STUDYPROCEDURE:

- ✓ Thepurposeofthisobservationalstudyisto betterunderstandstatindrugsanddosages. Eligible patients are enrolled in the trial after providing their permission. The form for gathering data will be created and utilized.
- ✓ Thisformmostlyincludesthepatient'sdemographicinformationandmedicationhistory. Leaflets will be used for patient counseling, and follow-up will be ongoing.
- ✓ The researchwill be carried out at the Care Hospital. Fromthe time ofadmissionuntil the review follow-up date,allpertinent datawill be gathered forthe research. The data willthenbeenteredintoaMicrosoftExcelsheet foranalysis,and frequencytableswill be computed using an appropriate statistical analysis approach.

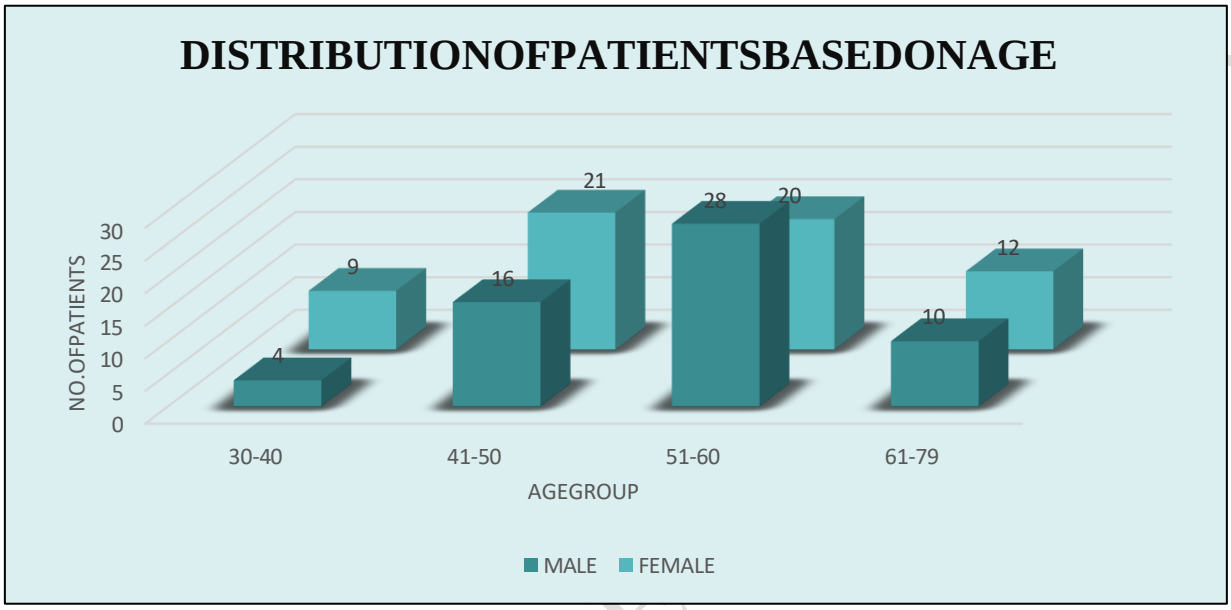
RESULTS

1. DISTRIBUTIONOFPATIENTSBASEDONSEX



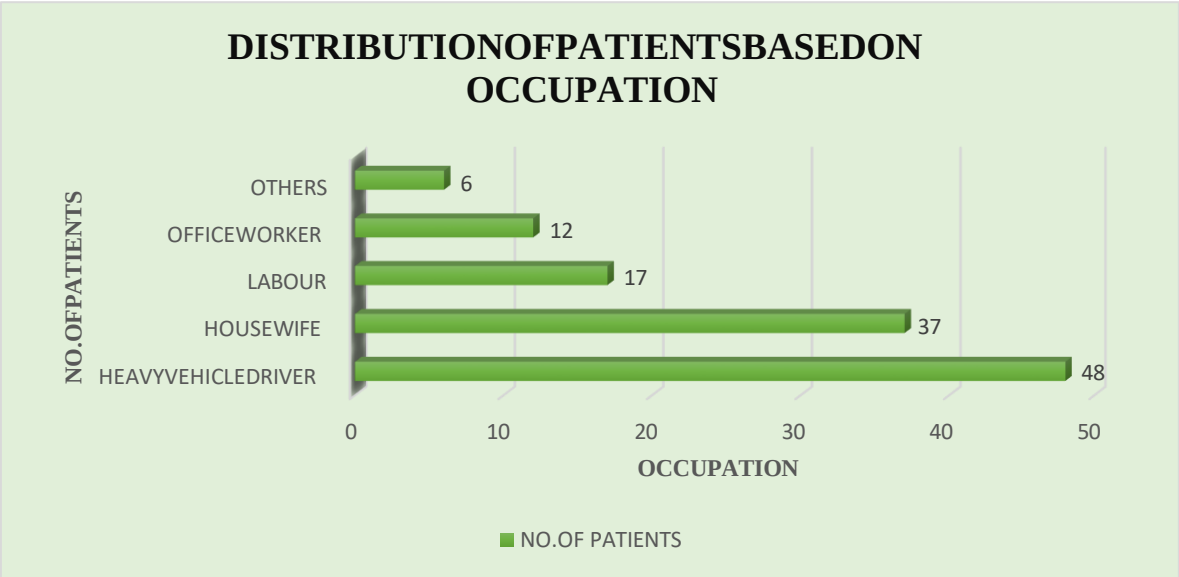
From thesamplesizeof 120patient,numberofmalepatientswerefoundtobe78(65%)and female patients were 42 (35%). Hence below study shows higher count in male patient.

