

INDICATIONS OF PRESCRIPTION OF STATINS IN TERTIARY CARE CENTRE OF NORTH INDIA

Dr Shilpa Atwal¹, Dr Jitender Thakur²

¹Junior Resident, PGIMER, Chandigarh

²Senior Resident, SLBS Medical College, Ner Chowk

Article Info: Received 07 December 2021; Accepted 04 January 2022

DOI: <https://doi.org/10.32553/ijmbs.v6i1.2392>

Corresponding author: Dr. Jitender Thakur

Conflict of interest: No conflict of interest.

Abstract

Background: To determine the indications for which statins are being prescribed

Methods: Study was conducted on Patients with indications for statins presenting to cardiology OPD, Medicine OPD and Endocrinology OPD and started on statins at PGIMER, Chandigarh, within a period of 9 months.

Results: In our study, out of 243 prescriptions, 55.1%(n=134) were prescribed statins for secondary prevention and 44.9%(n=109) had statins prescribed for primary prevention. Overall coronary artery disease (37.03%) was the leading indication followed by Diabetes mellitus without ASCVD(70.64%). Other indications of secondary prevention included newly diagnosed statin naïve patients diagnosed with stable coronary artery disease ,unstable coronary artery disease /acute coronary artery disease , ischemic cardiovascular accidents and peripheral arterial disease .64.22 percent patients in primary prevention group were diabetics in our study .

Concluded: We concluded that secondary prevention was found to be the more common indication of statin prescription than primary prevention (ratio 1.22:1).

Keywords: Statin, CAD, Prevention

Introduction

Hydroxymethylglutaryl-CoA (HMG-CoA) reductase inhibitors, or statins, lower total cholesterol, low-density lipoprotein (LDL), and triglyceride concentrations while increasing high-density lipoprotein (HDL) concentrations. Clinicians have long used statin medications for the treatment of hypercholesterolemia, hyperlipoproteinemia, and hypertriglyceridemia as an adjunct to diet and exercise. The primary use of these agents is for the primary and secondary prevention of coronary artery disease. The approved FDA indications vary slightly between the medications in this class but, in general, have recommendations for the treatment of atherosclerosis, myocardial infarction prophylaxis, and stroke prophylaxis. The choice of agent should have its basis on patient-specific characteristics, the pharmacokinetic profiles of each medication, and the 2013 American College of Cardiology/American Heart Association (ACC/AHA) Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults.¹⁻³

Material and Methods

Study Area:

Patients with indications for statins presenting to cardiology OPD, Medicine OPD and Endocrinology OPD and started on statins at PGIMER, Chandigarh, within a period of 9 months.

Time Period:

The study was conducted for 6 months in Cardiology OPD, Medicine OPD Endocrinology OPD and follow up was done for 3 months (from December 2018 to August 2019).

Type of Study:

Descriptive cross-sectional for both primary and secondary objectives.

Study population:

Patients with indications for statins being prescribed statins at Cardiology, Medicine and Endocrinology OPD PGIMER, Chandigarh

Study Subjects and Sample Size:

320 patients of both sexes and all ages with indications for statins being prescribed statins during the study period were chosen as cases.

Clinical records of all cases were reviewed for indications of statins and lipid profile was done at baseline and after 3 months in all the subjects to study the response to statin therapy.

Inclusion Criteria:

1. Patients with indications of statins for primary prevention according to AHA 2018 guidelines who are not on statins or have been receiving statins for not more than one month.

- Patients receiving statins for secondary prevention of ASCVD, who are not on statins or have been receiving statins for not more than one month.

Exclusion Criteria:

- Patients with contraindications to statins (deranged LFTs: AST/ALT more than 5 times ULN).
- Patients with ESRD /renal failure.
- Patients who didn't give consent.
- Patients lost to follow up.
- Patients having mortality during the study period.
- Patients who are already on statins for more than 1 month.

Results

There were 109 patients receiving prescription of statins for primary prevention (109 patients). The common indications for prescription of statins in primary prevention group were people aged 40-75 years with diabetes mellitus and LDL between 70-189 mg/dl, individuals with LDL >190 mg/dl, individuals aged 40-79 years with LDL between 70-189 mg/dl and 10 year ASCVD risk score more than 7.5%. The most common indication for statin prescription in primary group was diabetes mellitus without ASCVD (n=70) (64.22%). There were 18 (16.51%) patients with primary dyslipidemia, 12 (11%) patients in age group 40-79 without diabetes mellitus who were prescribed statins for primary prevention with or without ASCVD/other risk score calculation, 3 (2.7%) patients with obesity, 2 (1.8%) patients with osteoporosis, 2 (1.8%) patients with thyroid disorders, 2 (1.8%) patients with family history of premature ASCVD prescribed statins in primary prevention group.

