ACSIS 2021

Acute Coronary Syndrome Israeli Survey March-April 2021

SURVEY FINDINGS AND TEMPORAL TRENDS 2010 - 2021

The Working Group on Intensive Cardiac Care of the Israel Heart Society



The Israel Heart Society



The Israeli Center for Cardiovascular Research



The Israeli Center for Disease Control, the Ministry of Health



Booklet ACSIS 2024

September 2024

Contents

| Introduction | 3 |
|------------------------------------------------------------------------------------------------------------|----|
| Message from the Israel Heart Society | 4 |
| Chapter 1: Acute Coronary Syndrome (ACS) in Cardiology | 6 |
| 1.1 Distribution of Patients with ACS by Electrocardiogram (ECG) on Admission $\ \ldots \ \ldots \ \ldots$ | 6 |
| 1.2 Demographic Characteristics | 9 |
| 1.3 Cardiovascular History | 12 |
| 1.4 Prior Chronic Treatment | 15 |
| 1.5 Transportation, Pre-Admission and Admission Information | 17 |
| 1.6 First Recorded ECG | 27 |
| 1.7 Primary Reperfusion | 29 |
| 1.8 Coronary Interventions and Procedures during Hospitalization | 34 |
| 1.9 Ejection Fraction | 36 |
| 1.10 In-Hospital Complications | 37 |
| 1.11 In-Hospital Medical Treatment | 38 |
| 1.12 Duration of Hospitalization | 39 |
| 1.13 Discharge | 40 |
| 1.13.1 Medical Treatment on Discharge | 40 |
| 1.13.2 Discharge Destination | 41 |
| 1.14 Mortality and Major Adverse Cardiac Event (MACE) | 42 |
| 1.15 Re-Hospitalization within 90 Days of Admission | 45 |
| 1.16 Detailed 90-Day Follow-Up Clinical Data | 46 |

Introduction

We are proud to present you with the ACSIS 2024 survey results. This survey, is a biennial tradition since it was launched in 1992 by Prof. Shlomo Behar.

The ACSIS survey provides a state-of-the-art representation of the characteristics, management, and outcome of patients presenting with an acute coronary syndrome (ACS) in Israel. This survey is a source of pride for the Israeli cardiology community.

ACSIS 2024 was carried out during March-April 2024 by the Israeli working group on Acute Cardiac Care of the Israel Heart Society, and the Israeli Center for Cardiovascular Research (ICCR) in cooperation with the Israeli Center for Disease Control (ICDC) and Israel Society of Intensive Care Nursing.

During this 2-month period, detailed data was collected in all intensive cardiac care units (ICCU) and cardiology wards in all public hospitals in Israel, and included 1801 consecutive ACS patients admitted and diagnosed with ACS.

The ACSIS 2024 findings expand on prior surveys by showing a continuous improvement in in-hospital, 1 month, as well as 1-year mortality throughout the last decade.

ACSIS data is used continuously for high-quality scientific research which is published in the major journals in the field.

We thank the Israeli Center for Disease Control (ICDC) as well as the pharmaceutical industry in their continuing unconditional support of this important survey.

Finally, we would like to thank and recommend the dedication of all the study coordinators and staff members of all ICCU's and Cardiology wards for their dedicated time and effort in collecting the data.

| Prof. Roy Beigel | Dr. Katia Orvin |
|------------------|-----------------|
| Chairman | Secretary |

Israeli working-group on Acute Cardiac Care

Message from the Israel Heart Society

The Israel Heart Society is proud to present the final results of the ACSIS 2024 survey.

ACSIS is a biannual survey conducted over a 2 months period in all coronary care units operating in Israel and includes all ACS patients admitted during the survey period. The survey has been conducted since 2000. Over this long period it has provided invaluable insights into the characteristics, management and outcome of our patients. The survey allows quality indicators for individual centers, has produced numerous scientific papers and allows important analyses of long-term trends in ACS.

The 2024 ACSIS survey follows in the footsteps of previous surveys and extends the observations yet more. The data presented here are of great interest to anyone interested in the epidemiology and management of ACS in Israel and globally. We would like to thank the ACSIS steering committee, led by the ACC WG for their very thorough work in organizing this survey and preparing the data for presentation and for our many industry partners who supported this great effort.

We trust you will find these data important and interesting.

| Prof. Ofer Amir | Dr. Arik Wolak |
|-----------------|-------------------|
| President | Secretary General |

The Israel Heart Society

The ACSIS 2024 survey was generously supported by an unrestricted grant by the following companies:

















Chapter 1: Acute Coronary Syndrome (ACS) in Cardiology

1.1 Distribution of Patients with ACS by Electrocardiogram (ECG) on Admission

Figure 1.1.a: Distribution of Patients with ACS by ECG on Admission

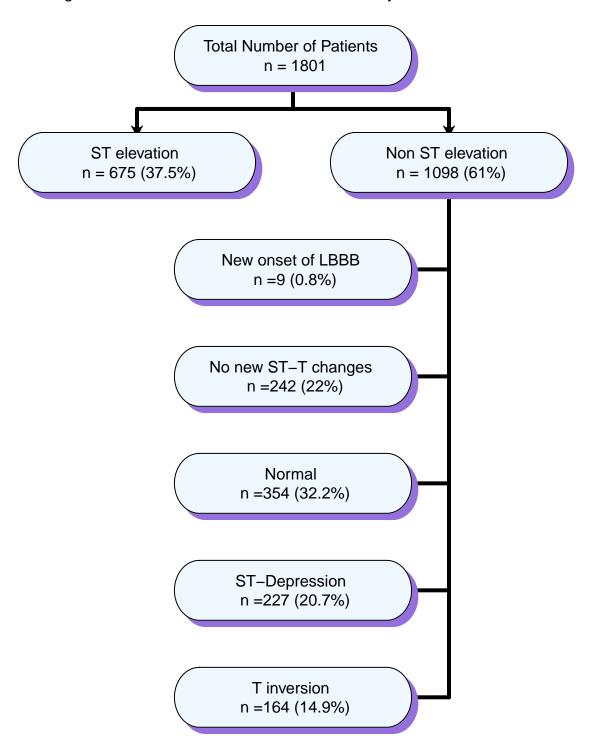
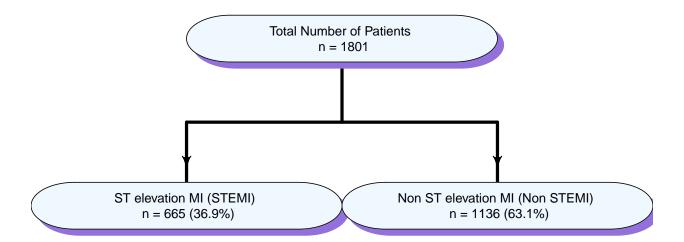


Figure 1.1.b: Distribution of Patients with ACS by Discharge Diagnosis



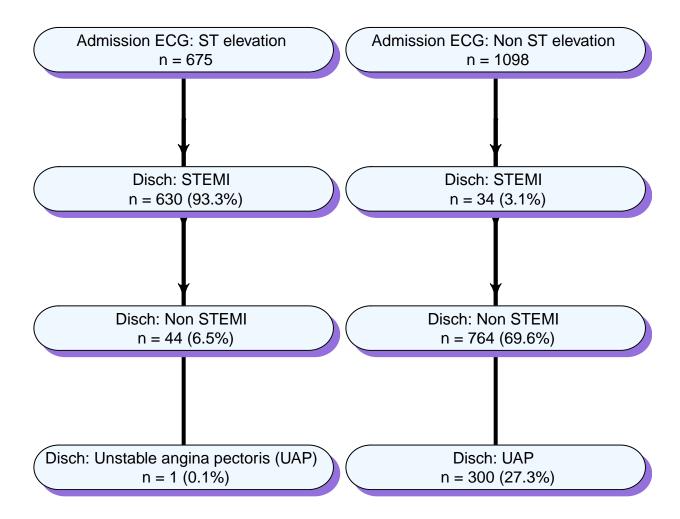


Figure 1.1.c: Admission versus Discharge Diagnosis

1.2 Demographic Characteristics

1.2.1 Age Distribution by ECG on Admission

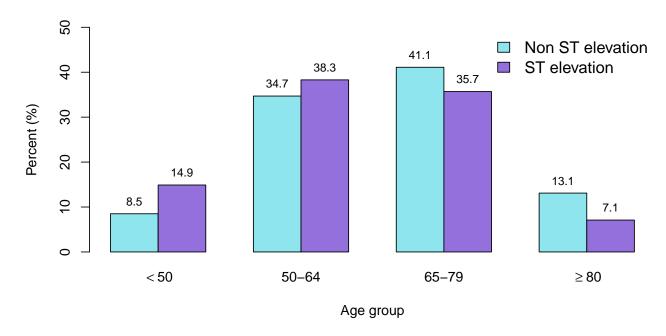
Patients with ST elevation were younger (mean age: 62.6 ± 12.1) than those with non ST elevation (mean age: 66.1 ± 11.9), and the age distribution of patients with ST elevation indicated a greater proportion of younger patients (55.4% were aged < 65 years) than that of patients with non ST elevation (44.4% aged < 65 years).