2. DISTRIBUTIONOFPATIENTSBASEDONAGE



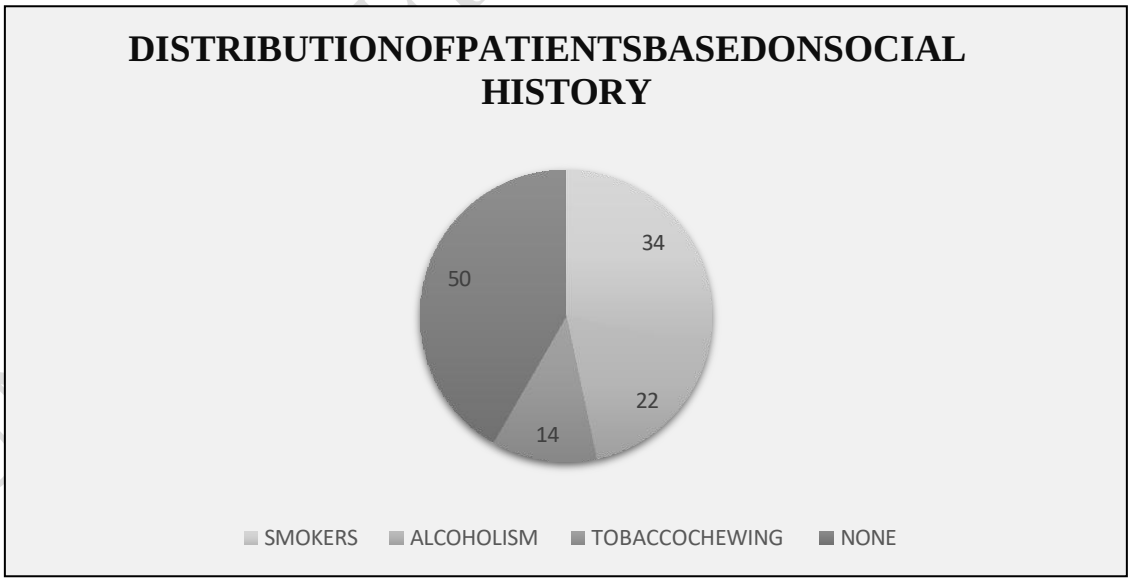
Thebelowtableshowsthestudyofdistributionofpatientbasedonage.Recordedagecriteria was between30to79yrs.Below30yearsandabove79yearspatientswereexcludedfromthe criteriaor were not considered. The patient with age group between 51-60 years were more in male sex and less in age group of 30-40 yrs in male patients.