Table 1: Frequency table showing indications for primary prevention of ASCVD

Indications	No. of patients (n=109)	Percentage (%)
DM without ASCVD complications (LDL>70mg/dl) (age 40-75 years)		64.22
Primary dyslipidemia (LDL ≥189MG/dl)	18	16.51
40-79 years of age with LDL>70mg/dl and risk factors for ASCVD	12	11.00
Obesity	3	2.7
Osteoporosis	2	1.8
Thyroid disorders	2	1.8
Family history of premature ASCVD	2	1.8

Data are presented as number (percentage). Abbreviations: DM, diabetes mellitus; LDL, low density lipoprotein; ASCVD atherosclerotic cardiovascular disease.

In our study, secondary prevention was the most common indication for prescription of statins (134 patients). In the secondary prevention group, only statin naïve patients were taken. There were 34 patients with first episode of acute coronary syndrome, 90 patients with newly diagnosed coronary artery disease, 6 patients with peripheral arterial disease and 4 patients with ischemic stroke.

Table 2: Frequency table showing indications for secondary prevention of ASCVD

Indications	No. of patients (n=134)	Percentage (%)
Acute coronary syndrome	34	25.37
Coronary artery disease	90	67.15
Ischemic CVA	4	2.98
Peripheral arterial disease	6	4.47

Data are presented as number (percentage). Abbreviations: CVA, cerebrovascular accident

Discussion

In our study, out of 243 prescriptions, 55.1% (n=134) were prescribed statins for secondary prevention and 44.9% (n=109) had statins prescribed for primary prevention. That is secondary prevention was found to be the more common indication of statin prescription than primary prevention (ratio 1.22:1). Overall coronary artery disease (37.03%) was the leading indication followed by Diabetes mellitus without ASCVD (70.64%). Other indications of secondary prevention included newly

diagnosed statin naïve patients diagnosed with stable coronary artery disease, unstable coronary artery disease

/acute coronary artery disease, ischemic cardiovascular accidents and peripheral arterial disease. 64.22 percent patients in primary prevention group were diabetics in our study. The reason could be that most of the patients in primary prevention were recruited from endocrinology OPD. Other indications were primary dyslipidemia (16.51%), obesity (3.6%). There were 5 patients (4.5%) in age group 40-79 who were prescribed statins for primary

prevention without ASCVD/other risk score calculation. Other indications were obesity (3.6%), osteoporosis (2.7%) and thyroid disorders (2.7%). This finding was consistent with the study by Anju Prasad *et al* in Cuttack in which 107(53.5%) were prescribed statins for secondary prevention and 93(46.5%) patients were prescribed statins for primary prevention (ratio was 1.15:1)⁴. Our study was in accordance with a study by Sreedevi *et al*⁵, in which out of 306 prescriptions containing statins, 279 prescriptions had cardiovascular disease as the indication for prescription and the next most common indication was Diabetes Mellitus (199 prescriptions). Rest of the indications were thyroid disease, osteoporosis and renal insufficiency.⁵ Our finding was also consistent with a study by Sangeetha Raja *et al*⁶ where prescription slips of patients coming to Medicine OPD were analysed for hypolipidemic drugs in a tertiary care centre of south India in which a total of 506 prescriptions of hypolipidaemic drugs were evaluated. In this study, Diabetes with hypertension (37%) was the most common disease for which hypolipidaemic drugs were prescribed.⁶ Our study was also consistent with study by Sudhram *et al*⁷ most in which common in indication of statin prescription was hypertension with diabetes (37%) of patients followed by HTN alone (21.2%) and diabetes alone (21%).⁷ Our study is also in concordance with a study on prescription patterns by Arul *et al*⁸ in tertiary care hospitals in Tamil Nadu where CAD was found to be the most common indication for secondary prevention (33%) followed by dyslipidemia (16.5%), HTN (13.5%), MI (10%), Angina (6.5%).⁸

Conclusion

We concluded that secondary prevention was found to be the more common indication of statin prescription than primary prevention (ratio 1.22:1).

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