Table 1.1: Age Distribution by ECG on Admission

| | Total | Non ST elevation | ST elevation | p-value |
|------------------|---------------|------------------|------------------|---------|
| n | 1801 | 1098 | 675 | |
| Age groups (%) | | | | < 0.001 |
| < 50 | 206 (11.4) | 96 (8.7) | 105 (15.6) | |
| 50-64 | 669 (37.1) | 391 (35.6) | 269 (39.9) | |
| 65-79 | 723 (40.1) | 463 (42.2) | 251 (37.2) | |
| ≥ 80 | 203 (11.3) | 148 (13.5) | 50 (7.4) | |
| Age $(mean(sd))$ | 64.75 (12.11) | 66.07 (11.87) | $62.64\ (12.13)$ | < 0.001 |

Percentages are calculated out of available data

Figure 1.2: Age Distribution by ECG on Admission



1.2.2 Age Distribution by Gender

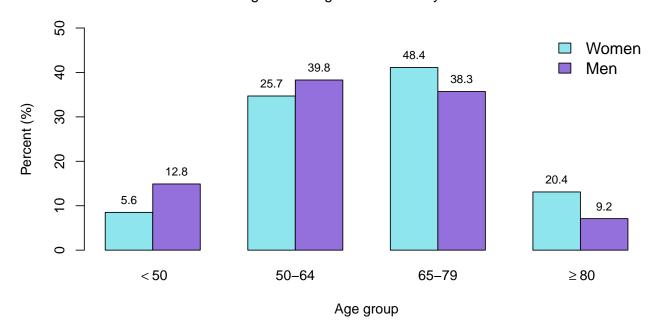
The age distribution of male patients was significantly different from that of female patients. The majority of men (52.6%) were in the younger age groups (<65) and only 9.2% were aged 80 or above. 12.8% of men were less than 50 years old. By contrast, the majority of the female patients were in the older age groups ≥ 65 (68.7%). The number of women under the age of 50 was significantly lower than of their male counterparts (5.6%), and 20.4% were aged 80 or above.

Table 1.2: Age Distribution by Gender

| | Total | Women | Men | p-value |
|----------------|---------------|-------------------|---------------|---------|
| n | 1801 | 339 | 1461 | |
| Age groups (%) | | | | < 0.001 |
| < 50 | 206 (11.4) | 19 (5.6) | 187 (12.8) | |
| 50-64 | 669 (37.1) | 87(25.7) | 581 (39.8) | |
| 65-79 | 723 (40.1) | 164 (48.4) | 559 (38.3) | |
| ≥ 80 | 203 (11.3) | 69(20.4) | 134 (9.2) | |
| Age (mean(sd)) | 64.75 (12.11) | $69.87 \ (11.63)$ | 63.57 (11.91) | < 0.001 |

Percentages are calculated out of available data

Figure 1.3: Age Distribution by Gender



1.2.3 Gender Distribution

For both STEMI and Non STEMI patients we observed a clear male predominance.

Table 1.3: Gender Distribution

| | Total | Non STEMI | STEMI | p-value |
|------------|-------------|------------|------------|---------|
| n | 1801 | 1136 | 665 | |
| Women (%) | 339 (18.8) | 222 (19.6) | 117 (17.6) | 0.334 |
| Men $(\%)$ | 1461 (81.2) | 913 (80.4) | 548 (82.4) | |

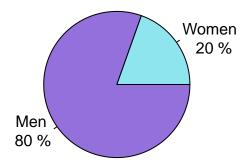
Percentages are calculated out of available data

Figure 1.4: Gender Distribution

Patients with STEMI

Women 18 %

Patients with non STEMI



1.3 Cardiovascular History

1.3.1 Cardiovascular History

A history of ACS, cardiomyopathy, congestive heart failure (CHF), chronic renal failure, peripheral artery disease (PAD) and atrial fibrillation were significantly more frequent among patients with non STEMI. Similarly, more patients with non STEMI had undergone percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) prior to hospitalization.

Table 1.4: Prior Cardiovascular History

| | Total | Non STEMI | STEMI | p-value |
|--------------------------------------------------|------------|------------|------------|---------|
| n | 1801 | 1136 | 665 | |
| ACS (%) | 659 (37.2) | 490 (44.2) | 169(25.5) | < 0.001 |
| CABG (%) | 100 (5.6) | 86 (7.7) | 14(2.1) | < 0.001 |
| PCI (%) | 640 (36.0) | 480 (43.2) | 160 (24.1) | < 0.001 |
| Cardiomyopathy (%) | 97 (5.5) | 78 (7.0) | 19 (2.9) | < 0.001 |
| CHF (%) | 156 (8.8) | 127 (11.4) | 29 (4.4) | < 0.001 |
| Chronic Kidney Disease (CKD) (%) | 183 (10.3) | 139 (12.5) | 44 (6.6) | < 0.001 |
| PAD (%) | 100 (5.7) | 76 (6.9) | 24 (3.7) | 0.007 |
| Stroke/Transient ischemic attack (TIA) (%) | 158 (8.9) | 105 (9.5) | 53 (8.0) | 0.330 |
| Chronic Obstructive Pulmonary Disease (COPD) (%) | 113 (6.4) | 81 (7.3) | 32 (4.8) | 0.049 |
| Atrial fibrillation/Flutter (%) | 106 (6.0) | 87 (7.8) | 19(2.9) | < 0.001 |
| Implantable cardioverter-defibrillators | 34 (2.1) | 28 (2.7) | 6 (1.0) | 0.021 |
| (ICD)/Cardiac resynchronization therapy | | | | |
| (CRT) implant (%) | | | | |
| Any malignancy (%) | 108 (6.5) | 76 (7.5) | 32 (5.0) | 0.066 |
| Thyroid disease (%) | 72 (4.4) | 52 (5.1) | 20 (3.2) | 0.080 |

Percentages are calculated out of available data

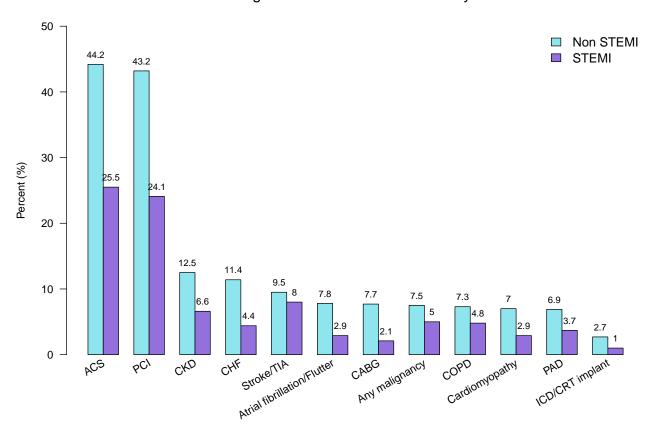


Figure 1.5: Cardiovascular history

1.3.2 Risk Factors

Current smoking was more prevalent among patients presenting with STEMI, while other risk factors were generally more prevalent among patients presenting with non STEMI. No difference were found in the prevalence of family history of coronary artery disease (CAD) or in newly diagnosed diabetes.

Table 1.5: Risk Factors

| | Total | Non STEMI | STEMI | p-value |
|---------------------------|-------------|---------------|------------|---------|
| n | 1801 | 1136 | 665 | |
| Hypertension (%) | 1159 (65.4) | 811 (73.2) | 348 (52.5) | < 0.001 |
| Diabetes (%) | 764 (43.0) | 531 (47.7) | 233 (35.0) | < 0.001 |
| * Newly diagnosed (%) | 31 (4.1) | 18 (3.4) | 13 (5.6) | 0.225 |
| Dyslipidemia (%) | 1341 (75.8) | 876 (79.1) | 465 (70.2) | < 0.001 |
| Current smoker (%) | 699 (38.8) | 383(33.7) | 316 (47.5) | < 0.001 |
| Past smoker (%) | 317 (17.6) | $221\ (19.5)$ | 96 (14.4) | 0.008 |
| Family history of CAD (%) | 449 (30.4) | 271 (29.4) | 178 (32.0) | 0.309 |

Percentages are calculated out of available data

Newly diagnosed expressed as percentage of total patients with specific risk factor

100 ■ Non STEMI ■ STEMI 79.1 80 73.2 70.2 60 Percent (%) 52.5 47.7 47.5 40 35 33.7 32 29.4 19.5 20 14.4 Current smoker
Family history of CAD Dyslipidemia Hypertension Past smoker Diabetes

Figure 1.6: Risk Factors

1.4 Prior Chronic Treatment

Prior to the index hospitalization, a higher proportion of patients with non STEMI (41.5%) were being treated with aspirin compared to those with STEMI (26.9%). Other drugs in common use were Angiotensin-Converting-Enzyme (ACE) Inhibitors and Angiotensin Receptor Blockers (ARB), Beta Blockers, lipid-lowering drugs (primarily statins) and diuretics all of which were in use more frequently among patients presenting with non STEMI. 7.9% of patients with non STEMI and 2.4% of those with STEMI were being treated with clopidogrel.