3. DISTRIBUTIONOFPATIENTSBASEDONOCCUPATION



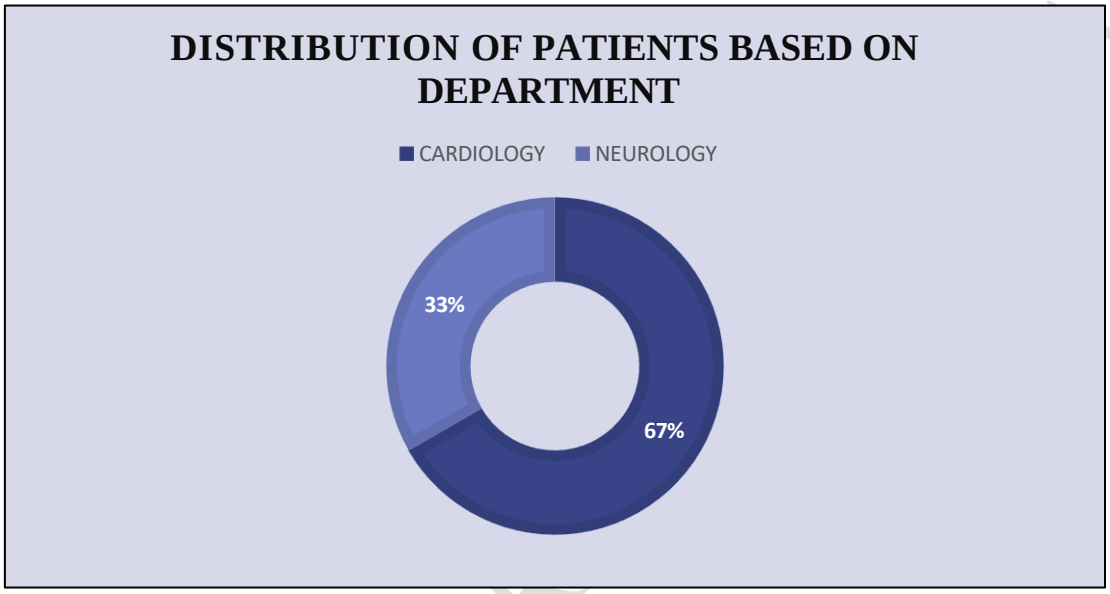
Occupationalcriteria(FIGNO.4)wastakenintostudieswherethepeopleLikedrivers,housewife, laborers, and office workersothersetc...Were taken into consideration. It has beenseenthat high value(i.e. 48pts.)Was indriversastheyhaveelevatedASCVDriskwhencomparedwithothers.

4. DISTRIBUTIONOFPATIENTSBASEDONSOCIALHISTORY



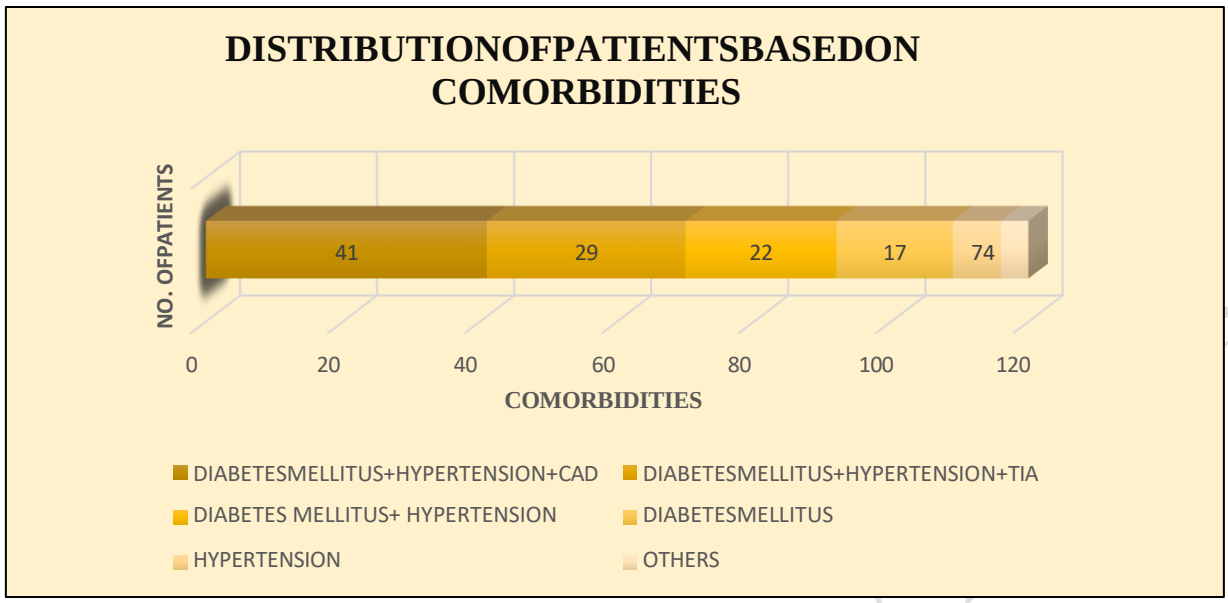
Itcanbeseeninabovetablethatthesocialhistorywasstudiedofpatients.NumberofpatientWho smokes are total 34, Number of patients who has the socio history of alcoholism are total 22, Numberofpatientswithtobaccochewinghistoryare14andpatientwithnosociohistoryaretotal 50 in number.

