# Managed Care after Acute Myocardial Infarction (MC-AMI) — Poland's nationwide program of comprehensive post-MI care improves prognosis in 2-year follow-up. A single high-volume center intention-to-treat analysis

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***Editorial***
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## ABSTRACT

**Background:** Managed Care in Acute Myocardial Infarction (MC-AMI) is a program introduced in Poland aimed at comprehensive, scheduled, and supervised care for AMI patients to improve long-term prognosis.

**Aims:** Our study aimed to compare 24-month mortality and the incidence of major cardiovascular events (MACE: a composite of death, recurrent MI, and hospitalization for heart failure) in a cohort of AMI patients treated in the MC-AMI era (intention-to-treat analysis) vs. similar population treated before the MC-AMI era.

**Methods:** We analyzed 2323 consecutive patients with AMI: 1261 patients enrolled in the MC-AMI era (study group) and 1062 patients treated 12 months before the MC-AMI era (control group). In the study group, 57% of patients participated in MC-AMI while 43% of patients remained under standard care. The patients were followed up for 24 months. Mortality and MACE were recorded.

**Results:** Treatment in the MC-AMI era was related to a 30% reduction in all-cause mortality and a 14% reduction of MACE although it was not related to the reduction of hospitalization for heart failure (HF) or AMI in 24 months. The 24-month survival rate was the highest in MC-AMI enrolled patients while patients treated in the MC-AMI era but not enrolled had a similar prognosis to those treated before the MC-AMI era. Multivariable Cox regression analysis revealed the MC-AMI era to be inversely associated with mortality in 24-month follow-up (hazard ratio [HR], 0.49; 95% confidence interval [CI], 0.38–0.65; $P$ <0.001).

**Conclusions:** AMI treatment in the MC-AMI era reduces 24-month mortality and MACE. Moreover, AMI treatment in MC-AMI is inversely related to mortality, MACE, and hospitalization for HF. The effect is pronounced in patients enrolled in MC-AMI.

**Key words:** cardiac rehabilitation, cardiovascular prevention, intention-to-treat analysis, myocardial infarction, post-MI prognosis

## WHAT'S NEW?

Managed Care in Acute Myocardial Infarction (MC-AMI) is a program introduced in Poland and aimed at comprehensive, scheduled, and supervised care for patients with AMI to improve long-term prognosis. The novelty of MC-AMI is executing all the guideline-recommended therapeutic interventions, which are normally available within the healthcare system, but hardly ever followed accurately. In this intention-to-treat analysis, we showed that AMI treatment in the MC-AMI era ensures adverse events reduction lasting over time. The effect was the best among participants of the program, and every effort should be made to increase the still unsatisfactory proportion of non-participants who refuse to take part or are not offered this beneficial option.

## INTRODUCTION

Despite advances in the medical and interventional treatment of the acute phase of myocardial infarction (MI), its complications, particularly heart failure (HF), and sudden cardiac death remain a challenge for clinical cardiology.

A network of 160 interventional cardiology centers in Poland provides a 24/7 service for MI patients, performing 735 percutaneous coronary interventions per million inhabitants. This ensures low in-hospital mortality in the acute phase of MI, similar to what is observed in other European countries [1]. Yet, post-discharge mortality in AMI patients remains high and was recently reported to reach 9.8% during the first 12 months after discharge [2]. In Europe, according to the European Society of Cardiology (ESC) registries, the 1-year mortality rate is highly variable and ranges from 4% to 12%. These reports are similar to data from the US [3–5]. The studies suggest that efforts should focus on post-MI care and the secondary prevention of cardiovascular disease [6, 7].

A particularly high risk of complications and death within the first several months after MI is attributable to several factors. These include the lack of adequate lifestyle interventions, poor adherence to medical treatment, low access to cardiac rehabilitation (CR) programs, and poor access to scheduled outpatient cardiology care [8, 9]. Other factors include comorbidities, incomplete coronary revascularization, and insufficient utilization of implantable cardioverters-defibrillators (ICDs) and cardiac resynchronization therapy (CRT) in eligible post-MI patients [10–12]. Despite the 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 [13, 14].