Table 1.6: Prior Chronic Treatment

| | Total | Non STEMI | STEMI | p-value |
|------------------------------------------|---------------|------------|------------|---------|
| n | 1801 | 1136 | 665 | |
| Anti-platelets | | | | |
| Aspirin (%) | 651 (36.1) | 472 (41.5) | 179(26.9) | < 0.001 |
| P2Y12 (%) | 166 (9.2) | 135 (11.9) | 31 (4.7) | < 0.001 |
| Clopidogrel (%) | 106 (5.9) | 90 (7.9) | 16 (2.4) | < 0.001 |
| Prasugrel (%) | 28 (1.6) | 20 (1.8) | 8 (1.2) | 0.468 |
| Ticagrelor $(\%)$ | 32 (1.8) | 25 (2.2) | 7 (1.1) | 0.111 |
| Anticoagulants | | | | |
| Oral anticoagulants ¹ (%) | 88 (4.9) | 71 (6.2) | 17 (2.6) | 0.001 |
| Direct oral anticoagulation | 80 (4.4) | 64 (5.6) | 16 (2.4) | 0.002 |
| $(DOAC)^2(\%)$ | | | | |
| Warfarin (%) | 9 (0.5) | 8 (0.7) | 1 (0.2) | 0.207 |
| Dabigatran (%) | 4 (0.2) | 2(0.2) | 2 (0.3) | 0.981 |
| Rivaroxaban (%) | 14 (0.8) | 9 (0.8) | 5 (0.8) | 1.000 |
| Apixaban (%) | 62 (3.4) | 53 (4.7) | 9 (1.4) | < 0.001 |
| Other | | | | |
| ACE-I (%) | 336 (18.7) | 249 (21.9) | 87 (13.1) | < 0.001 |
| ARB (%) | 248 (13.8) | 175 (15.4) | 73 (11.0) | 0.010 |
| Beta Blockers (%) | 447(24.8) | 335 (29.5) | 112 (16.8) | < 0.001 |
| Calcium channel blockers | $223\ (12.4)$ | 171 (15.1) | 52 (7.8) | < 0.001 |
| (CCB) (%) | | | | |
| Nitrates (%) | 23 (1.3) | 22 (1.9) | 1 (0.2) | 0.002 |
| Diuretics (%) | 116 (6.4) | 98 (8.6) | 18 (2.7) | < 0.001 |
| Antihyperglycemic drugs ³ (%) | 275 (15.3) | 196 (17.3) | 79 (11.9) | 0.003 |
| $Statins^4$ (%) | 670 (37.2) | 480 (42.3) | 190 (28.6) | < 0.001 |
| Ezetimibe $(\%)$ | 167 (9.3) | 130 (11.4) | 37 (5.6) | < 0.001 |

¹ Oral anticoagulants include: Warfarin, Dabigatran, Rivaroxaban, Apixaban

 $^{^2}$ Direct Oral anticoagulants include: Dabigatran, Rivaroxaban, Apixaban

³ Antihyperglycemic drugs include: Glibenclamide, Glipizide, Glimepiride, Metformin, Sitagliptine, Saxagliptine, Vidagliptine, Linagliptine, Exenatide, Liraglutide, Dapagliflozin, Acarbose, Meglinitides, TZDs, Rosiglitazone

⁴ Statins include: Simvastatin, Pravastatin, Atorvastatin, Rosuvastatin

^{*} Percentages are calculated out of available data

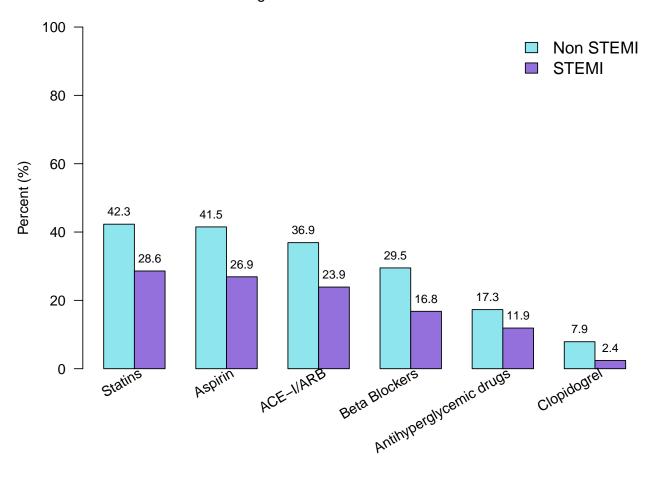


Figure 1.7: Prior Chronic Treatment

1.5 Transportation, Pre-Admission and Admission Information

1.5.1 Mode of Transportation by ECG on Admission

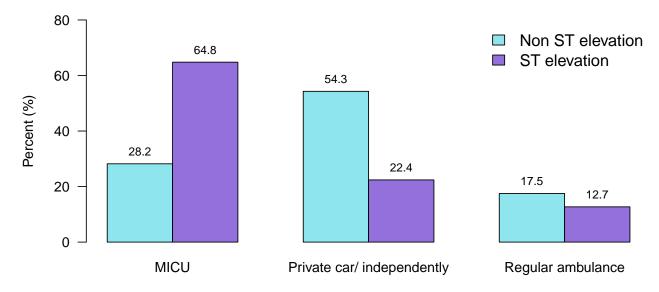
41.4% of all patients arrived at the hospital by means of private transportation. Patients with ST elevation were more frequently transported to hospital with mobile intensive care unit (MICU), and patients with non ST elevation arrived more frequently by means of private transportation.

Table 1.7: Mode of Transportation by ECG on Admission

| | Total | Non ST elevation | ST elevation |
|--------------------------------|---------------|------------------|--------------|
| n^1 | 1475 | 875 | 597 |
| MICU (%) | 634 (43.0) | 247 (28.2) | 387 (64.8) |
| Private car/ independently (%) | 610 (41.4) | 475 (54.3) | 134 (22.4) |
| Regular ambulance (%) | $231\ (15.7)$ | 153 (17.5) | 76 (12.7) |

p-value < 0.001

Figure 1.8: Mode of Transportation by ECG on Admission



¹ Excluded in-patients

1.5.2 Mode of Transportation by Gender

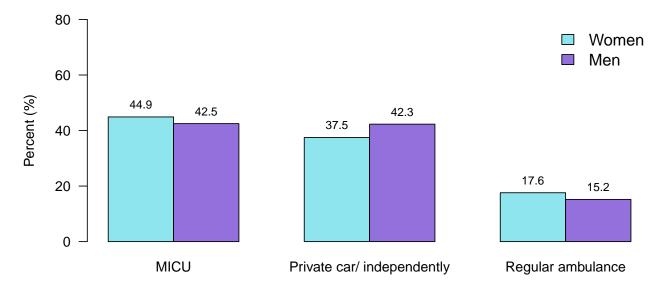
43% of patients, both men and women, arrived by means of a MICU. Women were more frequently transported to hospital with regular ambulance and men arrived more frequently by means of private transportation.

Table 1.8: Mode of Transportation by Gender

| | Total | Women | Men |
|--------------------------------|---------------|------------|------------|
| n^1 | 1475 | 272 | 1202 |
| MICU (%) | 634 (43.0) | 122 (44.9) | 511 (42.5) |
| Private car/ independently (%) | 610 (41.4) | 102(37.5) | 508 (42.3) |
| Regular ambulance (%) | $231\ (15.7)$ | 48 (17.6) | 183 (15.2) |

p-value = 0.312

Figure 1.9: Mode of Transportation by gender



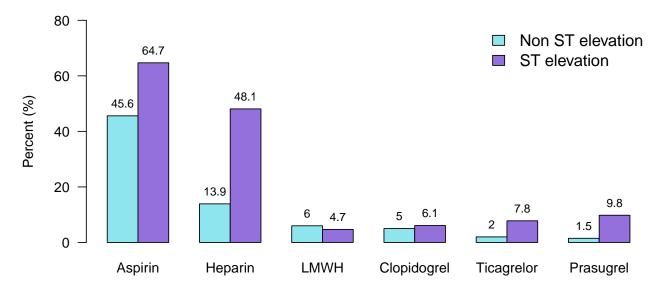
¹ Excluded in-patients

1.5.3 Drugs administered at the Emergency Department (ED)

Table 1.9: Drugs administered at the ED $\,$

| | Total | Non ST elevation | ST elevation | p-value |
|-----------------------------------------|------------|------------------|--------------|---------|
| n | 1801 | 1098 | 675 | |
| Aspirin (%) | 655 (49.8) | 464 (45.6) | 191 (64.7) | < 0.001 |
| Clopidogrel (%) | 69 (5.2) | 51 (5.0) | 18 (6.1) | 0.554 |
| Prasugrel (%) | 44 (3.3) | 15 (1.5) | 29 (9.8) | < 0.001 |
| Ticagrelor (%) | 43 (3.3) | 20 (2.0) | 23 (7.8) | < 0.001 |
| Heparin (%) | 284 (21.6) | 142 (13.9) | 142 (48.1) | < 0.001 |
| Low Molecular Weight Heparin (LMWH) (%) | 75 (5.7) | 61 (6.0) | 14 (4.7) | 0.503 |

Figure 1.10: Drugs administered at the ED



1.5.4 Ward of First Arrival by ECG on Admission

Most patients with ACS present to the ED. However, a higher number of patients with ST elevation presented directly to the intensive cardiac care unit (ICCU) and the catheterization laboratory than those with non ST elevation.

Table 1.10: Ward of First Arrival by ECG on Admission

| | Total | Non ST elevation | ST elevation |
|----------------------------------------|-------------|------------------|--------------|
| n | 1801 | 1098 | 675 |
| Directly to cardiology ward (%) | 20 (1.1) | 19 (1.7) | 0 (0.0) |
| Directly to cath lab (%) | 200 (11.3) | 16 (1.5) | 183(27.1) |
| Directly to ICCU (%) | 227 (12.8) | 34 (3.1) | 193 (28.6) |
| Directly to internal medicine ward (%) | 5 (0.3) | 4 (0.4) | 1 (0.1) |
| ED (%) | 1315 (74.0) | 1018 (92.7) | 295 (43.7) |
| Other (%) | 10 (0.6) | 7 (0.6) | 3 (0.4) |
| Patients arrived by MICU | | | |
| n | 634 | 247 | 387 |
| Directly to cardiology ward (%) | 1 (0.2) | 1 (0.4) | 0 (0.0) |
| Directly to cath lab (%) | 146 (23.0) | 3 (1.2) | 143 (37.0) |
| Directly to ICCU (%) | 167(26.3) | 13 (5.3) | 154 (39.8) |
| Directly to internal medicine | 2 (0.3) | 1 (0.4) | 1 (0.3) |
| ward (%) | | | |
| ED (%) | 316 (49.8) | 229 (92.7) | 87(22.5) |
| Other (%) | 2 (0.3) | 0 (0.0) | 2 (0.5) |

Difference in ward of first arrival, ST elevation vs. non ST elevation, p < 0.001

1.5.5 First Ward of Admission

As expected, the majority of patients presenting with ST elevation were hospitalized in the ICCU (95.4%). 46.1% of the patients who presented with non ST elevation were admitted to the ICCU and an additional 40.3% to a cardiology department, with the remaining 12.7% being admitted to internal medicine departments.