5. DISTRIBUTIONOFPATIENTSBASEDONDEPARTMENT



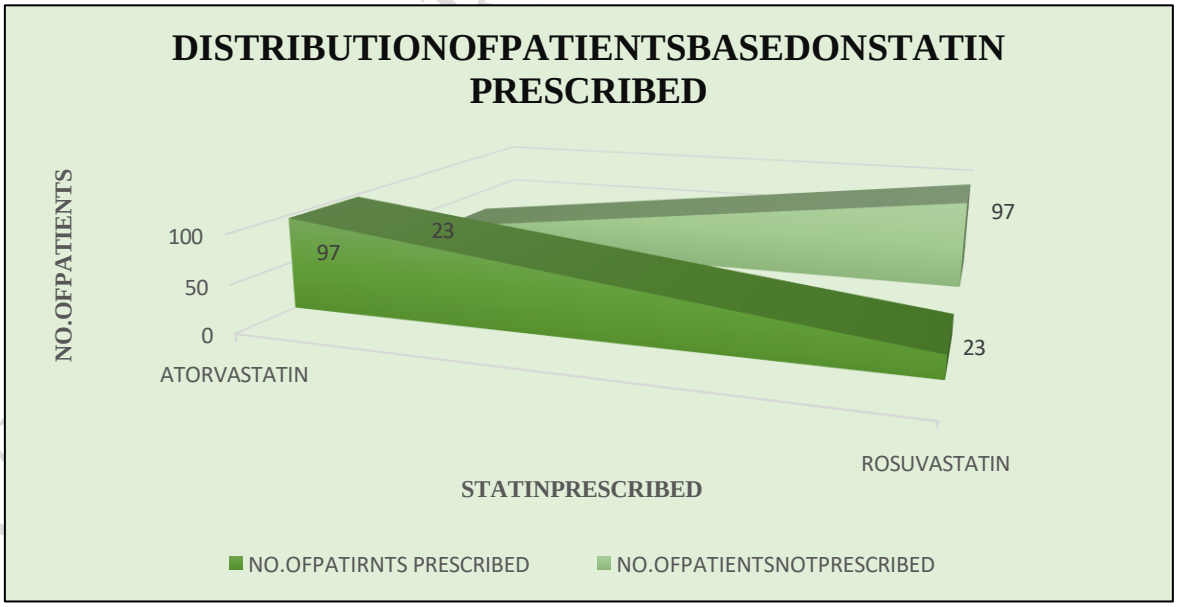
Casetypeofpatient wasinvolved inthestudyandcompared,patient withhistoryofcardiac issue and neuro issue was studied. Where distribution of80 patients with cardiac issue and 40 number ofpatients with neuro was seen. High value was recorded in the patient having cardiac history.

6. DISTRIBUTIONOFPATIENTSBASEDONCOMORBIDITIES



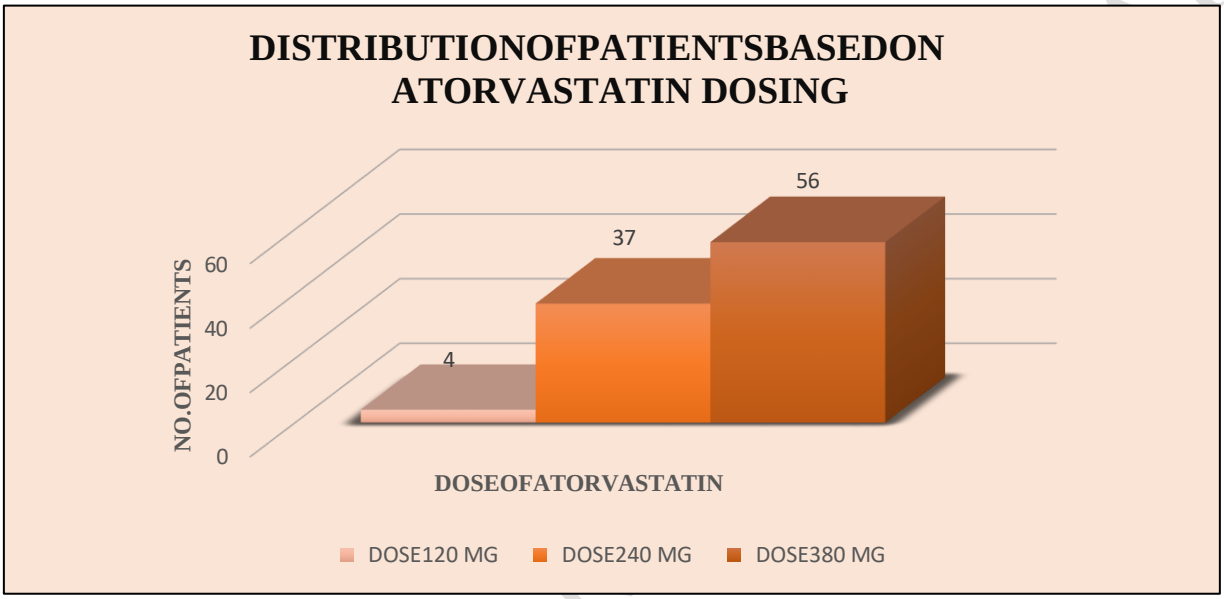
As we can see in above table patients medical historywas seen. Were patient with DM +HTN + CAD historywas total41 in number. Patient with DM + HTN were 22 in number, pt. only with DMwas17innumberandpt. withHTNwere7innumbers. Lesscasesarecordedinpatient with only historyofhypertensionandmorecaseswererecordedinpatientwithhistoryofDM+HTN +CAD.

