

# **Comparison Between Ticagrelor and Clopidogrel in Elderly Patients with an Acute Coronary Syndrome: Insights from the SWEDEHEART Registry**

*Circulation.* 2020; 142:1700–1708

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**Table 1.** Baseline characteristics before and after inverse probability treatment weighting (IPTW) from one of the five imputed datasets. See Figure I and Figure II in the Supplement for balance of the covariates for complete (observed data) and all five imputations.

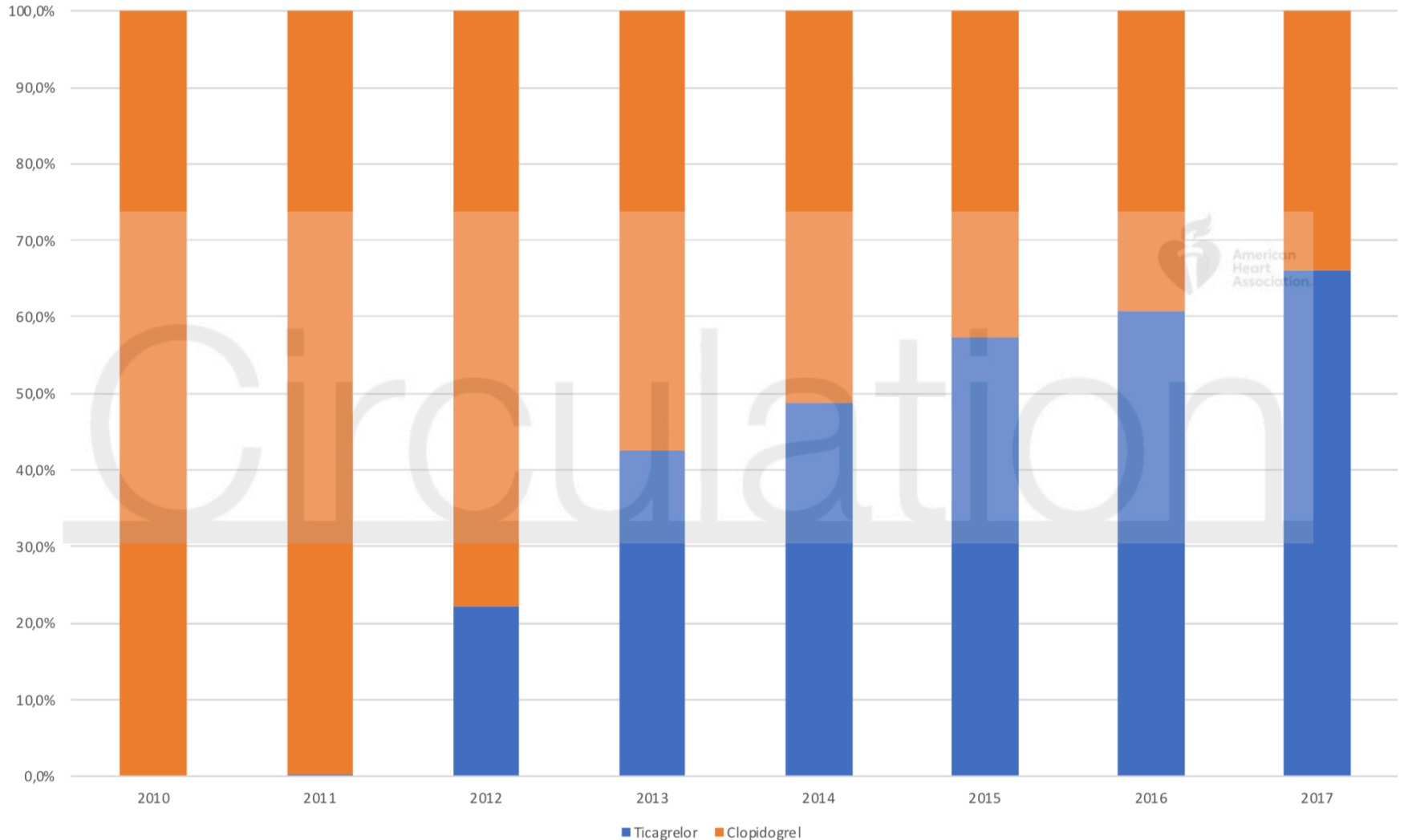
|  | Clopidogrel | Before IPTW** |                            | Clopidogrel     | After IPTW** |                            |
|--|-------------|---------------|----------------------------|-----------------|--------------|----------------------------|
|  |             | Ticagrelor    | Standardized difference*** |                 | Ticagrelor   | Standardized difference*** |
|  | 8434 (60.2) | 5571 (39.8)   |                            | 8421 (60.0)**** | 5607 (40.0)  |                            |
| Demographics   |             |               |                            |                 |              |                            |
| Age mean ± SD; median (IQR)  | 85.4 (±4.1) | 84.0 (±3.5)   | -37.6                      | 84.9±3.9        | 85.0±3.9     | 1.8                        |
|  | 85 (82-88)  | 83 (81-86)    |                            | 84 (82-87)      | 85 (82-88)   |                            |
| Male   | 51.8        | 45.9          | -11.8                      | 49.4            | 49.2         | -0.3                       |
| Current smoker   | 5.4         | 5.9           | 2.2                        | 5.6             | 5.6          | -0.1                       |
| Prior diseases   |             |               |                            |                 |              |                            |
| Myocardial infarction  | 29.4        | 21.5          | -18.2                      | 26.2            | 26.0         | -0.6                       |
| Heart failure  | 17.7        | 10.4          | -21.2                      | 14.7            | 14.5         | -0.6                       |
| Coronary artery bypass grafting  | 9.9         | 7.7           | -7.8                       | 9.1             | 9.0          | -0.2                       |
| Percutaneous Coronary Intervention                                       | 13.2        | 13.4          | 0.7                        | 13.3            | 13.3         | -0.0                       |
| Diabetes   | 22.2        | 22.7          | 1.3                        | 22.4            | 22.2         | -0.2                       |
| Stroke   | 10.8        | 7.1           | -12.9                      | 9.4             | 9.5          | 0.6                        |
| Kidney disease   | 4.7         | 3.4           | -6.4                       | 4.1             | 4.0          | -0.9                       |
| Chronic obstructive pulmonary disease                                    | 8.4         | 7.5           | -3.3                       | 8.0             | 7.8          | -0.7                       |
| Peripheral arterial disease  | 6.4         | 5.6           | -3.4                       | 6.2             | 6.2          | -0.0                       |
| Hypertension   | 69.2        | 68.3          | -1.9                       | 68.8            | 69.1         | 0.6                        |
| Cancer within last 3 years   | 4.1         | 3.5           | -2.9                       | 3.9             | 3.8          | -0.5                       |
| Type of myocardial infarction and signs on admission                     |             |               |                            |                 |              |                            |
| STEMI (vs NSTEMI)  | 27.0        | 38.6          | 24.7                       | 31.4            | 30.9         | -1.0                       |
