

Supplemental Data

Heart failure therapies following acute coronary syndromes with reduced ejection fraction: Data from the ACSIS survey

Supplemental Table S1: In-hospital characteristics of study population

| Variable | Overall n=661 | LVEF≤40% n=406 | LVEF 41-49% n=255 | P value | Missing data (%) |
|--|------------------|-------------------|----------------------|---------|---------------------|
| In-hospital LVEF (median [IQR]) | 40 [35, 45] | 35 [33, 40] | 45 [45, 45] | <0.001 | 0 |
| Discharge diagnosis: | | | | 0.546 | 0 |
| NSTEMI | 286 (43.3) | 175 (43.1) | 111 (43.5) | | |
| STEMI | 355 (53.7) | 221 (54.4) | 134 (52.5) | | |
| UA | 20 (3.0) | 10 (2.5) | 10 (3.9) | | |
| Anterior STEMI location (ECG) | 223 (62.8) | 166 (75.1) | 57 (42.5) | <0.001 | |
| CABG (till hospital discharge) | 44 (6.7) | 27 (6.7) | 17 (6.7) | 1.000 | 0 |
| AICD/CRT | 10 (1.5) | 9 (2.2) | 1 (0.4) | 0.123 | 0 |
| Intra-aortic Balloon (IABP) | 15 (2.3) | 11 (2.7) | 4 (1.6) | 0.487 | |
| STEMI patients (n) | 355 | 221 | 134 | | |
| Angiography followed by: | | | | 0.526 | 8.2 |
| Primary PCI | 321 (98.5) | 197 (98.0) | 124 (99.2) | | |
| Urgent CABG | 3 (0.9) | 2 (1.0) | 1 (0.8) | | |
| No intervention | 2 (0.6) | 2 (1.0) | 0 (0.0) | | |
| Infarcted related artery: | | | | <0.001 | 9.3 |
| LMCA | 2 (0.6) | 2 (1.0) | 0 (0.0) | | |
| LAD | 206 (64.0) | 151 (75.5) | 55 (45.1) | | |
| LCX | 48 (14.9) | 20 (10.0) | 28 (23.0) | | |
| RCA | 63 (19.6) | 26 (13.0) | 37 (30.3) | | |
| Surgical graft | 3 (0.9) | 1 (0.5) | 2 (1.6) | | |
| Number of diseased vessels: | | | | 0.292 | 8.5 |
| No vessels | 3 (0.9) | 2 (1.0) | 1 (0.8) | | |
| 1 vessel | 131 (40.3) | 80 (40.0) | 51 (40.8) | | |
| 2 vessels | 117 (36.0) | 66 (33.0) | 51 (40.8) | | |
| 3 vessels | 74 (22.8) | 52 (26.0) | 22 (17.6) | | |
| TIMI grade flow before revascularization (median [IQR]) | 0 [0, 2] | 0 [0, 1] | 0 [0, 2] | 0.372 | 11.3 |
| PCI for non-infarct artery | 37 (11.4) | 26 (12.9) | 11 (8.9) | 0.359 | 8.7 |

AICD, Automatic implantable cardioverter defibrillator; CABG, coronary artery bypass graft; CRT, cardiac resynchronization therapy; ECG, electrocardiography; IQR, interquartile range; LAD, left anterior descending coronary artery; LCX, left circumflex coronary artery; LMCA, left main coronary artery; LVEF, left ventricle ejection fraction; NSTEMI, non-ST segment elevation myocardial infarction; PCI, percutaneous coronary intervention; STEMI, ST-segment elevation myocardial infarction; SVG, saphenous vein graft; UA, unstable angina; RCA, right coronary artery

Supplemental Table S2: In-hospital complications of study population

| Variable | Overall 661 | LVEF≤40% 406 | LVEF 41%-49% 255 | P value |
|--|------------------------|-------------------------|-----------------------------|----------------|
| CHF mild-moderate (Killip II) | 109 (16.5) | 81 (20.0) | 28 (11.0) | 0.004 |
| Pulmonary edema (Killip III) | 40 (6.1) | 36 (8.9) | 4 (1.6) | <0.001 |
| Cardiogenic shock (Killip IV) | 20 (3.0) | 16 (4.0) | 4 (1.6) | 0.134 |
| Hemodynamically significant right Ventricular infarction | 8 (1.2) | 7 (1.7) | 1 (0.4) | 0.248 |
| Post MI angina/re-ischemia | 6 (0.9) | 3 (0.7) | 3 (1.2) | 0.872 |
| Stent thrombosis (definite/probable/possible) | 5 (0.8) | 4 (1.0) | 1 (0.4) | 0.695 |
| MR moderate - severe | 17 (2.6) | 13 (3.2) | 4 (1.6) | 0.299 |
| Pericarditis | 7 (1.1) | 6 (1.5) | 1 (0.4) | 0.349 |
| Sustained VT (>125 bpm) | 8 (1.2) | 7 (1.7) | 1 (0.4) | 0.246 |
| Primary VF | 12 (1.8) | 6 (1.5) | 6 (2.4) | 0.602 |
| Secondary VF | 3 (0.5) | 2 (0.5) | 1 (0.4) | 1.000 |
| New Atrial Fibrillation. | 33 (5.0) | 26 (6.4) | 7 (2.7) | 0.055 |
| High degree (2 nd or 3 rd) AVB | 4 (0.6) | 2 (0.5) | 2 (0.8) | 1.000 |
| Asystole | 5 (0.8) | 3 (0.7) | 2 (0.8) | 1.000 |
| Stroke | 4 (0.6) | 3 (0.7) | 1 (0.4) | 0.965 |
| Acute renal failure | 55 (8.4) | 41 (10.1) | 14 (5.5) | 0.051 |
| Bleeding | 18 (2.7) | 15 (3.7) | 3 (1.2) | 0.090 |
| Free wall rupture | 1 (0.2) | 1 (0.2) | 0 (0.0) | 1.000 |