Table 1.11: First Ward of Hospitalization

| | Total | Non ST elevation | ST elevation |
|-----------------------|-------------|------------------|--------------|
| n | 1801 | 1098 | 675 |
| ICCU (%) | 1152 (64.8) | 506 (46.1) | 644 (95.4) |
| Cardiology (%) | 468 (26.3) | 442 (40.3) | 26 (3.9) |
| Internal medicine (%) | 144 (8.1) | 139 (12.7) | 3(0.4) |
| Chest pain unit (%) | 1 (0.1) | 1 (0.1) | 0 (0.0) |
| Other (%) | 12 (0.7) | 10 (0.9) | 2 (0.3) |

Difference in first ward of hospitalization, ST elevation vs. non ST elevation, p < 0.001

100 95.4 Non ST elevation ST elevation 80 Percent (%) 60 46.1 40.3 40 20 12.7 3.9 0.9 0.4 0.1 0 0.3 0 **ICCU** Cardiology Internal medicine Chest pain unit Other

Figure 1.11: First Ward of Hospitalization

1.5.6 Time from Symptom Onset to Hospital Arrival, by ECG on Admission

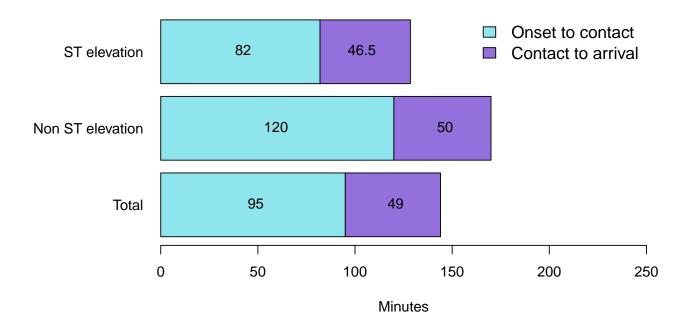
All time frames were significantly shorter for patients with ST elevation. Patients with ST elevation sought help earlier when compared to patients with non ST elevation.

Table 1.12: Time (minutes) from Symptom Onset to Admission, by ECG on Admission

| | Total | Non ST elevation | ST elevation | p-value |
|----------------------------------------------------------|------------------------|------------------------|------------------------|---------|
| n^1 | 1037 | 509 | 503 | |
| Onset to first medical contact, minutes (median [IQR]) | 95.00 [40.00, 287.00] | 120.00 [49.75, 483.25] | 82.00 [30.00, 191.50] | < 0.001 |
| First medical contact to arrival, minutes (median [IQR]) | 49.00 [32.00, 75.00] | 50.00 [34.00, 86.75] | 46.50 [30.00, 70.00] | 0.007 |
| Onset to arrival, minutes (median [IQR]) | 153.00 [86.00, 380.00] | 186.00 [96.75, 587.50] | 138.00 [78.00, 257.00] | < 0.001 |

 $^{^{1}}$ Excluded in-patients or patients whose first medical contact was in ED

Figure 1.12: Median Length of Time from Symptom Onset to Admission



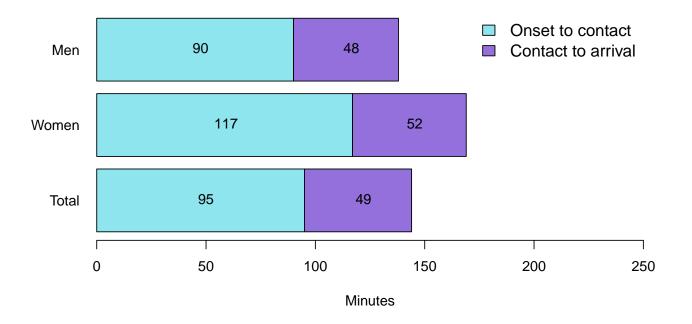
1.5.7 Time from Symptom Onset to Hospital Arrival, by gender

Table 1.13: Time (minutes) from Symptom Onset to Admission by gender

| | Total | Women | Men | p-value |
|----------------------------------------------------------|------------------------|------------------------|------------------------|---------|
| n^1 | 1037 | 199 | 837 | |
| Onset to first medical contact, minutes (median [IQR]) | 95.00 [40.00, 287.00] | 117.00 [38.25, 389.50] | 90.00 [40.00, 270.00] | 0.501 |
| First medical contact to arrival, minutes (median [IQR]) | 49.00 [32.00, 75.00] | 52.00 [38.00, 73.00] | 48.00 [31.00, 76.00] | 0.193 |
| Onset to arrival, minutes (median [IQR]) | 153.00 [86.00, 380.00] | 172.00 [92.00, 414.75] | 148.00 [86.00, 371.00] | 0.348 |

¹ Excluded in-patients or patients whose first medical contact was in ED

Figure 1.13: Median Length of Time from Symptom Onset to Admission



1.5.8 First Medical Contact

41.3% of patients had the first medical contact at the ED and about 21.6% at a Health maintenance organization (HMO) primary clinic/"Moked". For an additional 22.2% the primary medical contact was with MICU. Patients with ST elevation were more likely to have their first medical contact with a MICU (37)% than those with non ST elevation (13.1%).

Table 1.14: First Medical Contact

| | Total | Non ST elevation | ST elevation |
|-----------------------------------|------------|------------------|--------------|
| n | 1801 | 1098 | 675 |
| ED (%) | 734 (41.3) | 569 (51.8) | 163 (24.1) |
| HMO Out Pts. clinic / 'Moked' (%) | 384 (21.6) | 236 (21.5) | 147 (21.8) |
| Home visit $(\%)$ | 28 (1.6) | 14 (1.3) | 14 (2.1) |
| In-patient (%) | 30 (1.7) | 20 (1.8) | 9 (1.3) |
| Mobile ICU (%) | 394(22.2) | $144\ (13.1)$ | 250 (37.0) |
| Other hospital (%) | 29 (1.6) | 17 (1.5) | 12 (1.8) |
| Regular ambulance (%) | 178 (10.0) | 98 (8.9) | 80 (11.9) |

Difference in location of first medical contact, ST elevation vs. non ST elevation, p < 0.001

100 Non ST elevation ST elevation 80 Percent (%) 60 51.8 40 24.1 21.5 21.8 20 13.1 HWO On bis Woked Regular ambulance Mobile ICU Home visit 0

Figure 1.14: First Medical Contact

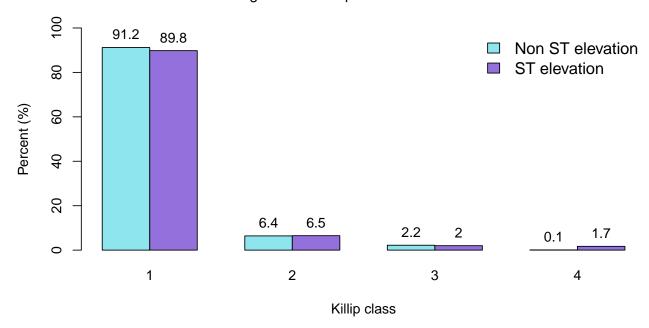
1.5.9 Presenting Symptoms and Killip Class

Typical angina was significantly more frequent in patients presenting with ST elevation (81.9%) than those presenting with non ST elevation (69%). However, atypical chest pain was more common in patients presenting with non ST elevation (11.1%) than in those with ST elevation (8.3%). Also dyspnea was more common in patients with non ST elevation (21.9%) than those with ST elevation (14.8%).

Table 1.15: Presenting Symptoms at First Medical Contact

| | Total | Non ST elevation | ST elevation | p-value |
|----------------------------------------|-------------|------------------|--------------|---------|
| n | 1801 | 1098 | 675 | |
| Typical angina (%) | 1315 (73.0) | 758 (69.0) | 553 (81.9) | < 0.001 |
| Atypical chest pain (%) | 178 (9.9) | 122 (11.1) | 56 (8.3) | 0.067 |
| Syncope (%) | 39(2.2) | 22 (2.0) | 17(2.5) | 0.582 |
| Aborted Sudden Cardiac Death (SCD) (%) | 10 (0.6) | 3 (0.3) | 7 (1.0) | 0.079 |
| Palpitations (%) | 30 (1.7) | 23 (2.1) | 6 (0.9) | 0.080 |
| Dyspnea (%) | 342 (19.0) | 240 (21.9) | 100 (14.8) | < 0.001 |
| Abdominal pain (%) | 87 (4.8) | 46 (4.2) | 41 (6.1) | 0.095 |

Figure 1.15: Killip Class on Admission



1.5.10 Pre-Hospital Treatment (before ED arrival)

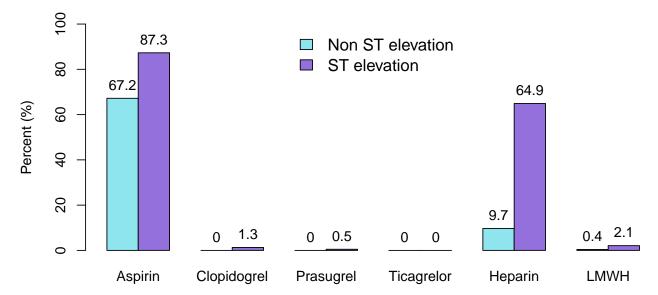
At first medical contact, patients with ST elevation were significantly more likely to receive therapy with aspirin and heparin than patients with non ST elevation.