| Killip>1   | 3.6         | 1.9           | -10.3                      | 2.9             | 2.8          | -0.3                       |
| Medication on admission  |             |               |                            |                 |              |                            |
| Aspirin  | 53.6        | 43.6          | -20.1                      | 49.7            | 49.6         | -0.3                       |
| Beta-blocker   | 42.7        | 34.7          | -16.4                      | 39.5            | 39.8         | 0.6                        |
| Calcium channel antagonist   | 24.3        | 24.8          | 1.2                        | 24.5            | 24.4         | -0.0                       |
| Digitalis  | 1.0         | 0.4           | -6.9                       | 0.8             | 0.7          | -0.4                       |
| Angiotensin converting enzyme-inhibitors/Angiotensin II receptor blocker | 38.7        | 38.4          | -0.6                       | 38.6            | 38.3         | -0.6                       |
| Diuretics  | 33.5        | 25.0          | -18.8                      | 30.3            | 30.9         | 1.3                        |
| Statins  | 26.3        | 25.1          | -2.8                       | 25.8            | 25.3         | -1.2                       |
| In-hospital treatments/interventions                                     |             |               |                            |                 |              |                            |
| Inotropes  | 1.1         | 1.9           | 6.4                        | 1.4             | 1.4          | 0.1                        |
| Intravenous diuretics  | 23.6        | 19.5          | -10.0                      | 21.9            | 22.0         | 0.0                        |
| In-hospital percutaneous coronary intervention                           | 44.9        | 78.7          | 74.0                       | 58.3            | 57.9         | -0.8                       |
| In-hospital coronary angiography   | 55.2        | 86.1          | 72.1                       | 67.4            | 67.0         | -0.9                       |
| Medication on discharge  |             |               |                            |                 |              |                            |
| Beta-blocker   | 86.1        | 87.1          | 2.9                        | 86.4            | 86.8         | 1.1                        |
| Calcium channel antagonist   | 21.3        | 20.8          | -1.1                       | 21.1            | 21.2         | 0.2                        |
| Digitalis  | 1.0         | 0.2           | -10.1                      | 0.7             | 0.5          | -2.4                       |
| Angiotensin converting enzyme-inhibitors/Angiotensin II receptor blocker | 71.2        | 80.7          | 22.4                       | 74.8            | 74.1         | -1.6                       |
| Medication for diabetes  | 15.9        | 16.5          | 1.4                        | 16.1            | 16.0         | -0.2                       |
| Statins  | 77.1        | 90.5          | 37.1                       | 82.3            | 81.5         | -2.0                       |
| Hospital duration  |             |               |                            |                 |              |                            |
| Days in hospital   | 5.8±4.2     | 5.2±3.8       | -12.8                      | 5.6 ±4.0        | 5.7±4.4      | 2.9                        |
|  | 5 (3-7)     | 4 (3-6)       |                            | 4 (3-7)         | 4 (3.7)      |                            |
| Laboratory measurement   |             |               |                            |                 |              |                            |
| eGFR   | 54±26       | 59±23         | 21.6                       | 56±25           | 56±25        | -1.1                       |
|  | 58 (45-73)  | 63 (49-77)    |                            | 60 (46-74)      | 60 (46-75)   |                            |