The Managed Care after Acute Myocardial Infarction (MC-AMI; in Polish KOS-Zawal) is a program introduced in 2017 by the Polish Cardiac Society, National Health Fund, and Ministry of Health of Poland [15] and dedicated to patients with AMI. It includes diagnostic procedures and interventional therapy in the acute phase of MI, immediate or staged complete revascularization, cardiac rehabilitation, primary prevention of sudden cardiac death with implantation of ICD or CRT in eligible subjects, and 12-month scheduled outpatient cardiology-care follow-up [16]. Although these are all parts of regular state-of-the-art care for MI survivors, it has already been shown that participation in MC-AMI improves short-term [17] and 1-year prognosis [18]. Similar findings were confirmed in the most recent report analyzing the largest cohort so far (a total of 87 793 patients with AMI enrolled between October 1, 2017 and December 31, 2018; 10 404 MC-AMI participants compared to propensity score matched 10 404 AMI patients not treated in MC-AMI) with a follow-up of up to 18 months (mean 234 days) [19]. However, even though a population-wide study confirmed the effect of MC-AMI on a long-term prognosis [20], the question has been raised whether the program changes the scenario in the entire MI population or only in a fraction of well-selected participants and if the encouraging outcomes of the program are biased by the selection of participants, particularly by disqualifying the subjects with the highest risk.

## AIMS

The primary aim of the study was to compare 24-month mortality (primary endpoint) and the incidence of major adverse cardiovascular events (MACE, defined as a composite of death, recurrent myocardial infarction, and hospitalization for heart failure — secondary endpoints) in a cohort of MI patients treated in the era of MC-AMI (both MC-AMI participants and subjects not enrolled; intention-to-treat analysis) vs. similar MI population treated before MC-AMI was introduced.

The secondary aim was to identify predictors of death, MI, and hospitalization for heart failure in 24 months in the studied population.

## METHODS

This analysis is from a single, high-volume, tertiary cardiac care center (Upper Silesian Medical Center, Medical University of Silesia in Katowice, Poland) where MC-AMI was introduced as part of the nationwide strategy of post-MI treatment and secondary prevention. The study group enrolled and followed up prospectively consisted of all consecutive subjects diagnosed with AMI from November 1, 2017 to August 31, 2018, both those who consented to participate in MC-AMI and those who did not consent, or were not qualified for participation (intention-to-treat). Patients were followed up until November 30, 2019. The control group consisted of AMI patients who were hospitalized in our center 1 year before the introduction of the MC-AMI program. Data from medical records of all consecutive admissions with AMI diagnosis between November 1,