7. DISTRIBUTIONOFPATIENTSBASEDONSTATINPRESCRIBED



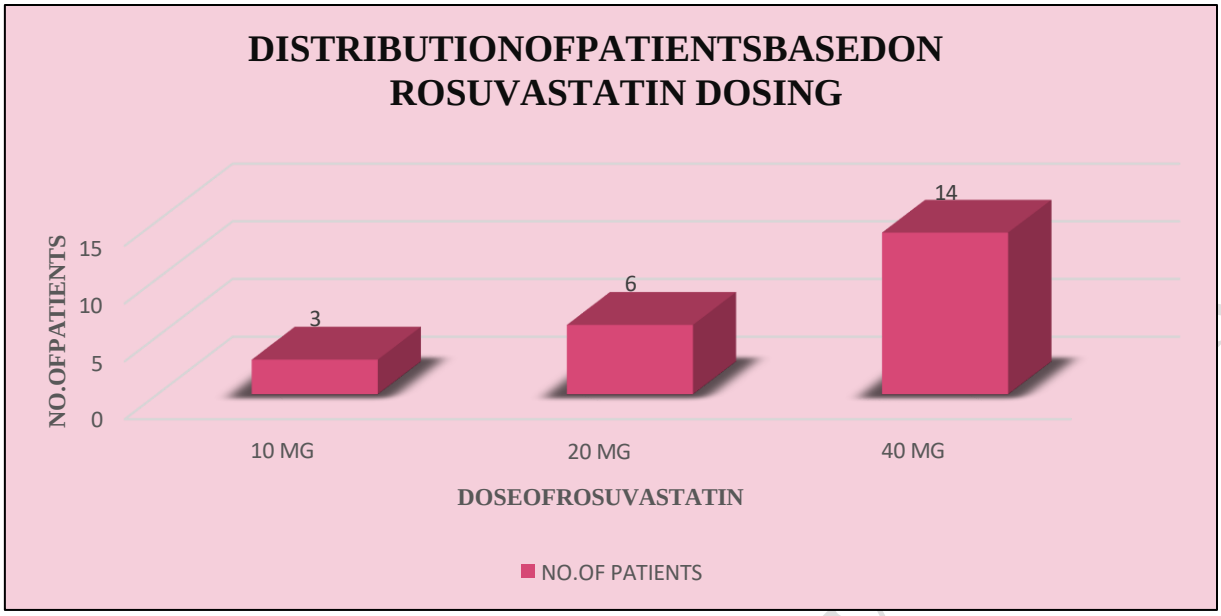
Theaboveparagraphshowthattheincludedpatientsin theResearchdependsonthetypeofstatin therapy being administered, the 2 drugs prescribed were compared from the class of statin. Atorvastatin was prescribed to 97 patients and rosuvastatin was prescribed to 23 patients. Atorvastatin was prescribed more to patients when compared with rosuvastatin