- Reporting: N (%), mean (±standard deviation); median (p25-p75) \*\* IPTW: inverse probability treatment weighting; \*\*\* A standardized difference < 10 was considered good balance. The standardized difference for eGFR, which had the most missing, varied among the five imputed from -0.9 to -1.2. See also Figure III in the Supplement. \*\*\*\* The N presented in the Table 1 after IPTW is the effective N after application of weights, but still using the entire sample.

# Temporal use of clopidogrel and ticagrelor in elderly patients

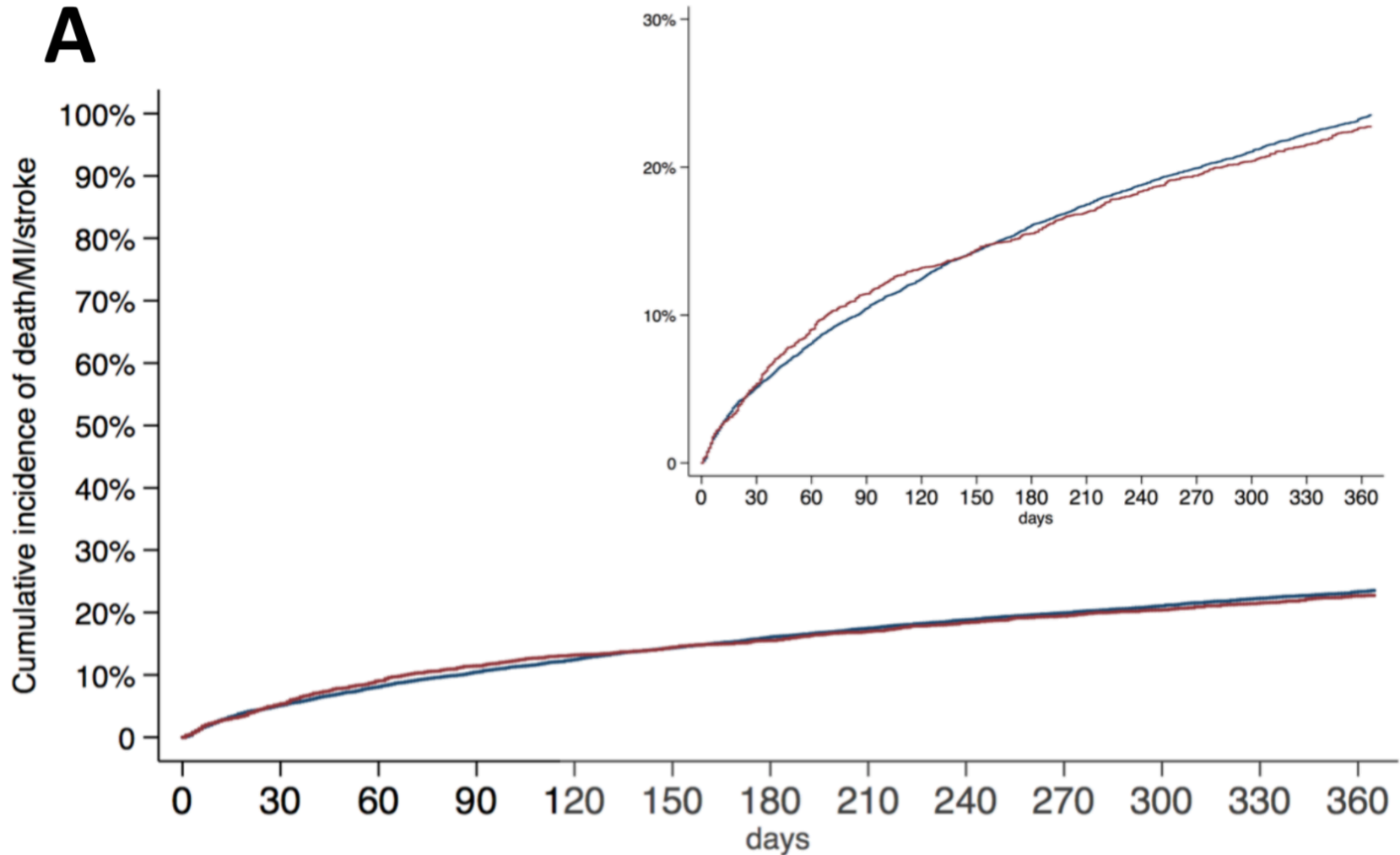
Use of clopidogrel and ticagrelor in patients  $\geq 80$  years old between 2010 and 2017.