Table 1.16 Pre-Hospitalization Treatment

| | Total | Non ST elevation | ST elevation | p-value |
|-----------------|------------|------------------|--------------|---------|
| n^1 | 865 | 400 | 463 | |
| Aspirin (%) | 504 (79.5) | 166 (67.2) | 338 (87.3) | < 0.001 |
| Clopidogrel (%) | 5 (0.8) | 0 (0.0) | 5 (1.3) | 0.182 |
| Prasugrel (%) | 2 (0.3) | 0 (0.0) | 2(0.5) | 0.685 |
| Ticagrelor (%) | 0 (0.0) | 0 (0.0) | 0 (0.0) | NA |
| Heparin $(\%)$ | 275 (43.4) | 24 (9.7) | 251 (64.9) | < 0.001 |
| LMWH (%) | 9 (1.4) | 1 (0.4) | 8 (2.1) | 0.167 |

¹ Only MICU and regular ambulance patients were included

Figure 1.16: Pre-Hospitalization Treatment



1.6 First Recorded ECG

1.6.1 Location of First ECG Recording

68.4% of patients presenting with non ST elevation and 35.1% of patients presenting with ST elevation had their first ECG recorded in the emergency department (ED). With respect to the remaining patients, 46.2% of patients with ST elevation and 17.4% of those with non ST elevation had the first ECG performed either at home or in an ambulance, and about 11% in both groups had it performed in a primary clinic.

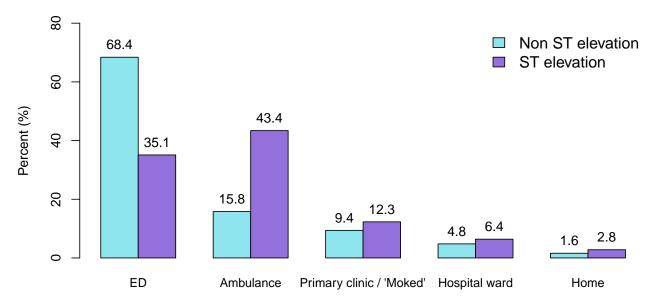


Figure 1.17: Location of First ECG Recording

1.6.2 First ECG Rhythm

About 93% of patients presented with a normal sinus rhythm (NSR). 3.1% of patients with ST elevation and 3.8% of those without ST elevation, presented with atrial fibrillation.

Table 1.17: First ECG Rhythm

| | Total | Non ST elevation | ST elevation |
|-----------------------------------------------------------------------|-------------|------------------|--------------|
| n | 1801 | 1098 | 675 |
| NSR (%) | 1554 (93.4) | 977 (94.0) | 575 (92.4) |
| Atrial fibrillation (%) | 59 (3.5) | 40 (3.8) | 19 (3.1) |
| Ventricular Tachycardia (VT)/ Ventricular Fibrillation (VF) (%) | 21 (1.3) | 7 (0.7) | 14 (2.3) |
| High degree (2nd / 3rd) Atrioventricular (AV) Block (%) | 15 (0.9) | 6 (0.6) | 9 (1.4) |
| Asystole (%) | 1 (0.1) | 0 (0.0) | 1 (0.2) |
| Other (%) | 13 (0.8) | 9 (0.9) | 4 (0.6) |

Difference in first ECG rhythm, ST elevation vs. non ST elevation, p 0.018

1.7 Primary Reperfusion

1.7.1 Primary Reperfusion Therapy in Patients with STEMI

87.5% of patients with STEMI underwent primary reperfusion within 12 hours from onset of symptoms, mainly primary PCI. In 88.4% of these cases, stents were deployed. Of the remaining 12.5% which did not undergo primary reperfusion, 88% eventually underwent coronary angiography. Of these, 90% underwent revascularization.

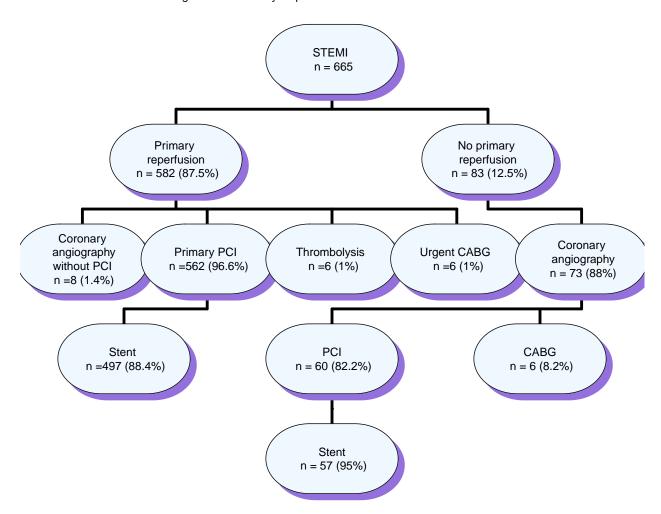


Figure 1.18: Primary Reperfusion in Patients with ST Elevation

1.7.2 Length of Time from Arrival to Primary Reperfusion

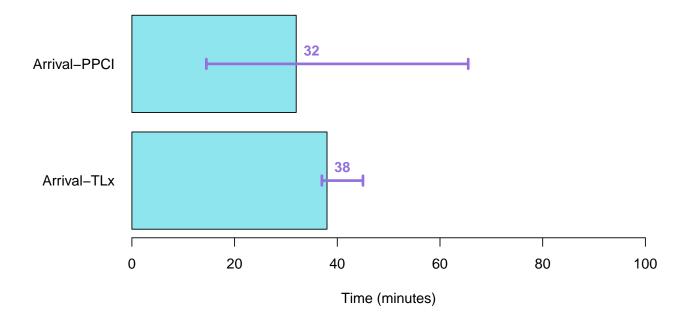
The median time from arrival to primary reperfusion was less than one hour (38 minutes).

There were no patients who undergo thrombolysis.

Table 1.18: Length of Time (minutes) from Arrival to Reperfusion

| | N | Time in minutes (median [IQR]) |
|------------------------------------|-----|--------------------------------|
| From arrival to thrombolysis (TLx) | 5 | 38.00 [37.00, 45.00] |
| From arrival to primary PCI (PPCI) | 483 | 32.00 [14.50, 65.50] |

Figure 1.19: Length of Time from Arrival to Reperfusion (Median, 25%–75%)



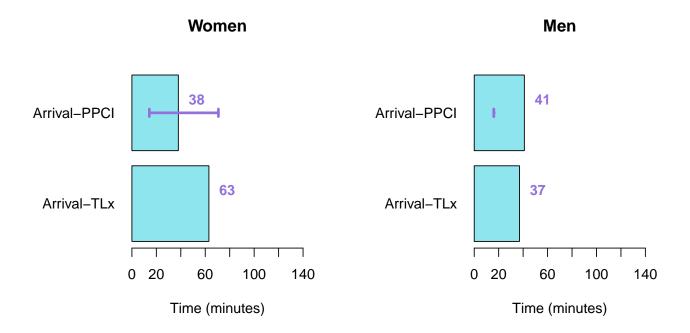
1.7.3 Length of Time from Arrival to Primary Reperfusion, by Gender

The time delay from arrival to primary reperfusion was shorter for women compared to men.

Table 1.19: Length of Time (minutes) from Arrival to Reperfusion, by gender

| | Women | | Men | | |
|------------------------------|-----------------------------------|----|--------------------------------|-----|-------------|
| | Time in minutes (median [IQR]) | N | Time in minutes (median [IQR]) | N | p- value |
| From arrival to thrombolysis | 63.24 [63.24, 63.24] | 1 | 37.5 [31.5, 39.75] | 4 | 0.157 |
| From arrival to primary PCI | 38 [14.25, 70.75] | 90 | 41 [16.5 , 78] | 451 | 0.517 |

Figure 1.20: Length of Time from Arrival to Reperfusion by gender (Median, 25%–75%)



1.7.4 Use of drugs and protective devices during Primary PCI

Table 1.20: Drugs and Protective Devices during Primary Reperfusion

| | Overall |
|--------------------------|------------|
| n | 582 |
| IIb/IIIa antagonists (%) | 145 (24.9) |
| Bivalirudin (%) | 13 (2.2) |
| Aspiration device (%) | 44 (7.6) |

1.7.5 Primary PCI / Coronary Angiography

Table 1.21: Vascular access during Primary Reperfusion

| | Overall |
|-----------------|------------|
| n | 582 |
| Vascular access | |
| Femoral | 46 (8.3) |
| Radial | 506 (91.0) |
| Both | 4 (0.7) |

1.7.6 Thrombolysis in Myocardial Infarction (TIMI) Grade Flow of Infarct-Related Artery (IRA) During Primary PCI

In 61.5% of cases, a TIMI flow grade of zero was observed on first injection to the Infarct Related Artery (IRA). Following revascularization, a TIMI grade flow of 3 was achieved in the majority of patients (93%).

