

Aggressive lipid-lowering treatment in Managed Care after Acute Myocardial Infarction (MC-AMI) patients: Results better but still not satisfactory. A single-center prospective analysis

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DOI: 10.33963/v.kp.98143

Received:

September 26, 2023

Accepted:

November 6, 2023

Early publication date:

November 29, 2023

INTRODUCTION

Managed Care in Acute Myocardial Infarction (MC-AMI) is a program aimed at comprehensive, scheduled, and supervised care for patients with AMI to improve their long-term prognosis [1]. The high risk of cardiovascular complications within the first months after MI is attributable to several factors including incomplete revascularization, insufficient utilization of implantable devices, poor access to cardiac rehabilitation, and inadequate control of cardiovascular risk factors due to lack of scheduled outpatient cardiology care [2, 3]. Despite ESC recommendations for secondary cardiovascular disease prevention, the real-world data show that there is still much to do with regard to post-MI care and coordination of all the key elements of post-MI care [4, 5]. The novelty of the MC-AMI approach is execution of all the guideline-recommended therapeutic interventions, which are normally available within the healthcare system, but hardly followed accurately.

It has already been demonstrated that participation in MC-AMI improves short-term [6] and long-term prognosis [7–9]. However, contribution of particular MC-AMI components in the final effect is still being evaluated.

A reduction of low-density lipoprotein cholesterol (LDL-C) is a crucial intervention in both primary and secondary prevention of cardiovascular events [10]. The 2021 ESC guidelines recommend a stepwise approach in patients with established atherosclerotic cardiovascular disease with an LDL-C goal of

<70 mg/dl in the first and <55 mg/dl in the second step [11].

This prospective study aimed to assess the effect of scheduled, 2-step, aggressive lipid-lowering therapy in patients after myocardial infarction participating in MC-AMI.

METHODS

This was a prospective analysis from a single, high-volume, tertiary cardiology care center (Upper Silesian Medical Center, Medical University of Silesia in Katowice, Poland). The study group consisted of 160 consecutive subjects diagnosed with AMI from January to June 2023 who were qualified for ambulatory cardiac rehabilitation in our center and consented to participate in MC-AMI. A detailed description of the MC-AMI program is available in our previous reports [6–9].

Lipid profiles, including total cholesterol, LDL-C, high-density lipoprotein cholesterol, and triglycerides were assessed during MI hospitalization. In all patients, high-intensity statin (atorvastatin 40–80 mg, rosuvastatin 20–40 mg) was introduced at index hospitalization unless contraindicated or the LDL goal was already reached. During the 6-week cardiac rehabilitation program, patients received additional dietary and lifestyle modification counseling. The lipid profiles were reassessed at 6 and 12 weeks with respective interventions (continuation, intensification, or de-escalation of therapy).

The study protocol was approved by the Ethics Committee of the Medical University of Silesia in Katowice.