$\geq 80$  years old



# Death, myocardial infarction or stroke

## A



No at risk

|             |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|
| Clopidogrel | 8420 | 7679 | 7257 | 6913 | 6624 | 6389 | 6151 |
| Ticagrelor  | 5605 | 4938 | 4586 | 4313 | 4041 | 3790 | 3544 |

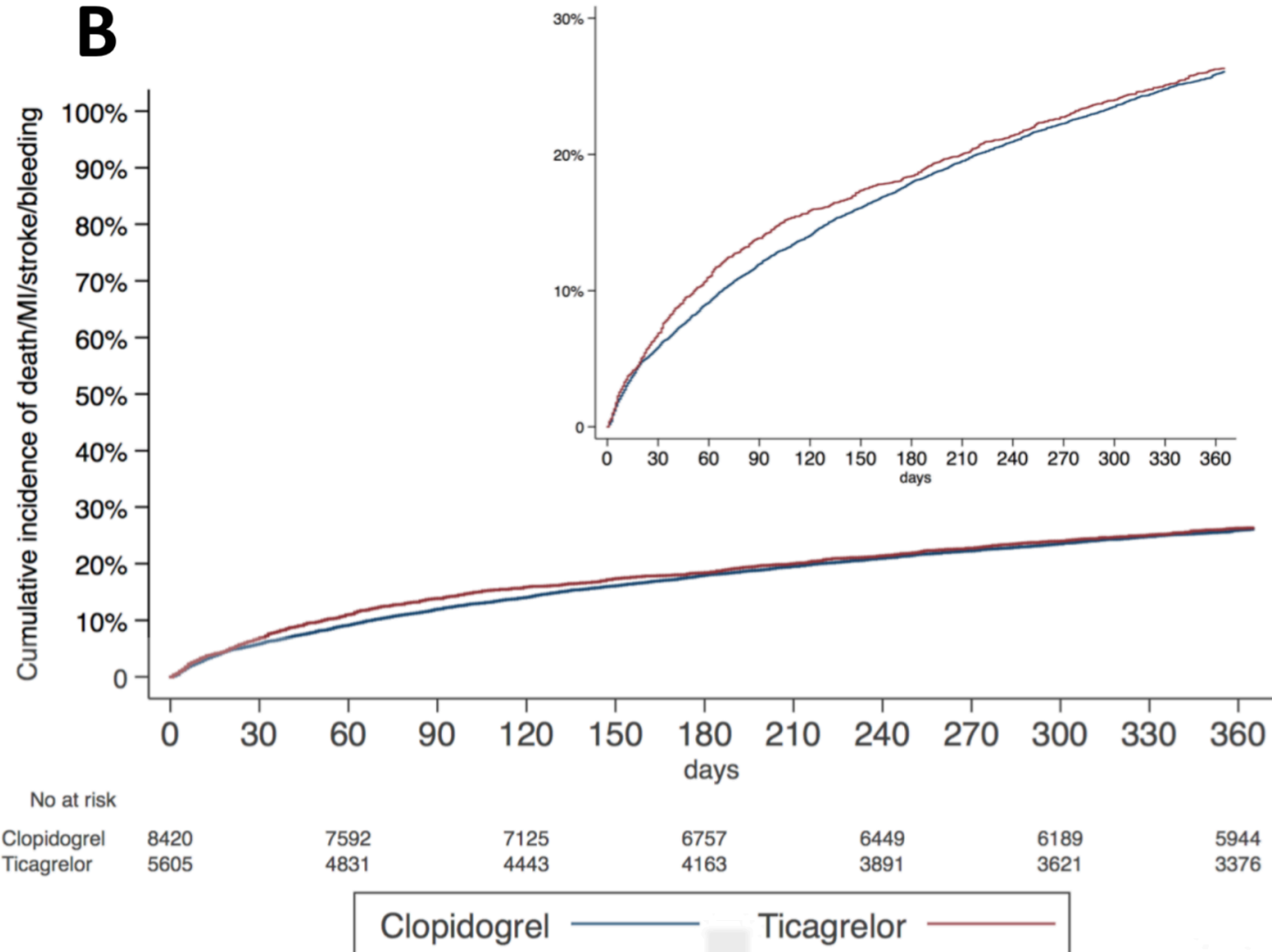
Clopidogrel