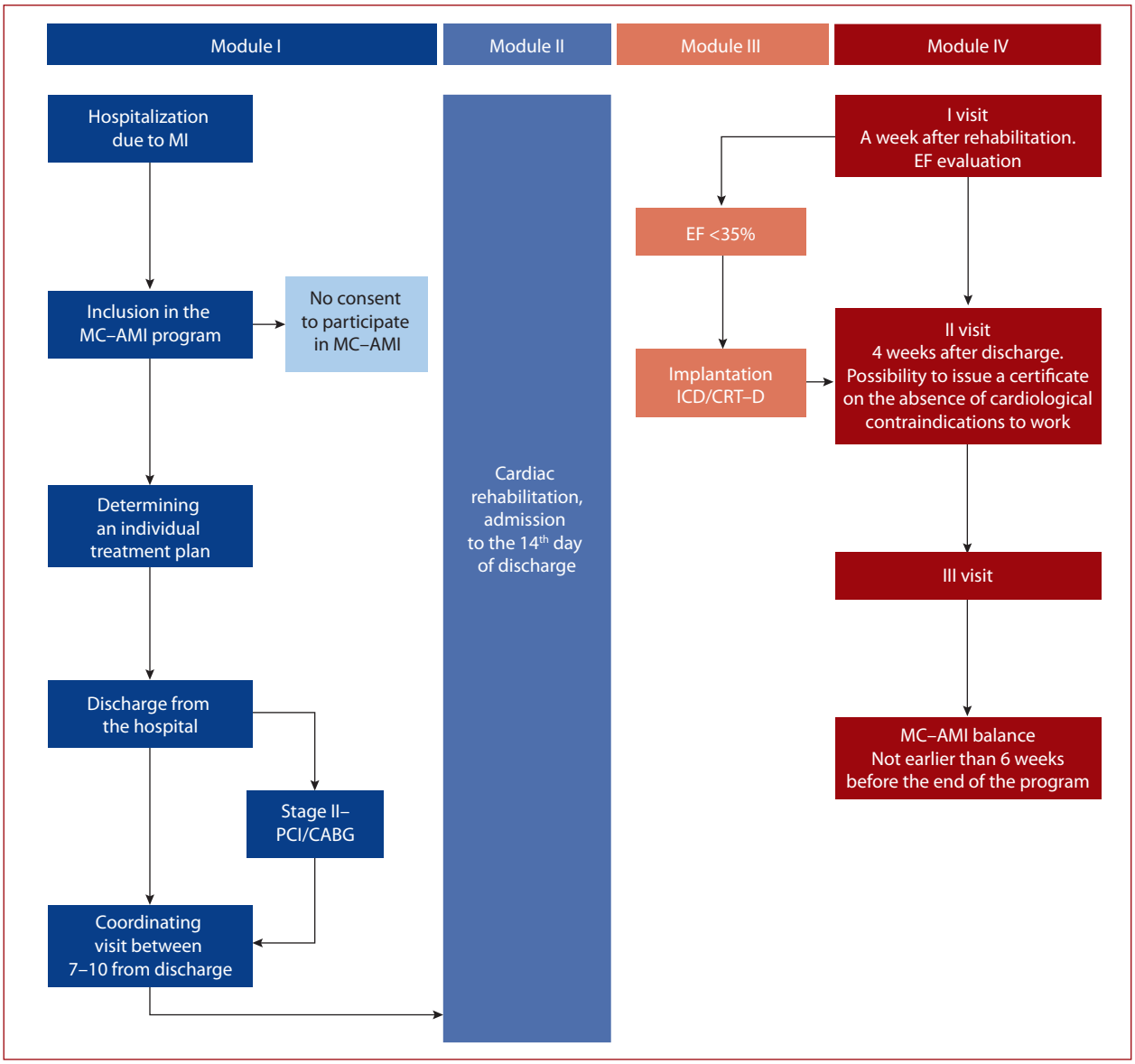


**Figure 1.** Study flowchart

Abbreviations: CABG, coronary artery by-pass grafting; CRT-D, cardiac resynchronization therapy defibrillator; EF, ejection fraction; ICD, implantable cardioverter-defibrillator; MC-AMI, Managed Care after Acute Myocardial Infarction; MI, myocardial infarction; PCI, percutaneous coronary intervention

2016 and August 31, 2017 were used for analysis. These patients were followed up until November 30, 2018. The patients' enrolment scheme is presented in Figure 1.

### *MC-AMI — program description and definitions*

MC-AMI is Poland's National Health Fund and Ministry of Health program of comprehensive care for AMI patients. The program has four core modules: I — hospitalization and acute intervention according to the ESC guidelines, II — cardiac rehabilitation (module II), III — implantation of ICD or CRT-D in eligible subjects, and IV — 12 months of scheduled outpatient cardiology care (at least 4 visits over 12 months).

After AMI-related hospitalization, patients who consented to participation in MC-AMI had a screening visit scheduled 7–10 days post-discharge. The screening visit covered clinical assessment by a cardiologist, an electrocardiogram, and basic blood tests (full blood count, creatinine clearance, and C-reactive protein). Unless contraindicated, patients were then qualified for cardiac rehabilitation (described below), which started not later than 14 days post-discharge. Cardiac rehabilitation was performed in the cardiac rehabilitation ward (in-hospital; up to 35 consecutive days) or an outpatient CR facility (22 days). Electrocardiogram, echocardiogram, 6-minute walk test, and treadmill test were performed during CR. The rehabilitation program included supervised physical training and interval training on an ergometer, as well as a psychological and educational program, including lifestyle counseling, group therapy, and relaxation sessions.

Upon CR completion, patients attended visit 1 which was scheduled 6 weeks after discharge from the hospital (MI-related hospitalization). During visit 1, clinical assessment and echocardiography were performed to search for patients eligible for implantation of ICD or CRT. Visit 2 was normally scheduled 2–3 months after CR completion or 4 weeks after ICD/CRT implantation. Visit 3 timing was planned at the discretion of the physician. Visit 4 was performed at the end of the 12-month follow up. Additionally, the course of the MC-AMI schedule in a particular patient could be modified based on several factors, the most important being staged revascularization and indication for an ICD/CRT defibrillator. Patients in the study group who did not participate in MC-AMI received standard post-MI care, including referral to CR and standard follow-up, during which further decisions were to be made, including revascularization and HF treatment. We analyzed an overall number of 2323 consecutive patients with AMI: 1261 patients enrolled in the era of MC-AMI (study group) and 1062 — 12 months before MC-AMI was introduced (control group). We excluded in-hospital deaths. Of 1261 study group patients, 719 (57%) consented to participation in MC-AMI while the remaining 542 (43%) patients remained under standard care. MI was diagnosed in line with the Third Universal Definition of Myocardial Infarction. Coronary angiography was performed via either the radial or femoral artery by a standard technique. The use of stent type was at the individual operator's discretion. Standard post-MI pharmacotherapy was used according to the ESC recommendations unless contraindicated. Chronic kidney disease was defined as an estimated glomerular filtration rate <60 ml/min/1.73 $m^2$. Hospitalization for HF was defined as admission to a health care facility lasting >24 hours due to worsening symptoms of HF and followed by specific HF treatment (regardless of the cause of decompensation). Follow-up data, including exact dates of deaths, MI, ischemic stroke, and recurrent hospitalization for HF were obtained from the health insurer (National Health Fund).