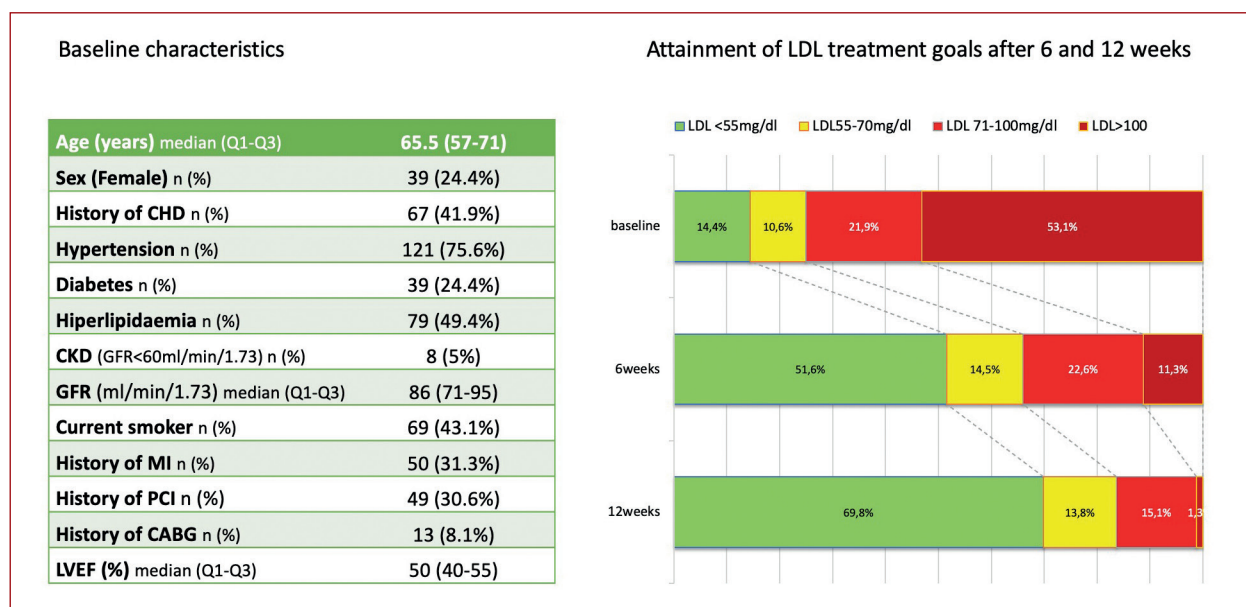


Figure 1. Baseline characteristics and attainment of LDL-C goals in 12-week observation. Baseline characteristics (left panel) and attainment of LDL-C goals at 6 and 12 weeks after myocardial infarction (right panel)
Values expressed as median (Q1–Q3) or n (%)

Abbreviations: CABG, coronary artery bypass grafting; CAD, coronary artery disease; CHD, coronary heart disease; CKD, chronic kidney disease; LDL, low-density lipoprotein cholesterol; LVEF, left ventricular ejection fraction; MI, myocardial infarction, PCI, percutaneous coronary intervention

Statistical analysis

Statistical analysis was performed with Statistica (StatSoft, Poland). Quantitative variables were specified as medians and interquartile ranges, whereas qualitative parameters were expressed as numbers and percentages. We used the Shapiro–Wilk test to check if continuous variables followed a normal distribution. The Friedman test along with the Nemenyi *post-hoc* test were used to compare dependent variables of non-normal distribution. Cochran's Q test was used for testing differences between frequencies.

A *P*-value of less than 0.05 was regarded as statistically significant.

RESULTS AND DISCUSSION

The baseline characteristics of the studied groups are shown in [Figure 1](#).

Patients were treated with atorvastatin ($n = 85$; 53%) and rosuvastatin ($n = 75$; 47%). High-intensity statin was introduced at the baseline in 89% of patients, and 32 patients (20%) received ezetimibe at index hospitalization.

Median baseline LDL-C was 102 mg/dl (68–135 mg/dl). It was reduced to 55 mg/dl (41–80 mg/dl) after 6 weeks and remained at 54 mg/dl (41–62 mg/dl) at 12 weeks ($P < 0.001$). At 6 weeks the statin therapy was intensified in 32% of subjects, continued in 61%, and deescalated in 7%. Ezetimibe was introduced in further 30 patients (38.8% of all subjects starting week 6).

At 12 weeks, almost 70% of subjects reached the LDL-C <55 mg/dl goal with only 2 patients (1.3%) not reaching the LDL-C goal <100 mg/dl. In 87% the therapy was continued,

in 4% — further intensification was required, and in 9% the treatment was de-escalated ([Figure 1](#)).

High-density lipoprotein cholesterol remained similar over the observation time. Triglyceride levels improved from 117 mg/dl (88.5–165.5 mg/dl) baseline to 93 mg/dl (82–120 mg/dl) at 12 weeks, $P < 0.001$.

The results in this prospective study show much better LDL-C control in post-AMI patients when the intervention and the goals are clearly defined, and the emphasis is put on executing the recommendations. Surprisingly, despite similar baseline LDL-C levels and similar characteristics of the study group, the effects of reaching LDL-C goals in our prospective study were much better than in the recent MC-AMI multicenter retrospective analysis, where only 20% of subjects attained LDL-C <55 mg/dl goal [12]. Similar data come from the POLASPIRE study [13] and the DA VINCI study [14]. Although our study was performed in a selected population of AMI patients (a higher proportion of more motivated patients willing to participate in the ambulatory cardiac rehabilitation program), our results show that better LDL-C control in secondary prevention is feasible. On the other hand, the results point out that despite all the efforts made and with the use of available treatment options, there are still 30% of patients who do not reach the LDL-C goal. This fact highlights the need for broader availability and applicability of PCSK9 inhibitors in secondary prevention, which currently are available only if LDL-C remains >100 mg/dl. In our cohort, this would only apply to 1.3% of patients leaving 29% without further options.

Article information

Conflict of interest: None declared.

Funding: None.

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