8. DISTRIBUTIONOFPATIENTSBASEDONATORVASTATINDOSING



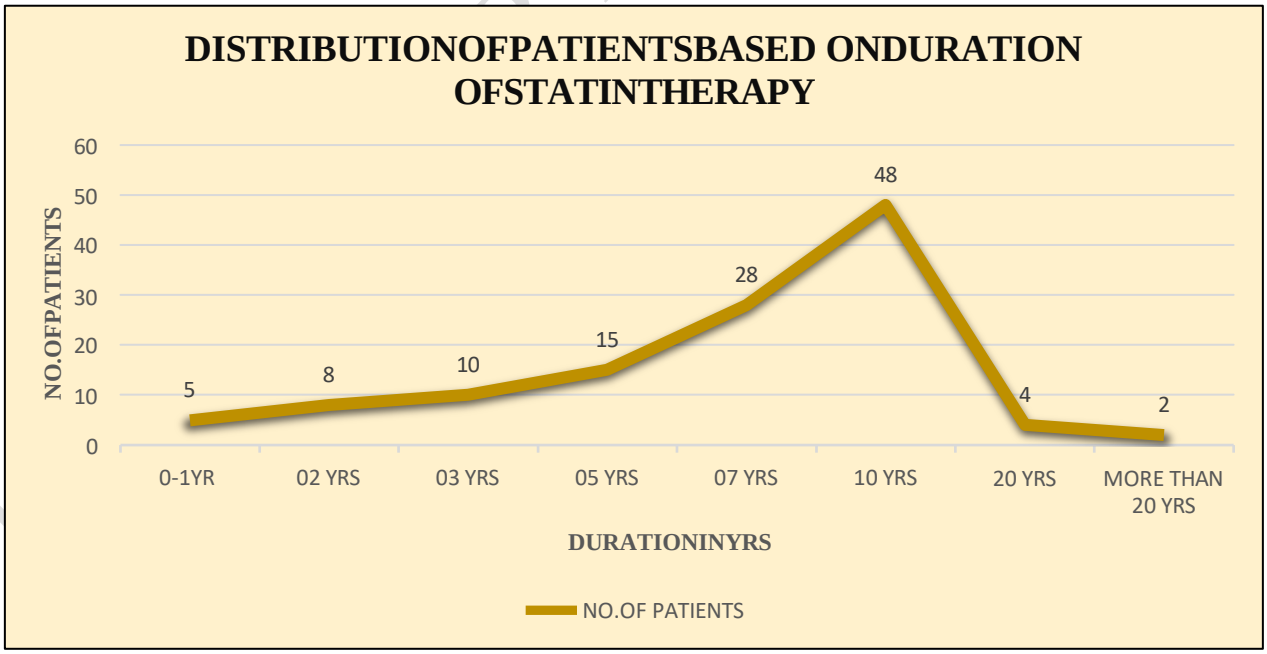
Theobservationalstudieswereseenbasedondosemanagementofatorvastatin.Patient prescribed with atorvastatin with the dose of 80 mg in total 56 patients and with dose of 40 mg in total 37 patientAnddoseof20mgwereprescribedtoonly4patients.Patientwithdosingofan80mgwas prescribed more and 20 mg atorvastatin drug was less prescribed to patients.

9. DISTRIBUTIONOFPATIENTS BASEDON ROSUVASTATINDOSING



Observational studies were seen based on dose management of rosuvastatin. 14 patients were prescribed withthe dose of40 mg rosuvastatin, 6 patientswere prescribed withdose of20 mg, 3 patients were prescribed with dose of10 mg. Dose of40 mg rosuvastatin Was more prescribed.