Table 1.22: TIMI Grade Flow of IRA Before and After Revascularization

| | Before revascularization (%) | After revascularization (%) | |
|---|------------------------------|-----------------------------|--|
| n | 488 | 542 | |
| 0 | 300 (61.5) | 11 (2.0) | |
| 1 | 71 (14.5) | 3 (0.6) | |
| 2 | 53 (10.9) | 24 (4.4) | |
| 3 | 64 (13.1) | 504 (93.0) | |

1.7.7 Reasons for Not Performing Primary Reperfusion

12.5% of patients presenting with STEMI did not receive primary reperfusion therapy. In 21.7% the reason was spontaneous reperfusion, in 46.7% the reason was late arrival at the hospital, and in 20% of cases primary reperfusion was considered not indicated.

1.7 Contraindication to thrombolysis 1.7 Takotsubo syndrome 20 Considered not indicated/justified 21.7 Spontaneous reperfusion 36.1 Other 46.7 Late arrival at hospital 0 10 20 50 30 40 Percent (%)

Figure 1.21: Reasons for Not Performing Primary Reperfusion Number of Patients = 83

• There were no patients that died before decision or any patient refusal.

1.8 Coronary Interventions and Procedures during Hospitalization

1.8.1 Coronary Angiography and Interventions

Patients with STEMI were more likely than those with non STEMI to undergo coronary angiography and PCI. CABG during hospitalization was performed more frequently in patients with non STEMI.

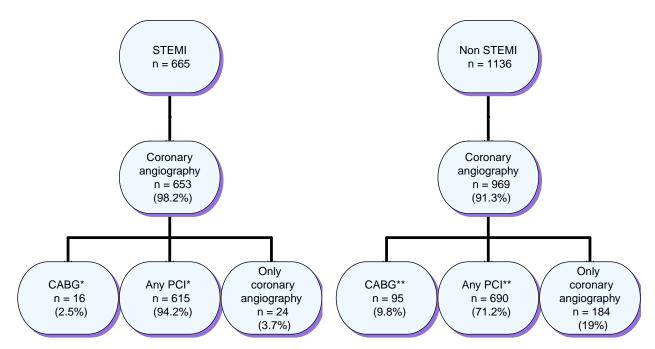


Figure 1.22: In-Hospital Cardiac Interventions and Procedures

^{*2} patients underwent both CABG and PCI;

^{** 2} patients underwent both CABG and PCI.

1.8.2 Coronary Angiography (excluding primary PCI)

Table 1.23: Vascular access during coronary angiography

| | Overall |
|----------------------|-------------|
| n | 1191 |
| Coronary angiography | 1045 (89.6) |
| Vascular access: | |
| Femoral | 50 (5.0) |
| Radial | 950 (94.4) |
| Both | 6 (0.6) |

1.8.3 Other Procedures During Hospitalization

Patients with STEMI were more likely to receive Direct-Current (DC) shocks, resuscitation, mechanical ventilation, intra-aortic ballon pump (IABP) and temporary pacemaker than those with non STEMI.

Table 1.24: Other Procedures

| | Total | Non STEMI | STEMI | p-value |
|----------------------------|-----------|-----------|-----------|---------|
| n | 1801 | 1136 | 665 | |
| DC shock (%) | 55 (3.1) | 18 (1.6) | 37 (5.6) | < 0.001 |
| Resuscitation (%) | 39(2.2) | 13 (1.2) | 26 (3.9) | < 0.001 |
| Mechanical ventilation (%) | | | | 0.018 |
| Invasive | 48 (2.7) | 21 (1.9) | 27 (4.1) | |
| Non invasive | 43 (2.4) | 25 (2.3) | 18 (2.7) | |
| Intra-Aortic Balloon Pump | 18 (1.1) | 4 (0.4) | 14 (2.2) | 0.001 |
| (IABP) (%) | | | | |
| Dialysis (%) | 9 (0.5) | 8 (0.7) | 1 (0.2) | 0.197 |
| ICD/CRT (%) | 13 (0.7) | 8 (0.7) | 5 (0.8) | 1.000 |
| Permanent pacemaker (%) | 10 (0.6) | 8 (0.7) | 2(0.3) | 0.413 |
| Temporary pacemaker (%) | 14 (0.8) | 3 (0.3) | 11 (1.7) | 0.004 |
| Temperature control (%) | 3 (0.2) | 0 (0.0) | 3 (0.5) | 0.099 |

1.9 Ejection Fraction

Ejection fraction (EF) was determined in 98.6% of patients with STEMI and in 91.1% of those with non STEMI. EF was normal in a larger proportion of patients with non STEMI (50.7%) than in patients with STEMI (20.9%). 29.8% of patients with STEMI and 15.1% of patients with non STEMI presented with an EF < 40%.

Table 1.25: Ejection Fraction

| | Total | Non STEMI | STEMI | p-value |
|----------------------|-------------|------------|------------|---------|
| n | 1801 | 1136 | 665 | |
| EF determined (%) | 1592 (94.0) | 957 (91.1) | 635 (98.6) | < 0.001 |
| EF (range) (%) | | | | < 0.001 |
| Normal (55-65%) | 617 (38.9) | 485 (50.7) | 132 (20.9) | |
| Preserved (50-54%) | 195 (12.3) | 115 (12.0) | 80 (12.7) | |
| Mild (40-49%) | 444 (28.0) | 212 (22.2) | 232 (36.7) | |
| Moderate $(30-39\%)$ | 240 (15.1) | 101 (10.6) | 139(22.0) | |
| Severe ($< 30\%$) | 92 (5.8) | 43 (4.5) | 49 (7.8) | |

Note:

EF range percentages are calculated out of patients who had documented EF

1.10 In-Hospital Complications

Cardiogenic shock, CHF mild-moderate, Stent thrombosis (definite/probable/possible), ventricular fibrillation (VF) were more frequent in patients with STEMI.

Table 1.26: In-Hospital Complications

| | Total | Non STEMI | STEMI | p-value |
|---------------------------------------------------|------------|--------------|-----------|---------|
| n | 1801 | 1136 | 665 | |
| CHF mild-moderate (Killip-2) (%) | 178 (10.1) | 90 (8.2) | 88 (13.3) | 0.001 |
| Pulmonary edema (Killip-3) (%) | 60 (3.4) | 33(3.0) | 27 (4.1) | 0.275 |
| Cardiogenic shock (Killip-4) (%) | 43 (2.4) | 12(1.1) | 31 (4.7) | < 0.001 |
| Hemodynamically significant RV infarction (%) | 7(0.4) | 3(0.3) | 4(0.6) | 0.493 |
| Re-MI (%) | 11 (0.6) | 7(0.6) | 4 (0.6) | 1.000 |
| Post MI angina/re-ischemia (%) | 19 (1.1) | 13(1.2) | 6 (0.9) | 0.769 |
| Stent thrombosis (definite/probable/possible) (%) | 11 (0.6) | 3(0.3) | 8 (1.2) | 0.035 |
| Free wall rupture (%) | 3(0.2) | 1(0.1) | 2(0.3) | 0.654 |
| Tamponade (%) | 1 (0.1) | 1(0.1) | 0 (0.0) | 1.000 |
| MR Moderate-severe (%) | 25 (1.4) | 11 (1.0) | 14 (2.1) | 0.086 |
| Pericarditis (%) | 12 (0.7) | 5(0.5) | 7 (1.1) | 0.231 |
| Sustained VT (>125 bpm) (%) | 16 (0.9) | 8(0.7) | 8 (1.2) | 0.434 |
| VF (%) | 33 (1.9) | 7(0.6) | 26 (3.9) | < 0.001 |
| New AF (%) | 59 (3.3) | 36(3.2) | 23 (3.5) | 0.919 |
| High degree (2nd / 3rd) AVB (%) | 22 (1.2) | 10 (0.9) | 12 (1.8) | 0.148 |
| Asystole (%) | 13 (0.7) | 7(0.6) | 6(0.9) | 0.719 |
| TIA (%) | 4(0.2) | 3(0.3) | 1 (0.2) | 1.000 |
| Stroke (%) | 6 (0.3) | 3(0.3) | 3 (0.5) | 0.831 |
| CVA/TIA in hospital (%) | 10 (0.6) | 6(0.5) | 4(0.6) | 1.000 |
| Acute renal injury (%) | 72 (4.3) | 46 (4.5) | 26 (4.0) | 0.786 |
| Sepsis (%) | 24 (1.4) | 13 (1.3) | 11 (1.7) | 0.589 |
| Bleeding (%) | 11 (0.7) | 7(0.7) | 4 (0.6) | 1.000 |
| Minor bleeding (%) | 9 (0.5) | 5(0.5) | 4 (0.6) | 0.980 |
| Blood transfusions (%) | 6 (0.4) | 5 (0.5) | 1 (0.2) | 0.497 |

1.11 In-Hospital Medical Treatment

Aspirin, P2Y12 inhibitors, Prasugrel, Ticagrelor, Oral anticoagulants, ACE-I, Beta-Blockers, Digoxin, CCB, NSAIDS, Statins, Ezetimbe and Antihyperglycemic (only among diabetic patients) were more frequently used in patients with STEMI. Clopidogrel was more frequently used among patients with non STEMI.

All other recommended drugs were similarly given to both groups.

