ORIGINAL RESEARCH PAPER

Volume-7 | Issue-8 | August-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PATTERN OF STATIN PRESCRIPTION – A COMPARISON WITH THE GUIDELINE

General Medicine

Jeswin Jacob* Pharm D, National College of Pharmacy, KMCT group of institutions, Manassery P.O, Mukkam, Calicut *Corresponding Author

Major Jog Antony Professor, Department of General Medicine, KMCT Medical College, Manassery P.O, Mukkam, Calicut

Haripriya Babu Pharm D, National College of Pharmacy, KMCT group of institutions, Manassery P.O, Mukkam, Calicut

Anjali Kuriakose Pharm D, National College of Pharmacy, KMCT group of institutions, Manassery P.O, Mukkam, Calicut

Shyma Thangal Pharm D, National College of Pharmacy, KMCT group of institutions, Manassery P.O, Mukkam, Calicut

ABSTRACT

OBJECTIVE: To compare the prescribing pattern of statin in our hospital set up with the standard ACC/ AHA guideline

KEYWORDS

INTRODUCTION[1]

The American College of Cardiology (ACC) and the American Heart Association (AHA) clinical practice guideline was developed for assessment of cardiovascular risk, lifestyle modifications, management of blood cholesterol, and management of overweight and obesity in adults. The management of cardiovascular risk was achieved by managing cholesterol in hypercholesterolemic patients, thus improving quality of life. Hypercholesterolemia is the elevation of cholesterol in blood, i.e, the baseline LDL cholesterol is ≥130 mg/dL. The members of the Expert Panel acknowledge that a higher low-density lipoprotein cholesterol (LDL-C) level is associated with greater risk of ASCVD. Hence, lowering cholesterol level is significant in reducing ASCVD events.

Statins or HMG CoA reductase are a class of drug that lower cholesterol levels by inhibiting the enzyme HMG CoA reductase, which plays a central role in the production of cholesterol in the blood. Statins compete with HMG-CoA for binding to the reductase to prevent the synthesis of mevalonate and, finally, cholesterol. Statins have become vital drug in preventing the occurrence of atherosclerotic cardiovascular disease (ASCVD) by managing the lipid profile of patients.

The main goal of the ACC/ AHA is to prevent cardiovascular diseases, its causes and thus improve the management of people who have these diseases through professional education and research. This is a comprehensive guideline for the evidence-based treatment of blood cholesterol to reduce ASCVD risk. This guideline is based on a set of datas from RCTs from which 4 statin benefit groups were identified that helps to reduce ASCVD events. The Expert Panel was unable to find RCT evidence to support continued use of specific LDL-C or non–HDL-C treatment targets, however, it suggests the use of appropriate intensity statin therapy to reduce ASCVD risk. It also recommends a discussion between clinicians and patients before initiating statin therapy.

The guideline classifies statins into three classes as high-, moderate- and low-intensity statins.

MATERIAL AND METHODS

This prospective observational interventional study was conducted in ≥ 150 subjects within a time period of 6 months at the General Medicine department of a 500 bedded tertiary care teaching hospital from November 2016- April 2017. The entire study was designed to conduct in three phases, where in phase 1, ethical approval was obtained and detailed literature review was conducted. In phase 2, subjects were enrolled and the prescription pattern according to ACC/AHA guideline was evaluated. In phase 3, the data was analysed and documented.

STUDY PROCEDURE

On obtaining permission from IEC, study began with data collection. 150 patients from OP and IP were enrolled during the study period based on the inclusion criteria. They were informed about the study and the subjects signed the informed consent beforehand. Patient's details were transcribed on data entry form which comprises demographic details, social habits, patient medical and medication history, duration of statin therapy, laboratory cholesterol values and drugs prescribed. It was then compared with the ACC/AHA guideline.

STATISTICS

Evaluation of prescription pattern according to ACC/AHA guidelines was done using statistical methods like Statistical Package for Social Science version 20 (SPSS), chi square test and paired t test.