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

### *Statistical analysis*

Statistical analysis was performed with SPSS v.25.0 software (IBM Corp, Armonk, NY, US). Quantitative variables were presented as mean and standard deviation (SD) or median and 25–75 percentile boundaries, whereas qualitative parameters were expressed as numbers and percentages. We used the Shapiro-Wilk test to check if continuous variables followed a normal distribution. Student's t-test was used to compare continuous variables with normal distribution, whereas the two-tailed Mann-Whitney U test was utilized to compare variables non-normally distributed.

Qualitative parameters were compared using Pearson's $\chi^2$ test. Relative risk ratios with 95% confidence intervals (95% CI) and the number needed to treat were calculated for all study endpoints. All the variables with $P$ <0.1 in the univariate model were included in the Cox proportional hazards model using a backward stepwise Wald's approach. The Kaplan-Meier survival curves for the study and control groups were established and log-rank tests were calculated. A $P$-value of less than 0.05 was regarded as statistically significant.

## RESULTS

The baseline characteristics of the studied groups are shown in Table 1. A comparison of patients enrolled in MC-AMI vs. those treated in the MC-AMI era but not enrolled in the MC-AMI program is shown in Table 2.

We followed the patients for a median of 24 months (24–24). The treatment of MI in the MC-AMI era was related to a significant reduction of all-cause mortality (30% reduction), and MACE (14% reduction) although it was not related to a reduction of hospitalization for HF or myocardial infarction in 24-month follow-up (Table 3, Figure 2)

The number needed to treat to avoid one MACE was 11 patients (95% CI, 7–14), and the number needed to treat to avoid one death was 19 (95% CI, 12–44). Differences in the incidence of MI and hospitalization for HF and all-cause mortality were not observed. As shown on the Kaplan-Meier plot in Figure 3, 24-month survival was the highest in MC-AMI enrolled patients, while patients treated in the MC-AMI era but not enrolled had a similar prognosis to those treated before MC- AMI was available.

Multivariable Cox regression analysis within the entire cohort showed the MC-AMI era to be inversely associated with mortality in 24 months of follow-up (HR, 0.5; 95% CI, 0.38–0.66; $P$ <0.001). Cox regression also demonstrated that older age, diabetes mellitus, congestive heart failure (CHF) hyperlipidemia, prior peripheral arterial disease, female sex, smoking, and lower left ventricular ejection fraction were significantly associated with the primary endpoint (Table 4).

## DISCUSSION

As we previously reported, MC-AMI is related to a reduction of MACE in the short-term [16] and 1-year prognosis [17] in MI survivors. The most recent population-wide analyses of MC-AMI in Poland show reduced post-discharge mortality and MACE, which may be related to facilitated, better access to cardiac rehabilitation and a higher standard of outpatient cardiac care [19]. However, even though a population-wide study confirmed the effect of MC-AMI on hard clinical endpoints, including mortality [18–21], it was questioned whether the program really improves prognosis among MI survivors, or — by selecting the more cooperative patients with fewer risk factors — changes the prognosis only in this subgroup, while the remaining population, not enrolled in MC-AMI, present worse characteristics and have worse prognosis. We hereby present data to support the thesis that the intention-to-treat MI patients in the MC-AMI program has a positive effect on mortality and MACE in the 24-month follow-up period.