Table 1.27: In-Hospital Medical Treatment

| | Total | Non STEMI | STEMI | p- value |
|--------------------------------------|--------------|-------------|-------------|-------------|
| n | 1801 | 1136 | 665 | |
| Anti-platelets | | | | |
| Aspirin (%) | 1412 (78.4) | 853 (75.1) | 559 (84.1) | < 0.001 |
| P2Y12 inhibitors (%) | 1237 (68.7) | 703 (61.9) | 534 (80.3) | < 0.001 |
| Clopidogrel (%) | 395 (21.9) | 304 (26.8) | 91 (13.7) | < 0.001 |
| Prasugrel (%) | 491 (27.3) | 186 (16.4) | 305 (45.9) | < 0.001 |
| Ticagrelor (%) | 384 (21.3) | 226 (19.9) | 158 (23.8) | 0.061 |
| Anticoagulants | | | | |
| Oral anticoagulants ¹ (%) | 109 (6.1) | 57 (5.0) | 52 (7.8) | 0.021 |
| Warfarin (%) | 22 (1.2) | 12 (1.1) | 10 (1.5) | 0.541 |
| Dabigatran (%) | 0 (0.0) | 0 (0.0) | 0 (0.0) | NA |
| Rivaroxaban (%) | 10 (0.6) | 4 (0.4) | 6 (0.9) | 0.235 |
| Apixaban (%) | 81 (4.5) | 44 (3.9) | 37 (5.6) | 0.120 |
| Other | | | | |
| ACE-I (%) | 850 (76.9) | 706 (74.6) | 144 (90.0) | < 0.001 |
| ARB (%) | 34 (3.0) | 31 (3.2) | 3 (1.9) | 0.486 |
| Spironolactone (%) | 217 (12.0) | 139 (12.2) | 78 (11.7) | 0.807 |
| Beta Blockers (%) | 787 (43.7) | 413 (36.4) | 374 (56.2) | < 0.001 |
| Digoxin (%) | 227 (12.6) | 100 (8.8) | 127 (19.1) | < 0.001 |
| CCB (%) | 796 (44.2) | 415 (36.5) | 381 (57.3) | < 0.001 |
| Amiodarone (%) | 5 (0.3) | 2 (0.2) | 3 (0.5) | 0.544 |
| Other Anti-Arrhythmic (%) | 148 (8.2) | 103 (9.1) | 45 (6.8) | 0.104 |
| Nitrates (%) | 52 (2.9) | 28 (2.5) | 24 (3.6) | 0.210 |
| Diuretics (%) | 7 (0.4) | 2 (0.2) | 5 (0.8) | 0.133 |
| Proton-Pump Inhibitors (PPI) (%) | 86 (4.8) | 60 (5.3) | 26 (3.9) | 0.229 |
| H2 Blockers (%) | 186 (10.3) | 117 (10.3) | 69 (10.4) | 1.000 |
| NSAIDS (%) | 815 (45.3) | 450 (39.6) | 365 (54.9) | < 0.001 |
| Colchicine (%) | 20 (1.1) | 15 (1.3) | 5 (0.8) | 0.380 |
| Steroids (%) | 29 (1.6) | 19 (1.7) | 10 (1.5) | 0.936 |
| IV inotropic agent (%) | 3 (0.9) | 1 (0.4) | 2 (1.7) | 0.568 |
| Antihyperglycemic ² (%) | 175 (22.2) | 96 (17.9) | 79 (31.3) | < 0.001 |
| Statins (%) | 1033 (57.4) | 576 (50.7) | 457 (68.7) | < 0.001 |
| Ezetimibe (%) | 379 (21.0) | 194 (17.1) | 185 (27.8) | < 0.001 |

¹ Oral anticoagulants include warfarin, dabigatran, rivaroxaban and apixaban

² Only among diabetic patients

1.12 Duration of Hospitalization

Table 1.28: Length of Stay in ICCU/Cardiology and Total Hospital Stay

| | Total | Non STEMI | STEMI |
|-----------------------------------------------|-----------|-----------|------------|
| n | 1801 | 1136 | 665 |
| No. of days in ICCU/Cardiology (median [IQR]) | 3[2, 4] | 3[2, 4] | 3 [3 , 5] |
| Total hospital days (median [IQR]) | 3 [2 , 5] | 3[2, 4] | 3 [3, 5] |

1.13 Discharge

1.13.1 Medical Treatment on Discharge

Aspirin, P2Y12 inhibitors (mainly prasugrel), ACE-I, Spironolactone, beta-blockers, statins and ezetimibe were more often prescribed for patients with STEMI and Antihyperglycemic, Glucagon-Like Peptide-1 receptor agonists (GLP1-RA) were more often prescribed among diabetic STEMI patients.

Clopidogrel, CCB, nitrates, diuretics and PPI were prescribed more often for patients with non STEMI. All other recommended drugs were similarly given to both groups.

Table 1.29.a: Medical Treatment on Discharge among Hospital Survivors

| | Total | Non STEMI | STEMI | p-value |
|--------------------------------------|--------------|-------------|-------------|---------|
| n | 1751 | 1099 | 652 | |
| Anti-platelets | | | | |
| Aspirin (%) | 1347 (76.9) | 819 (74.5) | 528 (81.0) | 0.002 |
| P2Y12 inhibitors (%) | 1300 (74.2) | 761 (69.2) | 539 (82.7) | < 0.001 |
| Clopidogrel (%) | 403 (23.0) | 323 (29.4) | 80 (12.3) | < 0.001 |
| Prasugrel (%) | 514 (29.4) | 206 (18.7) | 308 (47.2) | < 0.001 |
| Ticagrelor (%) | 383 (21.9) | 232 (21.1) | 151 (23.2) | 0.346 |
| Anticoagulants | | | | |
| Oral anticoagulants ¹ (%) | 131 (7.5) | 84 (7.6) | 47 (7.2) | 0.810 |
| Warfarin (%) | 8 (0.5) | 6 (0.5) | 2 (0.3) | 0.726 |
| Dabigatran (%) | 0 (0.0) | 0 (0.0) | 0 (0.0) | NA |
| Rivaroxaban (%) | 12 (0.7) | 7 (0.6) | 5 (0.8) | 0.985 |
| Apixaban (%) | 111 (6.3) | 71 (6.5) | 40 (6.1) | 0.866 |
| Other | | | | |
| ACE-I (%) | 759 (43.3) | 417 (37.9) | 342 (52.5) | < 0.001 |
| ARB (%) | 344 (19.6) | 231 (21.0) | 113 (17.3) | 0.069 |
| Spironolactone (%) | 257 (14.7) | 122 (11.1) | 135 (20.7) | < 0.001 |
| Beta Blockers (%) | 1072 (61.2) | 623 (56.7) | 449 (68.9) | < 0.001 |
| Digoxin (%) | 5 (0.3) | 2 (0.2) | 3 (0.5) | 0.554 |
| CCB (%) | 257 (14.7) | 194 (17.7) | 63 (9.7) | < 0.001 |
| Amiodarone (%) | 52 (3.0) | 35 (3.2) | 17 (2.6) | 0.588 |
| Other Anti-Arrhythmic (%) | 6 (0.3) | 3 (0.3) | 3 (0.5) | 0.822 |
| Nitrates (%) | 49 (2.8) | 42 (3.8) | 7 (1.1) | 0.001 |
| Diuretics (%) | 230 (13.1) | 163 (14.8) | 67 (10.3) | 0.008 |
| PPI (%) | 1046 (59.7) | 625 (56.9) | 421 (64.6) | 0.002 |
| H2 Blockers (%) | 23 (1.3) | 18 (1.6) | 5 (0.8) | 0.183 |
| Colchicine (%) | 34 (1.9) | 19 (1.7) | 15 (2.3) | 0.510 |
| Steroids (%) | 4 (1.2) | 2(0.9) | 2 (1.8) | 0.890 |
| Antihyperglycemic ² (%) | 315 (40.4) | 201 (37.7) | 114 (46.3) | 0.028 |
| Glucagon-Like Peptide-1 receptor | 40 (5.3) | 21 (4.0) | 19 (8.4) | 0.023 |
| agonists (GLP1-RA) 2 (%) | | | | |
| Sodium-Glucose Cotransporter-2 | 312 (17.8) | 186 (16.9) | 126 (19.3) | 0.228 |
| (SGLT2) Inhibitors ² (%) | | | | |
| Statins (%) | 1426 (81.4) | 878 (79.9) | 548 (84.0) | 0.036 |
| Ezetimibe ($\%$) | 504 (28.8) | 289 (26.3) | 215 (33.0) | 0.003 |

 $^{^{\}rm 1}$ Oral anticoagulants include warfarin, dabigatran, rivaroxaban and apixaban

² Only among diabetic patients

1.13.2 Discharge Destination

Table 1.29.b: Discharge Destination

| | Total | Non STEMI | STEMI |
|------------------------|-------------|------------|------------|
| n | 1751 | 1099 | 652 |
| Discharged to: | | | |
| Home | 1555 (89.0) | 980 (89.3) | 575 (88.3) |
| Internal medicine | 65 (3.7) | 34 (3.1) | 31 (4.8) |
| Cardiothoracic surgery | 75 (4.3) | 59 (5.4) | 16 (2.5) |
| Other hospital | 26 (1.5) | 17 (1.5) | 9 (1.4) |
| Other ward | 20 (1.1) | 4 (0.4) | 16 (2.5) |
| Nursing home | 7 (0.4) | 3 (0.3) | 4 (0.6) |

1.14 Mortality and Major Adverse Cardiac Event (MACE)

1.14.1 Rates of Mortality and MACE by discharge diagnosis

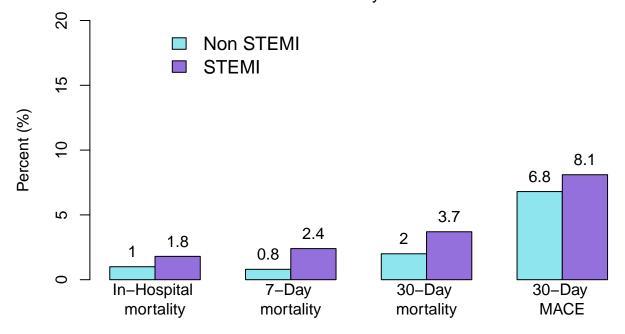
7-days mortality was significantly higher for patients with STEMI compared to those with non STEMI. MACE (Major Adverse Cardiac Events), which included recurrent MI or UAP, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up) or death occurring within 30 days from hospitalization, was not significantly different in patients with and without STEMI.

