# Anticoagulation in Patients with Acute Myocardial Infarction Who Are Taking Dual Antiplatelet Agents


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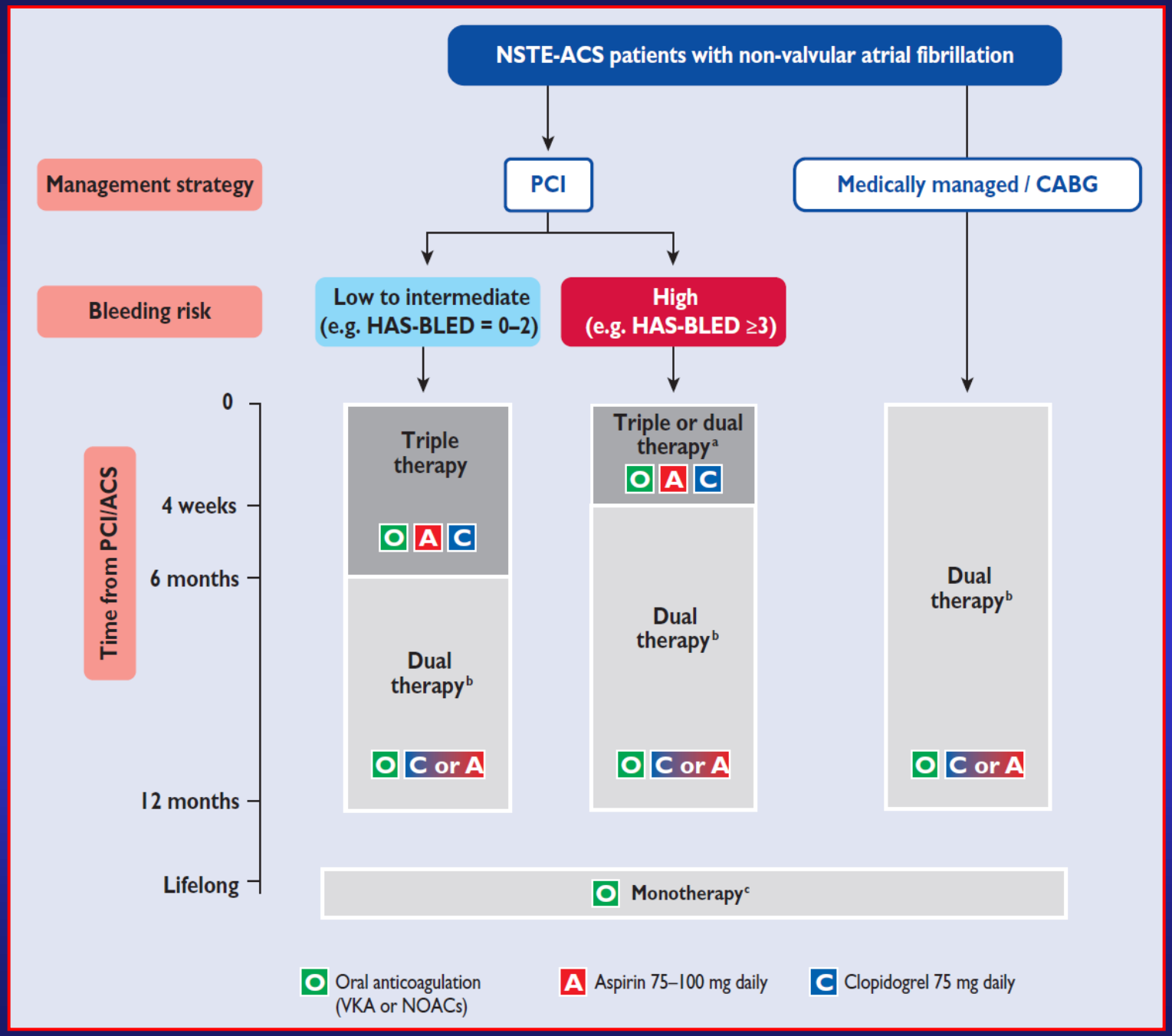
# Background

- Patients with atrial fibrillation and high thromboembolic risk need oral anticoagulant (OAC) to prevent the embolic events.
- OAC increases the bleeding risk in patients with acute myocardial infarction who are taking dual antiplatelet agents.