RESULTS

ADHERENCE GROUP

The study revealed that our hospital is in adherence to ACC/AHA guideline for treating hypercholesterolemic patients. Results showed prescription in our hospital setup follow ACC/AHA guidelines for 117 patients out of 150.

NON ADHERENCE GROUP

However, 3.4% of study population were not treated according to the ACC/AHA guideline. This deviation may have occurred due to the patient physical, mental or comorbid condition.

UNCATEGORISED GROUP

33 hypercholesterolemic patients were excluded from guideline analysis as they could not be categorised into any category and these patients were treated accordingly with statins, taking their lipid profile and other comorbid conditions into account.

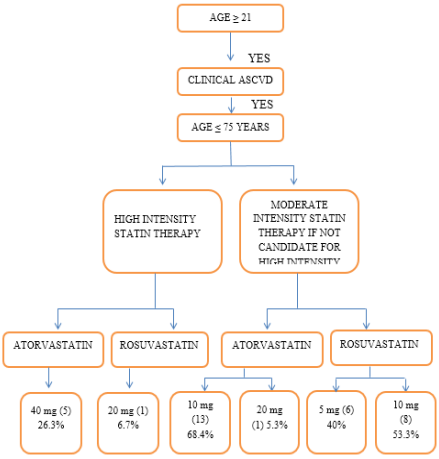

Chart No : 1

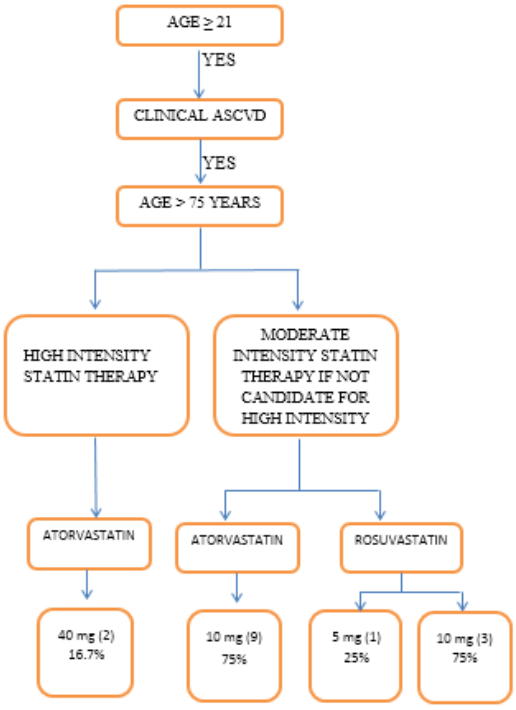

Chart No : 2

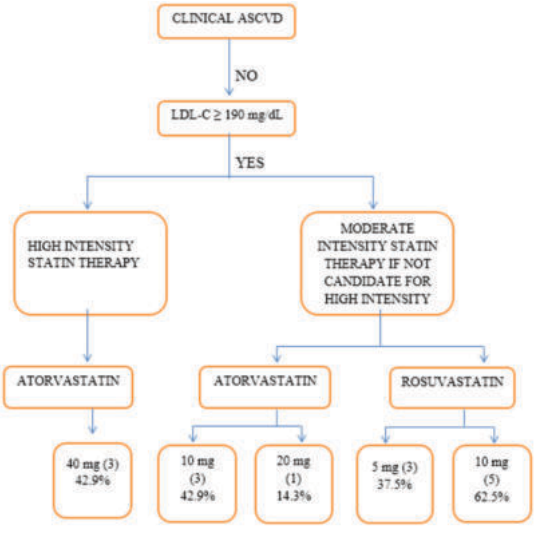

Chart No : 3

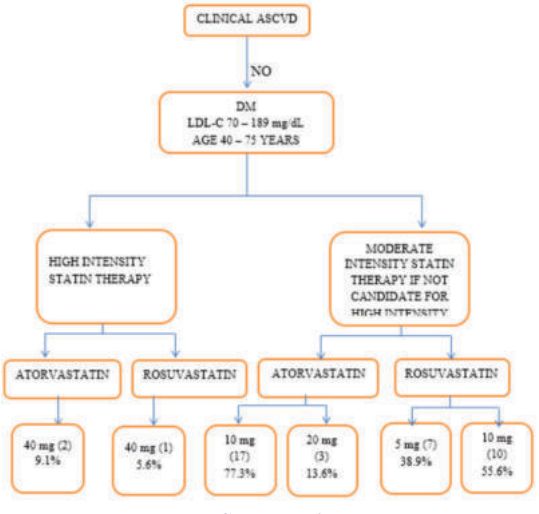

Chart No : 4

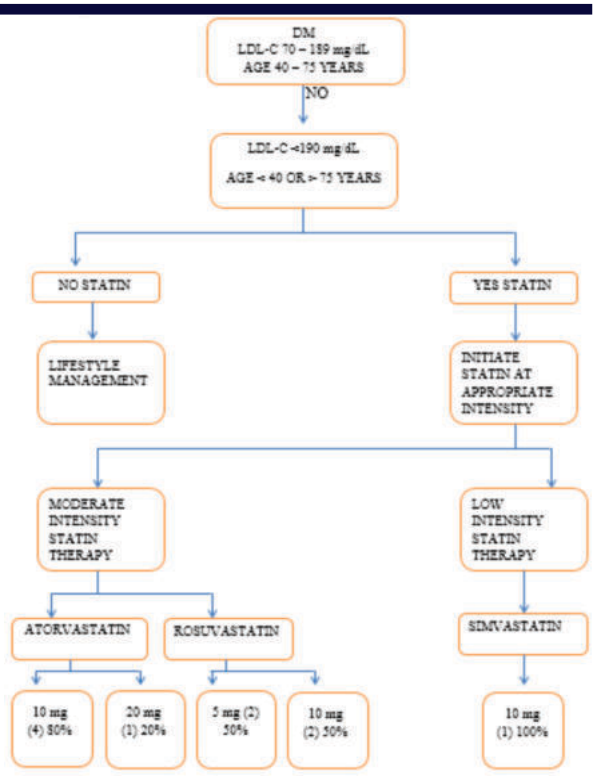

Chart No : 5

This study revealed that, for patients 75 ≤ age ≥ 21, with clinical ASCVD, high intensity statin; Atorvastatin 40 mg was given to 26.3% (n=5) and Rosuvastatin 20 mg was given to 