**Table 1.** Descriptive statistics and comparison of different variables between the pre-MC-AMI and MC-AMI eras

| Variables | Before MC-AMI era (n = 1062) | MC-AMI era (n = 1261) | *P*-value |
|---|---|---|---|
| Age, years, mean (SD) | 68.62 (11.27) | 68.13 (11.00) | 0.29 |
| Female sex, n (%) | 361 (34.0) | 416 (33.0) | 0.61 |
| Arterial hypertension, n (%) | 880 (83.0) | 997 (79.3) | 0.03 |
| Type 2 diabetes mellitus, n (%) | 337 (31.8) | 452 (35.9) | 0.04 |
| Hyperlipidemia (TC >190 mg/dl or statin therapy), n (%) | 791 (75.1) | 837 (70.2) | 0.01 |
| Peripheral artery disease, n (%) | 145 (13.7) | 182 (14.5) | 0.58 |
| Stroke in history, n (%) | 96 (9.0) | 96 (7.6) | 0.22 |
| Chronic kidney disease (GFR <60 ml/min/1.73 $m^2$), n (%) | 282 (27.3) | 299 (24.6) | 0.13 |
| Smoking (active or in history), n (%) | 479 (45.2) | 464 (38.73) | 0.002 |
| History of STEMI, n (%) | 165 (15.6) | 190 (15.1) | 0.79 |
| History of PCI, n (%) | 309 (29.1) | 425 (33.8) | 0.02 |
| History of CABG, n (%) | 148 (13.9) | 170 (13.5) | 0.77 |
| Hospitalization time, days, median (IQR) | 5.00 (3.00–6.00) | 4.00 (3.00–6.00) | <0.001 |
| LVEF, %, mean (SD) | 44.01 (11.6) | 45.51 (10.8) | 0.001 |
| Number of recurrent hospitalizations for HF, median (IQR) | 1.00 (1.00–2.00) | 1.00 (1.00–2.00) | 0.10 |
| Total HF hospitalization days on follow-up, median (IQR) | 11.00 (6.00–17.00) | 8.00 (4.00–15.00) | 0.01 |
| Number of myocardial infarctions on follow-up, median (IQR) | 1.00 (1.00–1.00) | 1.00 (1.00–1.00) | 0.15 |
| STEMI presentation, n (%) | 316 (29.8) | 349 (27.7) | 0.27 |
| MC-AMI enrolment, n (%) | 0 (0.00) | 719 (57.0) | <0.001 |

Abbreviations: GFR, glomerular filtration rate; HF, heart failure; IQR, interquartile range; LVEF, left ventricular ejection fraction; SD, standard deviation; STEMI, ST-segment elevation myocardial infarction; TC, total cholesterol; other — see Figure 1

**Table 2.** Key characteristics of the subgroups of patients treated in the MC-AMI era (MC-AMI participants vs. those not enrolled in MC-AMI)

| Variable | MC-AMI era — no MC-AMI enrolment (n = 542) | MC-AMI era — MC-AMI enrolment (n = 719) | *P*-value |
|---|---|---|---|
| Age, years, mean (SD) | 70.64 (11.1) | 66.24 (10.6) | <0.001 |
| eGFR, ml/min/1.73 $m^2$, mean (SD) | 68.60 (20.4) | 74.31 (17.5) | <0.001 |
| Hospitalization time, days, mean (SD) | 5.40 (3.7) | 4.87 (3.0) | 0.02 |
| LVEF, %, median (IQR) | 48.00 (40.00–55.00) | 48.00 (40.00–55.00) | 0.56 |
| HFrEF (LVEF <40%), n (%) | 136 (25.1) | 157 (21.8) | 0.17 |
| Total HF hospitalization days in follow-up, median (IQR) | 8.00 (3.00–15.00) | 8.00 (5.00–15.00) | 0.35 |
| Time to hospitalization for HF, months, median (IQR) | 6.00 (2.00–13.00) | 10.00 (4.00–18.00) | 0.01 |
| Female sex, n (%) | 196 (36.2) | 220 (30.6) | 0.04 |
| Type 2 diabetes mellitus, n (%) | 224 (41.6) | 228 (31.7) | <0.001 |
| Peripheral artery disease, n (%) | 97 (18.0) | 85 (11.8) | 0.002 |
| Stroke in anamnesis, n (%) | 55 (10.2) | 41 (5.7) | 0.003 |
| STEMI presentation, n (%) | 119 (22.0) | 230 (32.0) | <0.001 |
| CABG referral, n (%) | 4 (0.7) | 84 (11.7) | <0.001 |

Abbreviations: eGFR, estimated glomerular filtration rate; HFrEF, heart failure with reduced ejection fraction; other — see Figure 1 and Table 1