| Recommendations | Class | Level |
|---|---|---|
| In patients with a firm indication for OAC (e.g. atrial fibrillation with a CHA2DS2-VASc score ≥2, recent venous thromboembolism, LV thrombus or mechanical valve prosthesis), OAC is recommended in addition to antiplatelet therapy. | I | C |
| If at low bleeding risk (HAS-BLED ≤2), triple therapy with OAC, aspirin and clopidogrel should be considered for 6 months, followed by OAC and aspirin or clopidogrel continued up to 12 months. | IIa | C |
| If at high bleeding risk (HAS-BLED ≥3), triple therapy with OAC, aspirin and clopidogrel should be considered for a duration of 1 month, followed by OAC and aspirin or clopidogrel continued up to 12 months irrespective of the stent type (BMS or new-generation DES). | IIa | C |

2015 ESC Guidelines for the management of ACS in patients presenting without persistent ST-segment elevation




2015 ESC Guidelines for the management of ACS in patients presenting without persistent ST-segment elevation

# Methods

- KAMIR-NIH Registry; 13,031 patients with AMI
- Atrial fibrillation on the initial ECG and finished 1-year follow-up visit; 322 patients
  - Group 1; 73 patients with OAC
  - Group 2; 249 patients without OAC

# Results

## Baseline Characteristics of Patients

| | Group 1 (N = 73) | Group 2 (N = 249) | p value |
|---|---|---|---|
| Age (years) | 70.0 ± 10.1 | 67.0 ± 12.3 | 0.033 |
| Male | 40 (54.8%) | 183 (73.5%) | 0.004 |
| Smoker | 11 (15.1%) | 92 (36.9%) | 0.001 |
| Hypertension | 48 (65.8%) | 144 (57.8%) | 0.465 |
| Diabetes mellitus | 29 (39.7%) | 64 (25.7%) | 0.066 |
| Dyslipidemia | 11 (15.1%) | 17 (6.8%) | 0.086 |
| Myocardial infarction | 6 (8.2%) | 24 (9.6%) | 0.728 |
| Angina | 12 (16.4%) | 27 (10.8%) | 0.406 |
| Congestive heart failure | 9 (12.3%) | 10 (4.0%) | 0.014 |
| Hemorrhagic stroke | 0 (0%) | 2 (0.8%) | 0.442 |
| Ischemic stroke | 15 (20.5%) | 13 (5.2%) | 0.002 |
| TIA | 1 (1.4%) | 1 (0.4%) | 0.354 |
| Family history of CAD | 4 (5.5%) | 14 (5.6%) | 0.988 |
| Killip class ≥ II | 42 (57.5%) | 173 (69.5%) | 0.120 |
| ST elevation MI | 28 (38.4%) | 122 (49.0%) | 0.031 |
| PCI | 53 (72.6%) | 214 (85.9%) | 0.012 |
| IV Thrombolysis | 1 (1.4%) | 3 (1.2%) | 1.000 |

# Results

## Medications

| | Group 1 (N = 73) | Group 2 (N = 249) | p value |
|---|---|---|---|
| Aspirin | 71 (97.3%) | 248 (99.6%) | 0.130 |
| Clopidogrel | 64 (87.7%) | 221 (88.8%) | 0.836 |
| Prasugrel | 4 (5.5%) | 29 (11.6%) | 0.186 |
| Ticagrelor | 3 (4.1%) | 15 (6.0%) | 0.774 |
| Cilostazol | 8 (11.0%) | 40 (16.1%) | 0.352 |
| CCB | 11 (15.1%) | 25 (10.0%) | 0.289 |
| Beta-blockers | 56 (76.7%) | 208 (83.5%) | 0.225 |
| ACE inhibitors | 22 (30.1%) | 114 (45.8%) | 0.022 |
| ARB | 34 (46.6%) | 91 (36.5%) | 0.134 |
| Statins | 58 (79.5%) | 224 (90.0%) | 0.025 |

ACE; angiotensin-converting enzyme, ARB; angiotension receptor blockers, CCB; calcium channel blockers