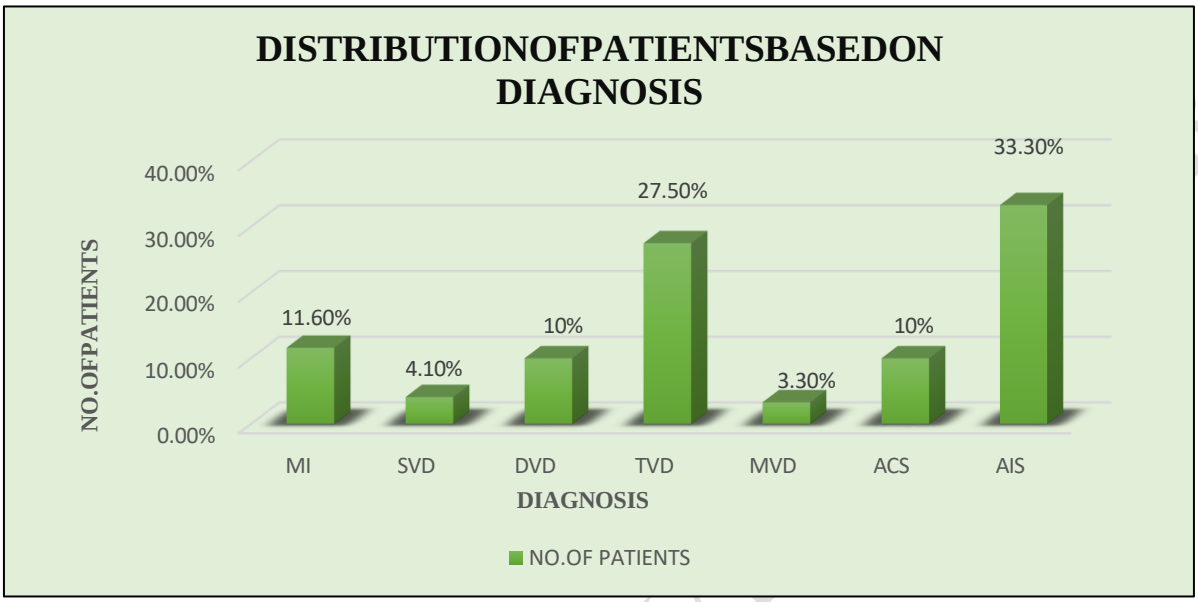
10. DISTRIBUTIONOFPATIENTSBASEDONDURATIONOFSTATINTHERAPY



Thesamplesizeaboveshowsthedurationi.e.sincehowlongthepatientisbeingonstatintherapy. Acomparisongraphcanbeseenwere5patientswereseenonstatintherapyforoneyear,8patients

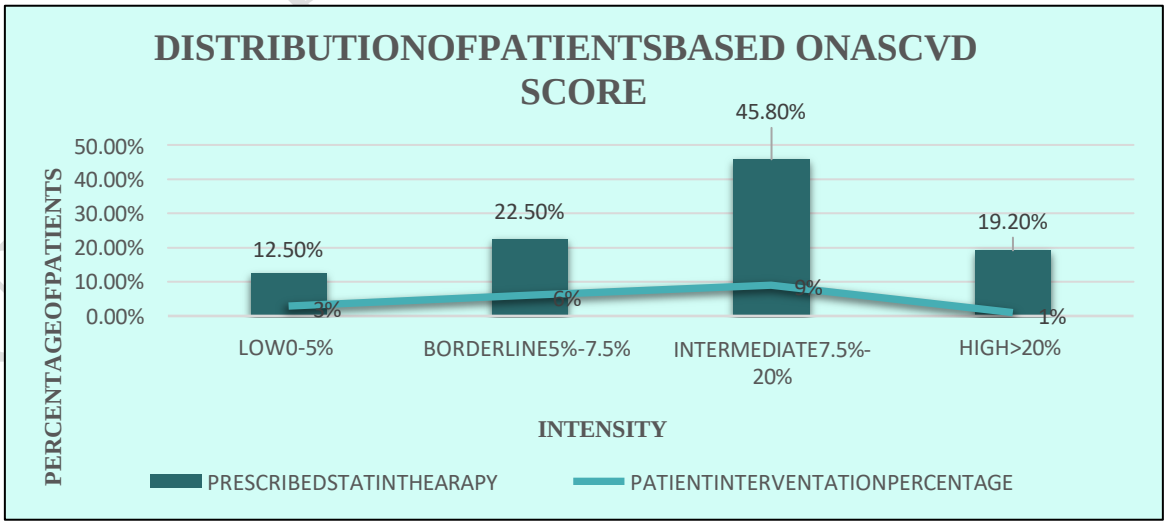
for 2 years, 10 patientsfor 3 years, 15 patientsfor5 years, 28 patientsfor 7years, 48patientsfor 10 years, 4 patients for 20 years, only2 patients who has beenonstatintherapyfor morethan20 years.

11. DISTRIBUTIONOFPATIENTSBASEDONDIAGNOSIS



Theresearchwasproceededbasedonpatient'sdiagnosis.Diagnosiscriteriaseenweremyocardial infraction (MI) , Single vessel disease (SVD), Double vessel disease (DVD), Triple vessel disease(TVD),Microvasculardisease(MVD),acutecoronarysyndrome(ACS),acuteischemic stroke(AIS).Highest percentage i.e. 33.3%PatientswerediagnosedwithAISAnd lesspatients were diagnosed with SVD i.e. 4.1%