**Table 3.** Comparison of study endpoints between the pre-MC-AMI and MC-AMI era in 24-month follow-up

| | Before MC-AMI era (n = 1062) | MC-AMI era (n = 1261) | RR | 95% CI | NNT | *P*-value |
|---|---|---|---|---|---|---|
| Total mortality, n (%) | 185 (17.4) | 155 (12.3) | 0.71 | 0.58–0.86 | 19 | <0.001 |
| Hospitalization for HF, n (%) | 157 (14.8) | 183 (14.5) | 0.98 | 0.81–1.20 | 369 | 0.85 |
| Myocardial infarction, n (%) | 172 (16.2) | 183 (14.5) | 0.90 | 0.74–1.09 | 59 | 0.26 |
| Stroke, n (%) | 36 (3.4) | 22 (1.7) | 0.51 | 0.30–0.87 | 61 | 0.01 |
| MACE, n (%) | 431 (40.6) | 392 (31.1) | 0.77 | 0.69–0.85 | 11 | <0.001 |

Abbreviations: CI, confidence interval; MACE, major adverse cardiovascular events; NNT, number needed to treat; RR, relative risk; other — see Table 1

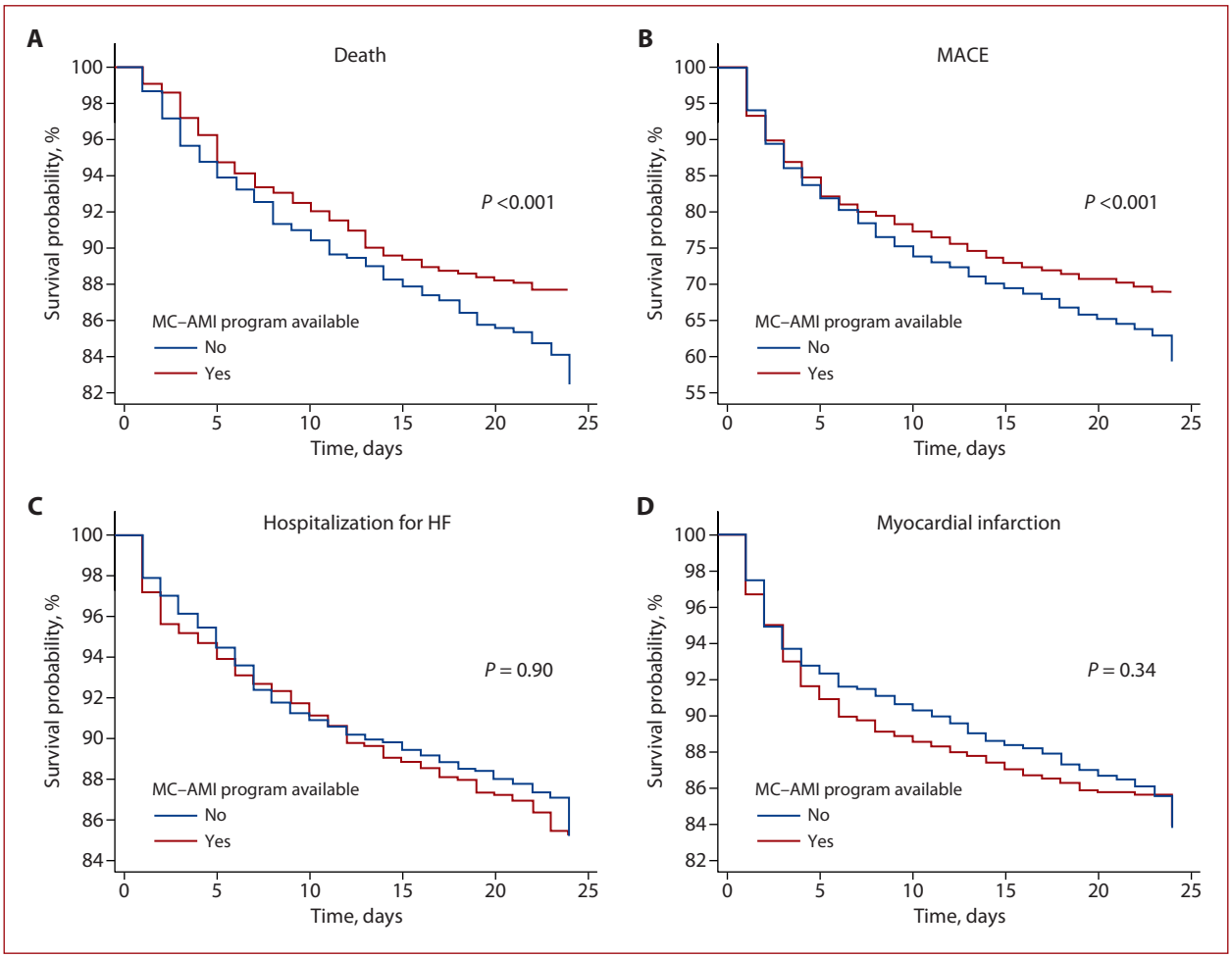


**Figure 2.** Kaplan-Meier survival curves between the pre-MC-AMI and MC-AMI era in 24-month follow-up

Abbreviations: see Figure 1

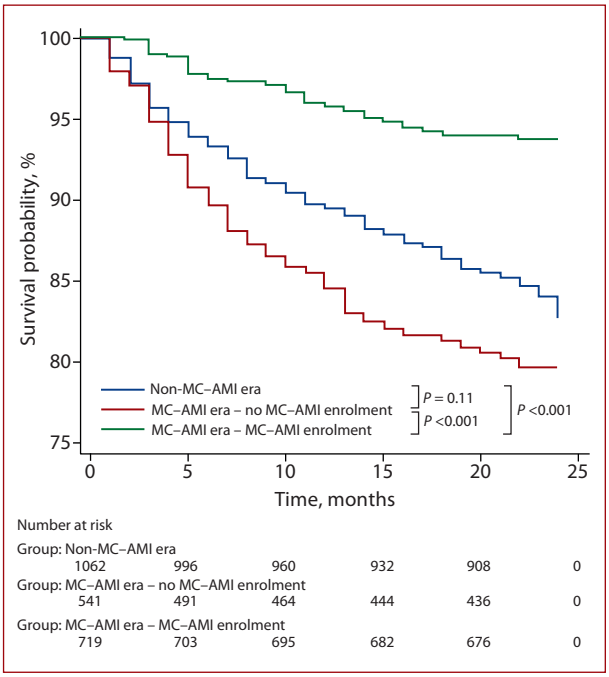


**Figure 3.** Kaplan-Meier survival curves between pre-MC-AMI and MC-AMI eras split into MC-AMI enrolled and not-MC-AMI enrolled subgroups. 24-month follow-up

Abbreviations: see Figure 1

The major finding of our study is that 24-month mortality and MACE rates were lower in the MC- AMI era (regardless of participation in the program) vs. a similar population of MI survivors hospitalized for MI a year earlier when MC-AMI was not available. Despite the study design based on non-simultaneous enrollment in the study groups, the differences