6.7% (n=1). Whereas, moderate intensity; Atorvastatin 10 mg was given to 68.4% (n=13), Atorvastatin 20mg was given to 5.3% (n=1), Rosuvastatin 5 mg was given to 40% (n=6), Rosuvastatin 10 mg was given to 53.3% (n=8).

For patients with age ≥ 21 with clinical ASVD, Atorvastatin 40 mg, 10 mg and Rosuvastatin 5 mg, 10 mg was given to 16.7% (n=2), 75% (n=9), 25% (n=1) and 75% (n=3) respectively.

Taking patients without clinical ASCVD and LDL ≥ 190mg/dL into consideration, Atorvastatin 40 mg, 20 mg, 10 mg and Rosuvastatin 5 mg, 10 mg was given to 42.9% (n=3), 14.3% (n=1), 42.9% (n=3), 37.5% (n=3) and 62.5% (n=5) respectively.

For patients with clinical ASCVD with DM, LDL between 70-189 mg/dL and age between 40-75 years, Atorvastatin 40 mg, 20 mg, 10 mg and Rosuvastatin 5 mg, 10 mg, 40 mg was given to 9.1% (n=2), 13.6% (n=3), 77.3% (n=17), 38.9% (n=7), 55.6% (n=10) and 5.6% (n=1) respectively.

CONCLUSION

This prospective observational interventional study revealed that the cholesterol control rates with statins are good and the most favoured therapy was monotherapy using atorvastatin. The prescription pattern was in accordance with the standard ACC/AHA guidelines.