Table 1.30: Unadjusted Rates of 7-Day, 30-Day and 1-year mortality, 30-Day MACE¹

| | Total | Non STEMI | STEMI | p-value |
|---------------------------|----------|-----------|----------|---------|
| n | 1801 | 1136 | 665 | |
| In-hospital mortality (%) | 23 (1.3) | 11 (1.0) | 12(1.8) | 0.210 |
| 7-day mortality (%) | 18 (1.4) | 6(0.8) | 12(2.4) | 0.037 |
| 30-day mortality (%) | 32(2.7) | 14(2.0) | 18(3.7) | 0.109 |
| $MACE^{1}$ (%) | 88 (7.3) | 48 (6.8) | 40 (8.1) | 0.427 |

¹ Definition of MACE includes: recurrent MI, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up), UAP or death occurring within 30 days from hospitalization

Figure 1.23: Unadjusted Rates of In–Hospital, 7–Day & 30–Day Mortality and 30–Day MACE



After adjustment for age and other risk factors, 7-day mortality rates were significantly higher for patients with STEMI compared to those with non STEMI.

Table 1.31: Mortality Rates by Discharge Diagnosis Adjusted for Age and Other Risk Factors

| | | TEMI vs. Non STEMI) dence Intervals (CI) |
|-------------|----------------------|---------------------------------------------|
| | Age adjusted | Risk factors adjusted ¹ |
| In-Hospital | 1.98 (0.86,4.61) | $3.31\ (0.74,17.66)$ |
| 7-Days | $3.13\ (1.19,9.1)$ | $6.04\ (1.25,45.01)$ |
| 30-Days | $2.12\ (1.04,4.42)$ | $4.9\ (1.68,16.66)$ |
| $MACE^2$ | $1.3 \ (0.84, 2.03)$ | $1.4\ (0.81, 2.43)$ |

 $^{^{1}}$ Adjusted for age, gender, past ACS, diabetes, hypertension, killip class ≥ 2 , any angiography

² Definition includes: recurrent MI, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up) or death occurring within 30 days from hospitalization

1.14.2 Rates of Mortality and MACE by Gender

Table 1.32: Unadjusted Rates of In-Hospital Mortality, 7-Day Mortality, 30-Day Mortality and 30-Day MACE, by Gender

| | Total | Women | Men | p-value |
|---------------------------|----------|-----------|----------|---------|
| n | 1801 | 339 | 1461 | |
| In-hospital mortality (%) | 23(1.3) | 5 (1.5) | 18 (1.3) | 0.933 |
| 7-day mortality (%) | 18 (1.4) | 4 (1.7) | 14 (1.4) | 0.954 |
| 30-day mortality (%) | 32(2.7) | 6 (2.7) | 26(2.7) | 1.000 |
| $MACE^{1}$ (%) | 88 (7.3) | 25 (11.0) | 63 (6.5) | 0.026 |

¹ Definition includes: recurrent MI, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up), UAP or death occurring within 30 days from hospitalization

Table 1.33: Odds Ratios for Mortality and MACE by Gender Adjusted for Age and Other Risk Factors

| | OR (Women vs. | . Men) with 95% CI |
|-----------------------|----------------------|------------------------------------|
| | Age Adjusted | Risk factors Adjusted ¹ |
| In-Hospital mortality | 1.06 (0.34,2.74) | 1.15 (0.16,5.64) |
| 7-Days mortality | $1.23\ (0.34, 3.59)$ | 1.36 (0.18,6.7) |
| 30-Days mortality | $0.81\ (0.29, 1.92)$ | $0.32\ (0.05, 1.26)$ |
| $MACE^2$ | $1.63\ (0.97, 2.67)$ | $1.42 \ (0.75, 2.59)$ |

¹ Adjusted for age, past ACS, diabetes, hypertension, killip class ≥ 2 , any angiography

² Definition includes: recurrent MI, recurrent ischemia, stent thrombosis, ischemic stroke, urgent revascularization (follow-up), UAP or death occurring within 30 days from hospitalization.

1.15 Re-Hospitalization within 90 Days of Admission

Re-hospitalization rates for patients with STEMI and non STEMI were similar. Differences in reasons for re-hospitalization were not statistically significant.

Table 1.34: Re-Hospitalization within 90 Days of Admission

| | Total | Non STEMI | STEMI | p-value |
|-----------------------------------------|------------|------------|------------|---------|
| All patients | | | | |
| n | 1751 | 1099 | 652 | |
| Re-hospitalization ¹ (%) | 319(27.8) | 190(27.9) | 129(27.6) | 0.954 |
| Re-hospitalized patients only | | | | |
| n | 320 | 191 | 129 | |
| Scheduled (%) | 143 (45.7) | 85 (45.2) | 58 (46.4) | 0.928 |
| Scheduled due to cardiac | 138 (97.2) | 81 (95.3) | 57 (100.0) | 0.253 |
| reason (%) | | | | |
| Non-Scheduled (%) | 170 (54.3) | 103 (54.8) | 67 (53.6) | 0.928 |
| Non-Scheduled due to cardiac reason (%) | 91 (53.5) | 61 (59.2) | 30 (44.8) | 0.091 |

 $^{^{1}}$ Re-hospitalization among hospital survivors

^{## [1]} Telephone Clinic visit Medical record

^{##} Levels: Clinic visit Medical record Telephone

1.16 Detailed 90-Day Follow-Up Clinical Data

This is the second time we performed 90 days follow up survey. We performed this survey in order to evaluate patient's adherence to treatment and life-style changes recommendations.

Ninety-day follow-up were performed for 1168 (65%) patients. Of which 644 (55%) were contacted by phone, 96 (8%) by clinical visits Most of the patients were asymptomatic and in NYHA Class I.

Very few patients were treated with angiotensin receptor-neprilysin inhibitors (ARNI'S) or SGLT-2i (non-diabetic). Most of the patients were receiving potent statins and only 1% were on PCSK-9i. For diabetic patients, 35% of patients were receiving SGLT-2 but very few patients were on GLP1-RA.

Table 1.35: Medical Treatment at 90-Day Follow-Up

| | Overall |
|------------------------------------------------|---------------|
| n | 1168 |
| Aspirin (%) | 875 (79.6) |
| Clopidogrel (%) | 277 (25.2) |
| Prasugrel (%) | 371 (33.8) |
| Ticagrelor (%) | $246\ (22.4)$ |
| Apixaban (%) | 86 (7.8) |
| Dabigatran (%) | 1099 (100.0) |
| Rivaroxaban (%) | 7 (0.6) |
| Warfarin (%) | 7 (0.6) |
| Enoxaparin (%) | 14 (1.3) |
| ACE-I (%) | 480 (43.7) |
| ARB's (%) | 240 (21.8) |
| ARNI (%) | 28 (2.5) |
| Spironolactone (%) | 184 (16.7) |
| Beta blockers (%) | 707 (64.3) |
| Digoxin $(\%)$ | 4 (0.4) |
| CCB (%) | 177 (16.1) |
| Diuretics (%) | 159 (14.5) |
| PPI's (%) | 689 (62.7) |
| Dapagliflozin (Forxiga) for non diabetic (%) | 37 (5.8) |
| Empagliflozin (Jardiance) for non diabetic (%) | 34 (5.3) |

 $^{^{\}rm 1}$ Statins include: Simvastatin, Pravastatin, Atorvastatin, Rosuvastatin

Table 1.36: Diabetes Medications in 90-Day Follow-Up

| | Overall |
|---------------------------------------------|-------------|
| n | 764 |
| Insulin SC (%) | 112 (24.3) |
| Glibenclamide (Gluben) (%) | 461 (100.0) |
| Glipizide (Gluco-Rite) (%) | 461 (100.0) |
| Glimepiride (Amaryl) (%) | 2 (0.4) |
| Metformin (Glucophage) (%) | 127 (27.5) |
| Sitagliptine (Januvia) (%) | 16 (3.5) |
| Saxagliptine (Onglyza) (%) | 461 (100.0) |
| Vidagliptine (Galvus) (%) | 3 (0.7) |
| Linagliptine (Trajenta) (%) | 5 (1.1) |
| Exenatide (Byetta, Budyreon) (%) | 461 (100.0) |
| Liraglutide (Victoza) (%) | 5 (1.1) |
| Dulaglutide (Trulicity) (%) | 28 (6.1) |
| Semaglutide (Ozempic) (%) | 25 (5.4) |
| Dapagliflozin (Forxiga) (%) | 55 (11.9) |
| Empagliflozin (Jardiance) (%) | 110 (23.9) |
| Acrabose (Prandase) (%) | 461 (100.0) |
| Meglinitides (Repaglinide, Novonorm) (%) | 3 (0.7) |
| TZDs (Pioglitasone - actos, Rosiglitazone - | 3 (0.7) |
| Avandia) (%) | |

Concerning life-style modification, 24% of patients reported to perform regular weekly exercise and 39% patients reported about diet change. Smoking cessation was reported in 183~(42%) of the patients who were active smokers during the index hospitalization.

Despite the recommendation for cardiac rehabilitation programs, only 39% of patients were actively participating or scheduled.

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