AVB, atrioventricular block; CHF, congestive heart failure; MI, myocardial infarction; MR, mitral regurgitation, VF, ventricular fibrillation; VT, ventricular tachycardia

Supplemental Table S3: Clinical adverse outcomes post-discharge, according to the number of heart failure therapeutic groups

| No. of therapeutic groups: | EF≤40% | | | EF 41%-49% | | |
|---|---------------|---------------|----------------|---------------|---------------|---------------|
| | 0-1 | 2 | 3-4 | 0-1 | 2 | 3-4 |
| Patients with 90-day follow-up (n=547) | 31 | 130 | 167 | 51 | 93 | 75 |
| Rehospitalizations - ACS (cardiac, unscheduled) * (%) | 0 | 6 (4.6%) | 3 (1.8%) | 0 | 0 | 3 (4%) |
| Rehospitalizations - HF (%) | 2 (6.9%) | 2 (1.6%) | 8 (4.8%) | 0 | 1 (1.1%) | 1 (1.3%) |
| ACS (UA/NSTEMI/STEMI/ Stent thrombosis) (%) | 0 | 8 (6.2%) | 6 (3.6%) | 0 | 2 (2.2%) | 3 (4%) |
| Aborted SCD (%) | 0 | 1 (0.8%) | 0 | 0 | 0 | 0 |
| 90-day all-causes mortality (%) | 0 | 1 (0.8%) | 0 | 1 (2%) | 0 | 0 |
| Combined outcome 90-days (HF, ACS, any death) (%) | 2 (6.5%) | 9 (6.9%) | 14 (8.4%) | 1 (2%) | 3 (3.2%) | 4 (5.3%) |
| Referral to rehabilitation (%) | 19 (67.9%) | 94 (75.2%) | 121 (73.3%) | 33 (67.3%) | 73 (78.5%) | 48 (65.8%) |
| Participation in rehabilitation (or scheduled) (%) | 9 (33.3%) | 44 (36.4%) | 53 (32.7%) | 11 (24.4%) | 37 (42.5%) | 21 (29.6%) |
| All patients (n=661) | 47 | 153 | 206 | 57 | 116 | 82 |
| 30-day MACE** (%) | 2 (4.3%) | 14 (9.2%) | 18 (8.7%) | 4 (7%) | 8 (6.9%) | 6 (7.3%) |
| 1-year mortality*** (%) | 3 (6.4%) | 7 (4.6%) | 7 (3.4%) | 1 (1.8%) | 2 (1.7%) | 1 (1.2%) |

Stratified by number of HF therapeutic groups [(a) any ACEI or ARB or ARNI, (b) MRA, (c) SGLT2I, (d) Beta blockers], prescribed at discharge or 90-day follow-up. All pairwise comparisons were non-significant

* Refers to the first re-hospitalization only

** MACE (30 days: death/UA/MI/CVA/stent thrombosis/urgent revascularization)

*** Excluding in-hospital death

ACS, acute coronary syndrome; CVA, cerebrovascular accident; HF, heart failure; MACE, major adverse cardiovascular events; NSTEMI, non-ST segment elevation myocardial infarction; SCD, sudden cardiac death; STEMI, ST-segment elevation myocardial infarction; UA, unstable angina

Supplemental Table S4: Clinical outcomes according to the use of ARNI or SGLT2I at discharge or 90-Days follow-up

| | Overall | ARNI/SGLT2I No | ARNI/SGLT2I Yes | P value |
|---|-----------|-------------------|--------------------|---------|
| <u>Patients with available 90-day follow-up*</u> | | | | |
| n | 547 | 387 | 160 | |
| Rehospitalizations - ACS (cardiac, unscheduled) * (%) | 12 (2.2%) | 9 (2.3%) | 3 (1.9%) | 0.995 |
| Rehospitalizations - HF (%) | 14 (2.6%) | 10 (2.6%) | 4 (2.5%) | 1 |
| ACS (UA/NSTEMI/STEMI/ Stent thrombosis) (%) | 19 (3.5%) | 13 (3.4%) | 6 (3.8%) | 1 |
| Aborted SCD (%) | 1 (0.2%) | 1 (0.3%) | 0 | 1 |
| 90-day any mortality (%) | 2 (0.4%) | 2 (0.5%) | 0 | 0.895 |
| Combined outcome 90-days (HF, ACS, any death) (%) | 33 (6%) | 23 (5.9%) | 10 (6.2%) | 1 |
| <u>All patients</u> | | | | |
| | 661 | 478 | 163 | |
| 30-day MACE** (%) | 52 (7.9%) | 37 (7.7%) | 15 (8.2%) | 0.973 |
| 1-year mortality*** (%) | 21 (3.2%) | 15 (3.1%) | 6 (3.3%) | 1 |

* Refers to the first re-hospitalization only

** MACE (30 days: death/UA/MI/CVA/stent thrombosis/urgent revascularization)

*** Excluding in-hospital death

ACS, acute coronary syndrome; CVA, cerebrovascular accident; HF, heart failure; MACE, major adverse cardiovascular events; NSTEMI, non-ST segment elevation myocardial infarction; SCD, sudden cardiac death; STEMI, ST-segment elevation myocardial infarction; UA, unstable angina