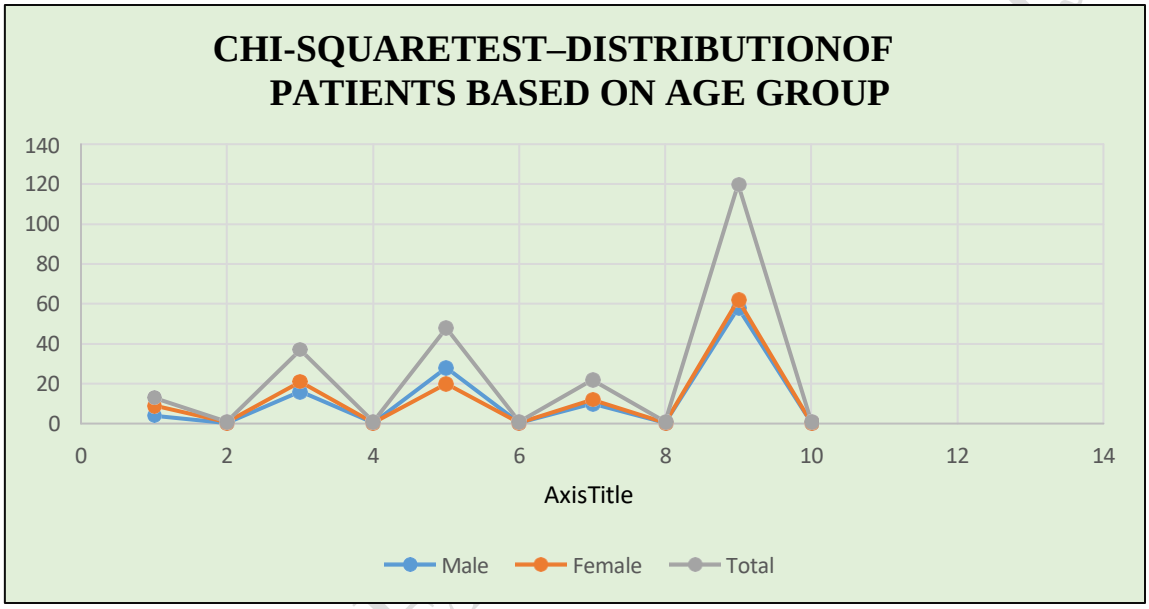
12. DISTRIBUTIONOFPATIENTSBASEDONASCVDSCORE



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. Lowrisk12.5%(15pt.) 12. Borderlinerisk22.5%(27pt.) .Intermediaterisk45.8(55pt.)4. High risk 19.2% (22pt.).

13. CHI-SQUARETEST– DISTRIBUTIONOFPATIENTSBASEDONAGEGROUP



Thereisno statisticallysignificantassociationbetweenagegroupsandgender.

DISCUSSION

- Fromthesamplesizeof120patient,numberofmale Individualswerediscoveredtobe78 (65%)andFemalepatientswere42(35%).Hencebelowstudyshowshighercountinmale patient.
- Thestudyofdistributionofpatient basedonage.Recordedagecriteria wasbetween30to 79yrs.Below30yearsandPatientsolderthan79yearswereexcluded fromthecriteriaor 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 Individualswitha historyofchewing tobacco are14 and patient with no socio historyare total 50 in number.
- Casetypeofpatientwasinvolvedinthestudyandcompared,patientwithhistoryofcardiac 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 + HTNwere22innumber, patientsonlywithDMwas17innumberandpatientswithHTN were 7innumbers. Less cases a recorded inpatient withonlyhistoryofhypertensionand 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 fromthe 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 prescribedwithatorvastatinwiththedoseof80mg intotal56patientsandwithdoseof40 mg in total37 PatientAnd dose of20 mg were prescribed to only 4 patients. Patient with dosing ofan80 mg was prescribed more and 20 mg atorvastatindrug was less prescribed to patients.
- Observational studies were seen based on dose management of rosuvastatin. 14 patients werePrescribedwiththedoseof40mgrosuvastatin,6patientswereprescribedwithdose of20mg, 3Patientswereprescribedwithdoseof10mg. Doseof40 mgrosuvastatinWas more prescribed
- Thesamplesizeaboveshowsthedurationi.e.sincehowlongthepatient isbeingonstatin therapy.Acomparisongraphcanbeseenwere5patientswereseenonstatinTreatment for a duration of one year therapy. 8 Patients for 2 years,10 patients for 3 years , 15 patients for5years,28patientsfor7years,48Patientsfor10years,4patientsfor20years,only2 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 myocardialInfraction(MI),Singlevesseldisease(SVD),Doublevesseldisease(DVD), Triple vesselDisease(TVD),Micro vasculardisease(MVD),acutecoronarysyndrome (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 onASCVD score, Patient with risk associated toASCVD 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 %.

- Total120patientshastakeninstudyofstatindosingbyusingASCVDscoreestimatortool (https://tools.acc.org/ascvd-risk-estimator) based on all factor including pathological and physiological factor patients are taking under 4 intensities
    - Lowrisk12.5%(15pt.)2.Borderlinerisk22.5%(27pt.)3.Intermediaterisk45.8 (55 pt.)4.Highrisk19.2% (22pt.).

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