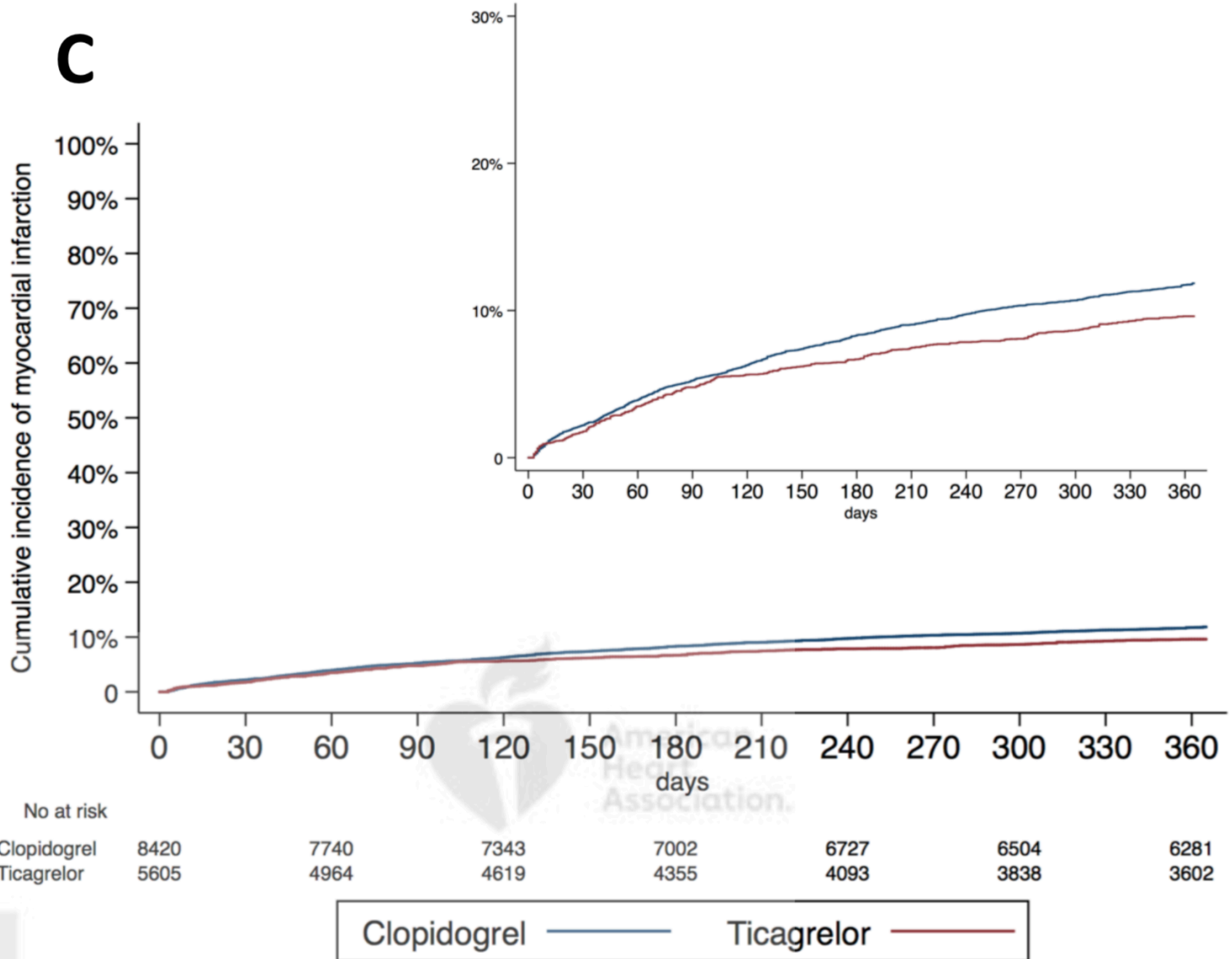
Ticagrelor



# Death, myocardial infarction, stroke or readmission for bleeding

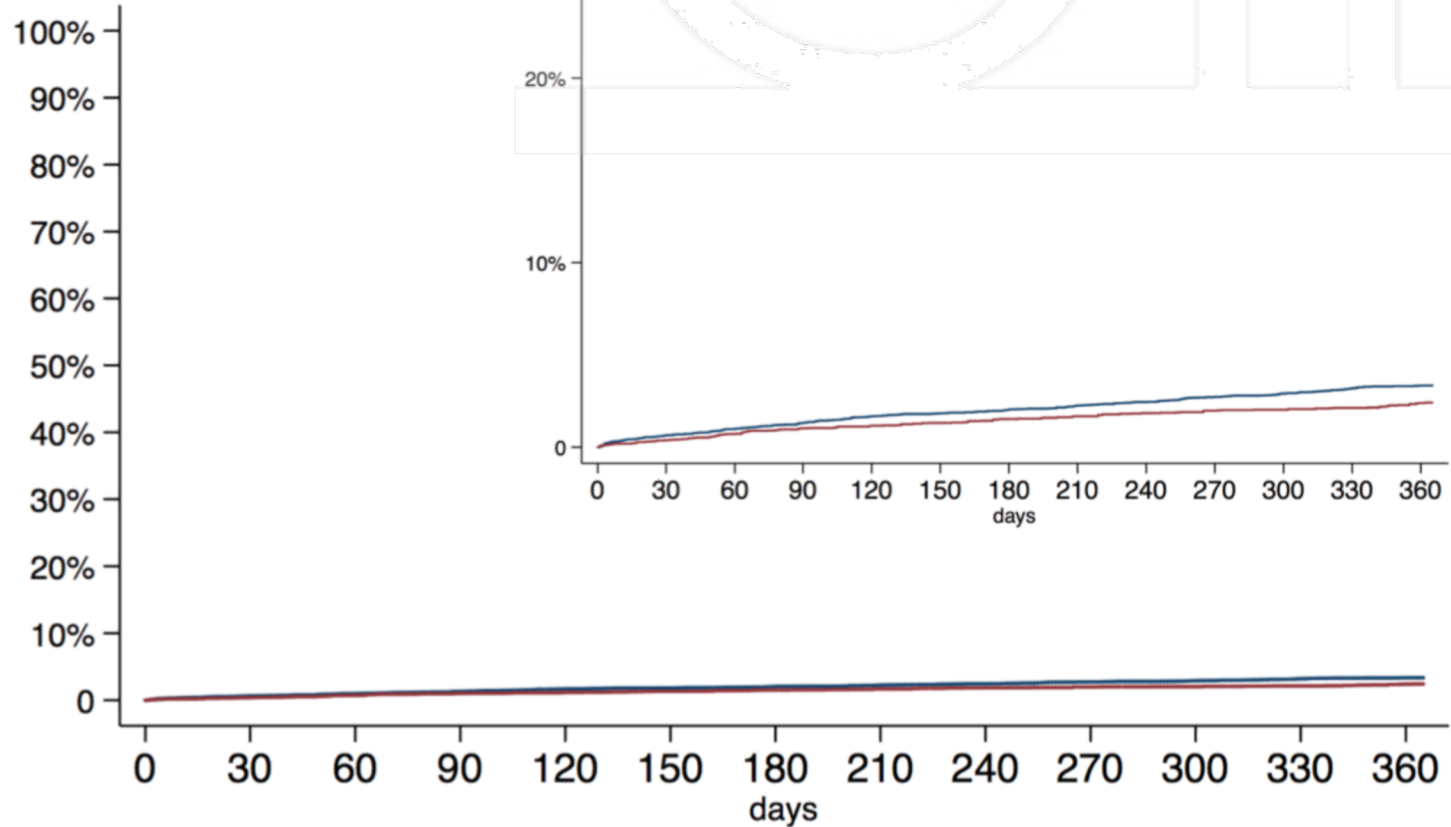


# Myocardial infarction



# Stroke

**D**



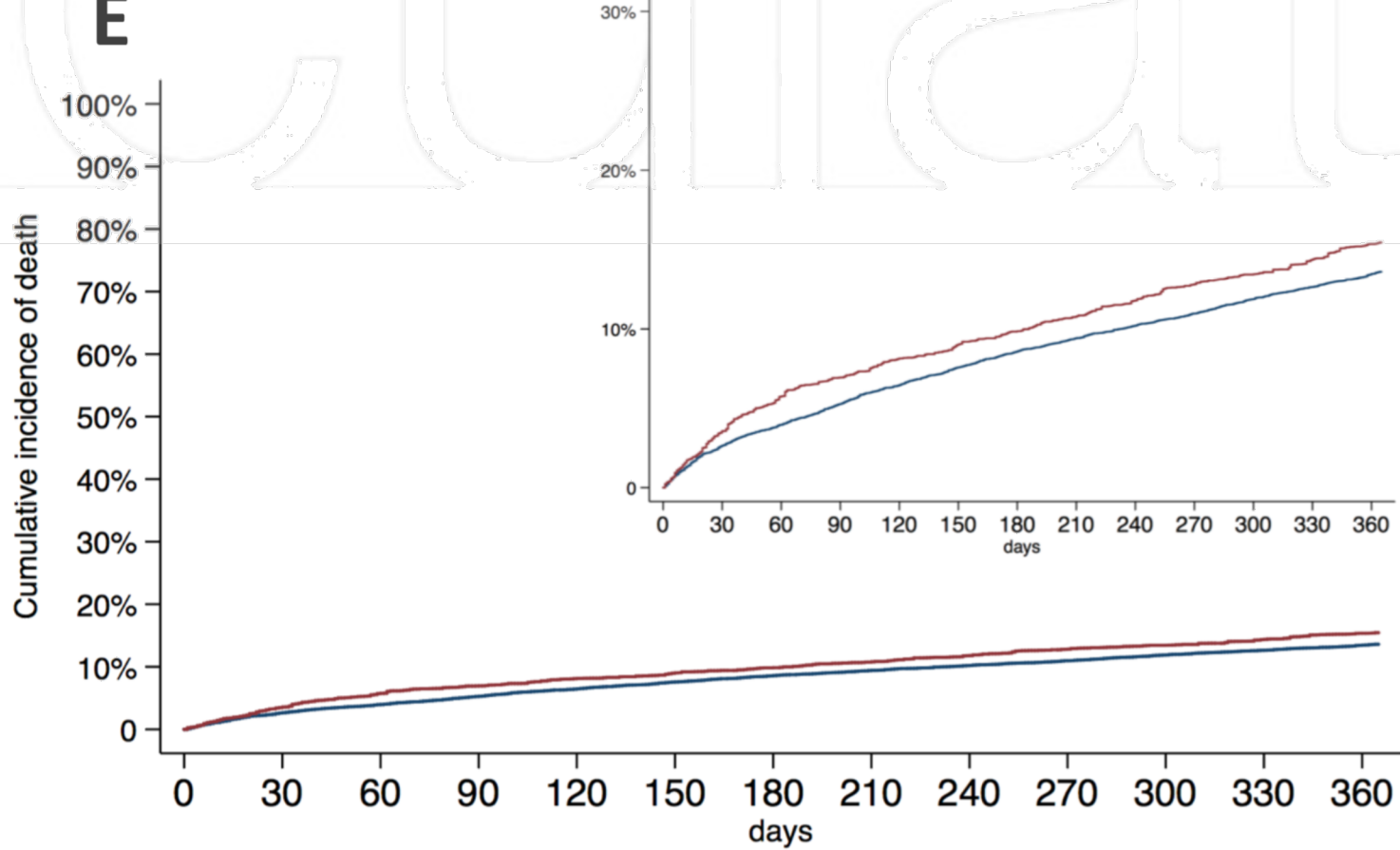
no at risk

|             |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|