between the study and control groups are few and negligible. Medical therapy and interventional treatment were similar in both groups. The standards of AMI treatment and adherence of the center to the recommendations did not change over study time (2017–2018). Thus, the observed effect of the intention to treat in the MC-AMI program is unbiased by the clinical profile of the participants.

Results of this analysis show a 30% relative risk reduction for mortality and a 14% reduction in MACE occurrence over the 24-month follow-up. The result is likely to be attributable to the components of MC-AMI: cardiac rehabilitation, complete revascularization, and scheduled outpatient care, whose effects on clinical endpoints were previously reported [22, 23]. The 30% risk reduction in this analysis is lower than the previously reported 38% mortality risk reduction in a population study. Similarly, MACE reduction is less pronounced than in the previous

**Table 4.** Independent predictors of death in 24-month follow-up — Cox proportional hazards model

| Variable | HR | 95% CI | *P*-value |
|---|---|---|---|
| Congestive heart failure | 1.33 | 1.17–1.52 | <0.001 |
| Type 2 diabetes mellitus | 1.29 | 1.00–1.66 | 0.05 |
| Hyperlipidemia | 0.73 | 0.56–0.95 | 0.02 |
| MC-AMI era | 0.50 | 0.38–0.65 | <0.001 |
| LVEF, per 1 % | 0.98 | 0.97–1.00 | 0.03 |
| Peripheral artery disease | 1.74 | 1.31–2.32 | <0.001 |
| Female sex | 1.32 | 1.01–1.71 | 0.04 |
| Age, per 1 year | 1.04 | 1.02–1.05 | <0.001 |
| Active smoking | 1.35 | 1.02–1.77 | 0.03 |