REFERENCE

1. ACC/ AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults, Circulation. 2014; 129 (suppl 2) :S1-S45
2. Yunsheng Ma et al. Randomised trial of a pharmacist-delivered intervention for improving lipid-lowering medication adherence among patients with coronary heart disease. Cholesterol 2010 Jun 21; 11 pages.
3. Third report of the National Cholesterol Educational Program (NCEP) Expert Panel on Detection, Evaluation and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report, Circulation, Vol. 106, no.25, pp3143-3421, 2002.
4. KD Tripathi, Essentials of Medical Pharmacology, 7th edition, pg 634 – 638.
5. Leon Shargel, Alan H. Mutnick, Paul F. Souney, Larry N. Swanson, et al, Comprehensive Pharmacy Review, 8th edition, pg no.566 – 570.
6. Clinical pharmacy and therapeutics by Roger Walker and Cate Whittlesea, fifth edition, pg no: 393-406.
7. Barbara G Wells, Joseph T. Dipiro et al, Pharmacotherapy Handbook, edition 9, pg 65 – 74.
8. Ridker P. Rosuvastatin in the Primary Prevention of Cardiovascular Disease among Patients with Low Levels of Low-Density Lipoprotein Cholesterol and Elevated High-Sensitivity C - reactive protein. Rationale and Design of the JUPITER Trial 2003;108(19):2292-2297
9. Benner J, Glynn R, Mogun H, Neumann P, Weinstein M, Avorn J. Long-term persistence

in use of statin therapy in elderly patients. ACC Current Journal Review. 2002; 11(6):36.
10. Hiro T, Kimura T, Morimoto T, Miyauchi K, Nakagawa Y, Yamagishi M et al. Effect of Intensive Statin Therapy on Regression of Coronary Atherosclerosis in Patients With Acute Coronary Syndrome. Journal of the American College of Cardiology. 2009;54(4):293-302
11. Grundy S, I. Cleeman J, Merz C, Brewer H. Implications of Recent Clinical Trials for the National Cholesterol Education Program Adult Treatment Panel III Guidelines. Circulation. 2004; 110(2):227-239.
12. Virani S, Woodard L, Ramsey D, Ballantyne C, Petersen L. Is high-dose statin therapy associated with lower statin adherence compared with low-dose statin therapy an analysis from a national cohort. Journal of the American College of Cardiology. 2014; 63(12):A1452.
13. Phrommintikul A, Chinwong D, Patumanond J, Chinwong S, Siriwattana K, Gunaparn S et al. Statin therapy in patients with acute coronary syndrome: low-density lipoprotein cholesterol goal attainment and effect of statin potency. Therapeutics and Clinical Risk Management. 2015;127.
14. Waters D, Higginson L, Gladstone P, Kimball B, Le May M, Boccuzzi S et al. Effects of monotherapy with an HMG-CoA reductase inhibitor on the progression of coronary atherosclerosis as assessed by serial quantitative arteriography. The Canadian Coronary Atherosclerosis Intervention Trial. Circulation. 1994;89(3):959-968.
15. Lefer A. Vascular effects of HMG CoA-reductase inhibitors (statins) unrelated to cholesterol lowering: new concepts for cardiovascular disease. Cardiovascular Research. 2001;49(2):281-287.
16. Larsen J, Andersen M, Kragstrup J, Gram L. High persistence of statin use in a Danish population: Compliance study 1993-1998. British Journal of Clinical Pharmacology. 2002;53(4):375-378.
17. Nissen S, Nicholls S, Sipahi I, Libby P, Raichlen J, Ballantyne C et al. Effect of Very High-Intensity Statin Therapy on Regression of Coronary Atherosclerosis. JAMA. 2006;295(13):1556.
18. Evaluation of prescription pattern of psycholeptic medications at hospital discharge for patients with cardiovascular diseases in national cardiovascular disease hospital of Bangladesh. Journal of Applied Pharmaceutical Science. 2017.
19. ACC/AHA/NHLBI Clinical Advisory on the Use and Safety of Statins. Writing Committee Members: Richard C. Pasternak, MD, FACC, FAHA; Sidney C. Smith, Jr, MD, FACC, FAHA; C. Noel Bairey-Merz, MD, FACC; Scott M. Grundy, MD, PhD, FAHA; James I.