# Results

## In-hospital Clinical Events

| | Group 1 (N = 73) | Group 2 (N = 249) | p value |
|---|---|---|---|
| Cardiogenic shock | 11 (15.1%) | 26 (10.4%) | 0.529 |
| New-onset HF | 6 (8.2%) | 10 (4.0%) | 0.327 |
| Recur ischemia | 2 (2.7%) | 5 (2.0%) | 0.724 |
| Re-MI | 0 (0%) | 3 (1.2%) | 0.430 |
| Stent thrombosis | 0 (0%) | 3 (1.2%) | 0.346 |
| Ischemic stroke | 2 (2.7%) | 1 (0.4%) | 0.162 |
| Hemorrhagic stroke | 1 (1.4%) | 0 (0%) | 0.148 |
| Decrease of Hb >5 g/dL | 1 (1.4%) | 1 (0.4%) | 0.518 |
| Decreased of Hct >15% | 1 (1.4%) | 3 (1.2%) | 0.744 |
| Minor bleeding | 2 (2.7%) | 12 (4.8%) | 0.443 |

Hb; hemoglobin, Hct; hematocrit, HF; heart failure, Re-MI; re-attack of myocardial infarction

# Results

## Medications at 1 Year

| | Group 1 (N = 73) | Group 2 (N = 249) | p value |
|---|---|---|---|
| Aspirin | 49 (67.1%) | 210 (84.3%) | 0.006 |
| Clopidogrel | 33 (45.2%) | 165 (33.3%) | 0.011 |
| Prasugrel | 1 (1.4%) | 12 (4.8%) | 0.447 |
| Ticagrelor | 0 (0%) | 1 (0.4%) | 1.0 |
| Cilostazaol | 1 (1.4%) | 9 (3.6%) | 0.334 |
| CCB | 10 (13.4%) | 43 (17.3%) | 0.840 |
| Beta-blockers | 49 (67.1%) | 200 (80.3%) | 0.707 |
| ACE inhibitors | 7 (9.6%) | 50 (20.1%) | 0.326 |
| ARB | 37 (50.7%) | 114 (45.8%) | 0.687 |
| Statins | 58 (79.4%) | 215 (86.3%) | 0.097 |
| Oral anticoagulant | 43 (58.9%) | 18 (7.2%) | <0.001 |

ACE; angiotensin-converting enzyme, ARB; angiotension receptor blockers, CCB; calcium channel blockers