Abbreviations: HR, hazard ratio; other — see Figure 1, Table 1, and Table 3

**Table 5.** Independent predictors of recurrent myocardial infarction and hospitalization for heart failure in 24-month follow-up — Cox proportional hazards model

| Predictors of recurrent MI | | | |
|---|---|---|---|
| **Variable** | **HR** | **95% CI** | ***P*-value** |
| CABG referral | 0.29 | 0.12–0.70 | 0.006 |
| CAD in anamnesis | 1.41 | 1.10–1.80 | 0.006 |
| Congestive heart failure | 1.13 | 1.04–1.24 | 0.006 |
| Type 2 diabetes mellitus | 1.59 | 1.26–2.00 | <0.001 |
| Paroxysmal AF | 0.73 | 0.50–1.06 | 0.10 |
| STEMI presentation | 0.63 | 0.47–0.84 | 0.002 |
| Female sex | 0.71 | 0.55–0.91 | 0.008 |
| Predictors of hospitalization for heart failure | | | |
| Type 2 diabetes mellitus | 1.55 | 1.25–1.93 | <0.001 |
| LVEF, per 1% | 0.96 | 0.95–0.97 | <0.001 |
| Age, per 1 year | 1.02 | 1.01–1.03 | <0.001 |
| MC-AMI era | 1.34 | 1.04–1.72 | 0.02 |

Abbreviations: AF, atrial fibrillation; CAD, coronary artery disease; MI, other — see Figure 1, Tables 1, 3 and 4

reports. In this intention-to-treat- analysis, however, the effect is reduced by the more common endpoints in the non-enrolled subgroup, as seen in Figure 3. Besides, in the case of recurrent MI, the extended follow-up period seems to reduce the effect of MC-AMI that was visible after 12 months.

It is not possible to compare our results to similar studies, as there are few reports on comprehensive care in AMI survivors, and none of them presents an intention-to-treat analysis.

There are, however, reports on the effect of components of post-MI care on mortality and MACE. In a large meta-analysis, Anderson et al. [24] demonstrated that CR reduces cardiovascular mortality by 22% but does not affect all-cause mortality. In our study, where participation in CR was one of the crucial factors, we observed a significant long-term all-cause mortality reduction of 40%. Treating MI in the MC-AMI era was one of the strongest predictors of survival (HR, 0.5), and participation in MC-AMI was even stronger, with an HR of death at a level of 0.3.

Unlike in Anderson's meta-analysis, Sumner et al. [25], and our previous reports, in this intention-to-treat analysis we did not observe risk reduction of recurrent MI. This might have been caused by a longer follow-up, and poor results in patients not enrolled in MC-AMI counterbalanced the positive effect of participation in the program that we reported previously.

Another crucial determinant of prognosis after MI is complete revascularization. According to Elgendy et al. [26], complete revascularization at the index procedure or as a staged procedure (either during hospitalization or after discharge) was associated with a reduction of MACE due to a reduction in urgent revascularization procedures. In our study, the rate of scheduled revascularization was higher in the MC-AMI era.

In the multivariable Cox regression model, participation in treatment for MI in the MC-AMI era was a strong predictor of survival (HR for death 0.5), but it was participation in the program that made the risk even lower (HR, 0.3). As stated, there are no articles addressing the efficacy of post-AMI care systems similar to MC-AMI. We can compare our results to the studies assessing the effects of revascularization and CR. In a CROS meta-analysis, mortality reduction for post-ACS CR participants was 0.49–0.84 in retrospective studies [27]. In a large Dutch cohort, CR significantly improved 4-year survival with an HR of 0.65 (95% CI, 0.56–0.77), with the largest benefit observed for patients who underwent coronary artery by-pass grafting and/or valve surgery (HR, 0.55; 95% CI, 0.42–0.74) [28].

The complex approach in MC-AMI ensures better adverse event reduction lasting over time. The novelty

in MC-AMI is executing all the guideline-recommended therapeutic interventions, which are normally available within most healthcare systems but hardly ever followed accurately. Since criticism was raised about whether MC-AMI is a game-changer in the entire post-MI population, we hereby demonstrated that even the intention to treat ensures better outcomes, and the effect is the best among participants of the program. Therefore, every effort should be made to increase the still unsatisfactory proportion of non-participants who refuse or are not offered this more beneficial option.

### Limitations

Although this is a prospective analysis, the dataset is missing some variables, including socio-economic and behavioral risk factors. Moreover, the study was performed in a single center.

## CONCLUSIONS

MI treatment in the MC-AMI era reduces 24-month mortality by 30% and MACE by 14%. Moreover, MI treatment in MC-AMI is inversely related to the mortality rate, MACE, and hospitalization for heart failure in 24 months of follow-up. The effect is significantly more pronounced in patients enrolled in MC-AMI.

### Article information

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