| Clonidogrel | 8420 | 7955 | 7656 | 7421 | 7205 | 6998 | 6793 |
| Ticagrelor  | 5605 | 5088 | 4819 | 4560 | 4314 | 4072 | 3815 |

Clonidogrel — Ticagrelor

# Death

**E**



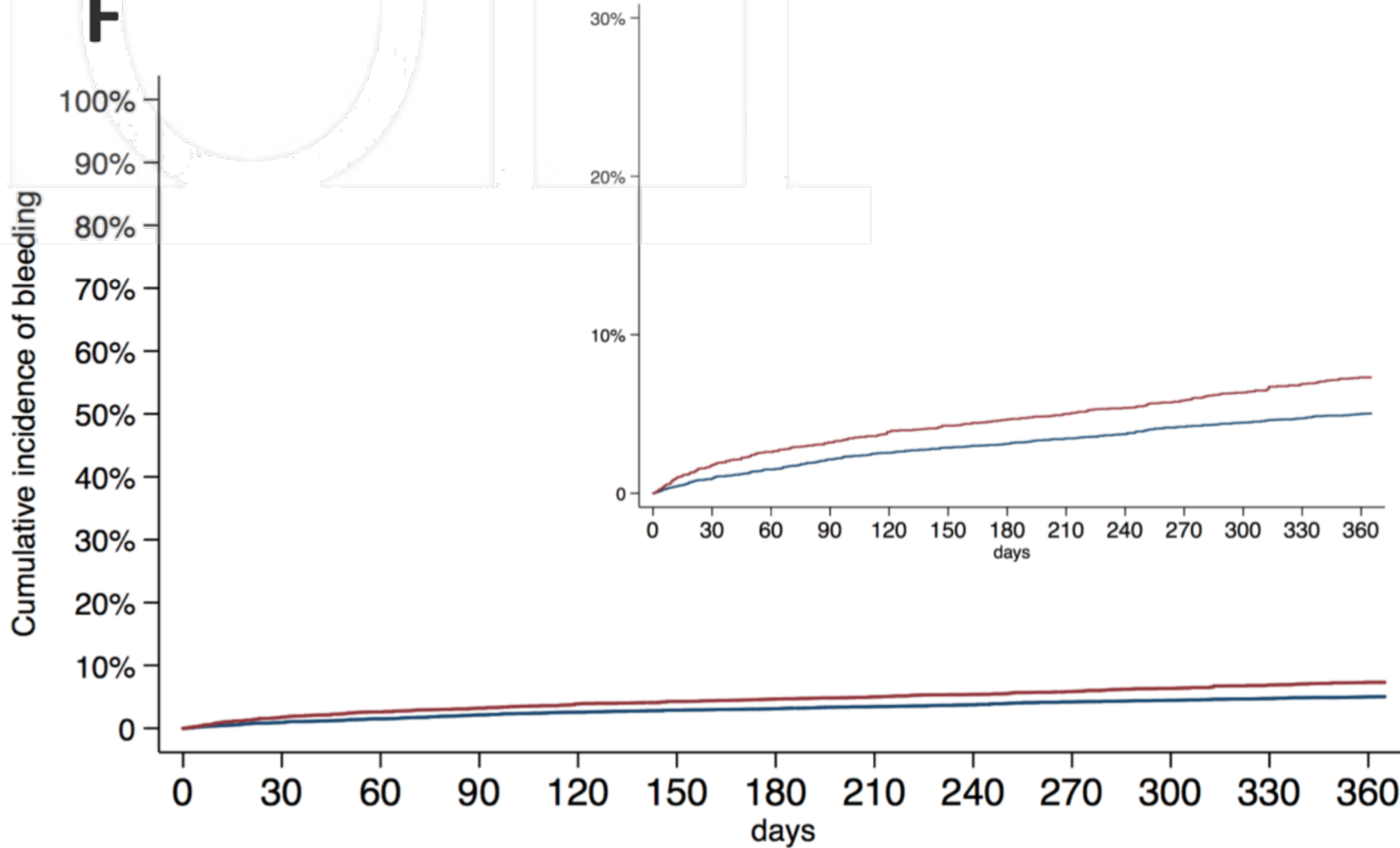
|             | 0    | 30 | 60   | 90 | 120  | 150 | 180  | 210 | 240  | 270 | 300  | 330 | 360  |
|-------------|------|----|------|----|------|-----|------|-----|------|-----|------|-----|------|
| No at risk  |      |    |      |    |      |     |      |     |      |     |      |     |      |
| Clopidogrel | 8420 |    | 8020 |    | 7751 |     | 7524 |     | 7327 |     | 7134 |     | 6946 |
| Ticagrelor  | 5605 |    | 5115 |    | 4857 |     | 4607 |     | 4370 |     | 4127 |     | 3881 |