# Results

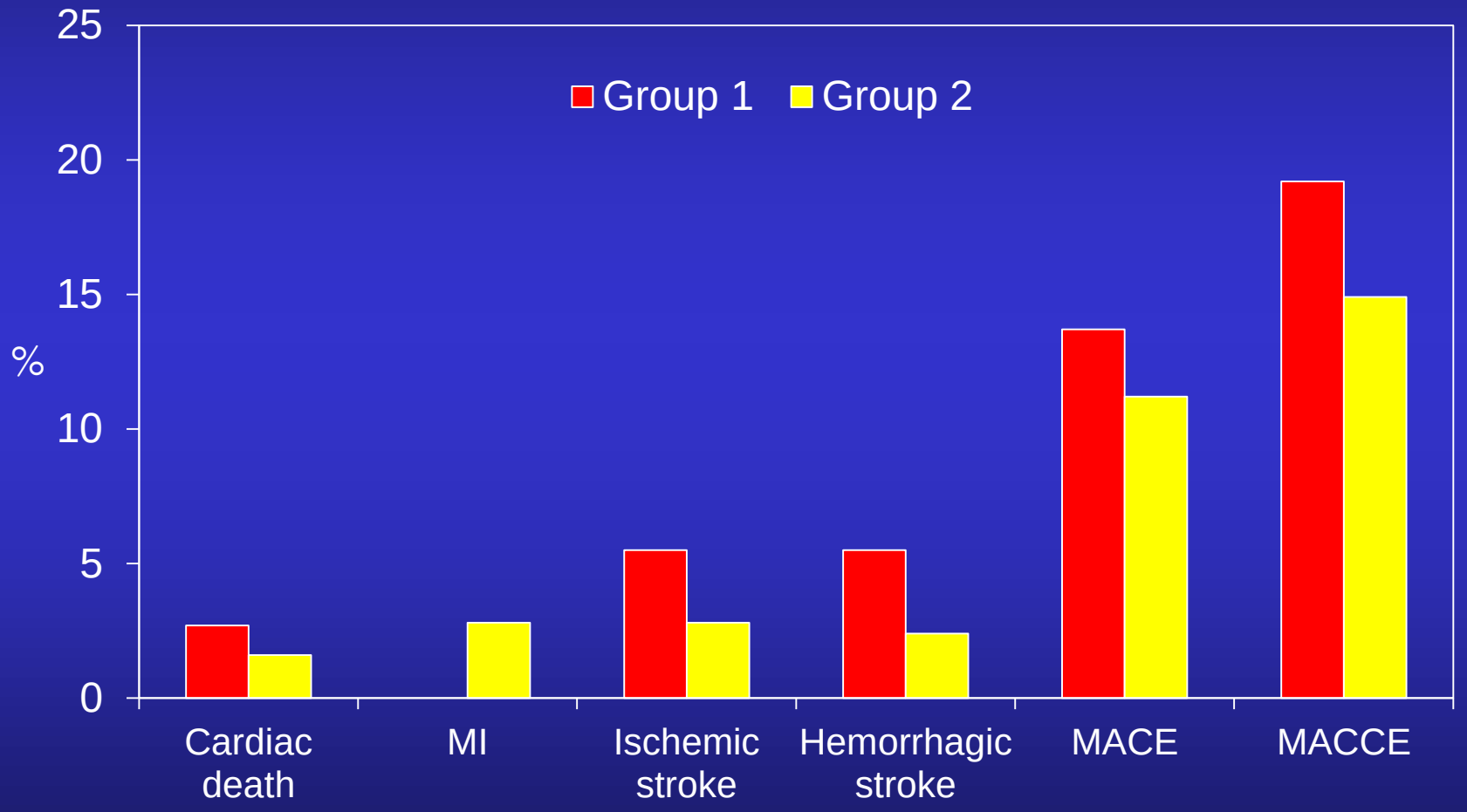
## Clinical Events at 1 Year

| | Group 1 (N = 73) | Group 2 (N = 249) | p value |
|---|---|---|---|
| All-cause death | 3 (4.1%) | 7 (2.8%) | 0.574 |
| Cardiac death | 2 (2.7%) | 4 (1.6%) | 0.529 |
| Myocardial infarction | 0 (0%) | 7 (2.8%) | 0.148 |
| Re-hospitalization due to heart failure | 5 (6.8%) | 9 (3.6%) | 0.233 |
| Stent thrombosis | 0 (0%) | 3 (1.2%) | 0.346 |
| Repeated PCI | 3 (4.1%) | 7 (2.8%) | 0.574 |
| Coronary a bypass graft | 0 (0%) | 1 (0.4%) | 0.588 |
| Ischemic Stroke | 4 (5.5%) | 7 (2.8%) | 0.270 |
| Cerebral infarction | 4 (5.5%) | 6 (2.4%) | 0.184 |
| Transient ischemic attack | 0 (0%) | 1 (0.4%) | 0.588 |
| Hemorrhagic Stroke | 0 (0%) | 2 (0.8%) | 0.442 |
| MACE | 10 (13.7%) | 28 (11.2%) | 0.568 |
| MACCE | 14 (19.2%) | 37 (14.9%) | 0.374 |

MACE; major adverse cardiac events, MACCE; major adverse cardiocerebrovascular events, PCI; percutaneous coronary intervention

# Results

## Clinical Events at 1 Year



# Summary

- Patients with OAC
  - Older (70.0 ± 10.1 vs. 67.0 ± 12.3 years)
  - More women (45% vs. 24%), and history of heart failure (12% vs. 4%) or ischemic stroke (22% vs. 6%)
- No differences of new ischemic stroke, major bleeding complications such as cerebral hemorrhage or decrease of hematocrit >15%, and minor bleeding complications
- At 1 year, 59% of patients in group 1 and 7% of patients in group 2 were taking OAC. Aspirin was being taken in 67% and 84%, and P2Y12 inhibitors in 47% and 39% of patients in group 1 and 2, respectively.
- No difference of 1-year major adverse cardiac (13.7% vs. 11.2%).
- No difference of new ischemic stroke (5.5% vs. 2.8%) or hemorrhagic stroke (0% vs. 0.8%) at 1 year

# Conclusion

Anticoagulation in selected patients with acute myocardial infarction who are taking antiplatelet agents may not increase the bleeding risk.

# Thank You for Your Attention!