# Readmission for bleeding

**F**



|             | 0    | 30 | 60   | 90 | 120  | 150 | 180  | 210 | 240  | 270 | 300  | 330 | 360  |
|-------------|------|----|------|----|------|-----|------|-----|------|-----|------|-----|------|
| No at risk  |      |    |      |    |      |     |      |     |      |     |      |     |      |
| Clopidogrel | 8420 |    | 7910 |    | 7579 |     | 7323 |     | 7098 |     | 6869 |     | 6663 |
| Ticagrelor  | 5605 |    | 4995 |    | 4688 |     | 4422 |     | 4178 |     | 3913 |     | 3660 |



**Table 2.** Incidence rates and inverse probability treatment weights (IPTW) adjusted hazard ratio for 1-year outcomes in ≥80 year-old patients with an acute myocardial infarction treated with either clopidogrel or ticagrelor from the SWEDEHEART registry between 2010-2017.

|   | Clopidogrel   |                               |                                       | Ticagrelor    |                               |                                       | IPTW adjusted Cause-specific Hazard ratio (95% CI)* | IPTW adjusted Competing risk Hazard ratio (95% CI)* |
|---|---------------|-------------------------------|---------------------------------------|---------------|-------------------------------|---------------------------------------|---|---|
|   | Number events | Mean±SD/median follow-up time | Incidence rate (per 100 person-years) | Number events | Mean±SD/median follow-up time | Incidence rate (per 100 person-years) |   |   |
| Stroke, MI, death                           | 2,230         | 296±121 /365                  | 32.8                                  | 844           | 297±117 /365                  | 18.7                                  | 0.97 (0.88-1.06)                                    | ---   |
| Stroke, MI, death, readmission for bleeding | 2,427         | 290±125 /365                  | 37.4                                  | 1,058         | 288±123 /365                  | 24.2                                  | 1.03 (0.94-1.12)                                    | ---   |
| MI  | 1,048         | 300±119 /365                  | 13.9                                  | 360           | 300±115 /365                  | 7.5                                   | 0.80 (0.70-0.92)                                    | 0.78 (0.68-0.90)                                    |
| Stroke                                      | 277           | 318±104 /365                  | 3.44                                  | 155           | 308±108 /365                  | 2.32                                  | 0.72 (0.56-0.93)                                    | 0.70 (0.54-0.91)                                    |
| Death                                       | 1344          | 322 ±99 /365                  | 18.1                                  | 511           | 311±105 /365                  | 10.8                                  | 1.17 (1.03-1.32)                                    | ---   |
| Readmission for bleeding                    | 388           | 314±107 /365                  | 4.86                                  | 333           | 300±114 /365                  | 6.90                                  | 1.48 (1.25-1.76)                                    | 1.45 (1.23-1.72)                                    |

\* Results obtained after five multiple imputations (see methods for details). Confidence interval (CI) was obtained from 1000 boot-strap sampling with replacement. Inverse-probability treatment weights (IPTW) was used to account for differences in baseline characteristics.  
SD: Standard deviation