



# Beta-blocker Use and Incidence of New Atrial Fibrillation or Flutter Requiring Therapy in Post-septal Myectomy Hypertrophic Cardiomyopathy Patients

Morris Kim<sup>1</sup>, Miriam Elman<sup>2</sup>, Mason Paas<sup>1</sup>, Hailey Volk<sup>1</sup>, Michael Butzner<sup>3</sup>, Saket Sanghai<sup>1</sup>, Ahmad Masri<sup>1</sup>

<sup>1</sup> Center for Amyloidosis, Knight Cardiovascular Institute, Oregon Health & Science University, Portland, OR, USA; <sup>2</sup> School of Public Health, Oregon Health & Science University/Portland State University, Portland, OR, USA; <sup>3</sup> Cytokinetics, Inc., South San Francisco, CA, USA

## BACKGROUND

- Atrial fibrillation/flutter (AF/AFL) are common arrhythmias in hypertrophic cardiomyopathy (HCM).
- Septal myectomy (SM) is frequently performed in drug-refractory obstructive HCM (oHCM).
- Beta blockers (BB) are frequently continued or prescribed post-SM but their impact on the incidence of new AF/AFL is unknown.

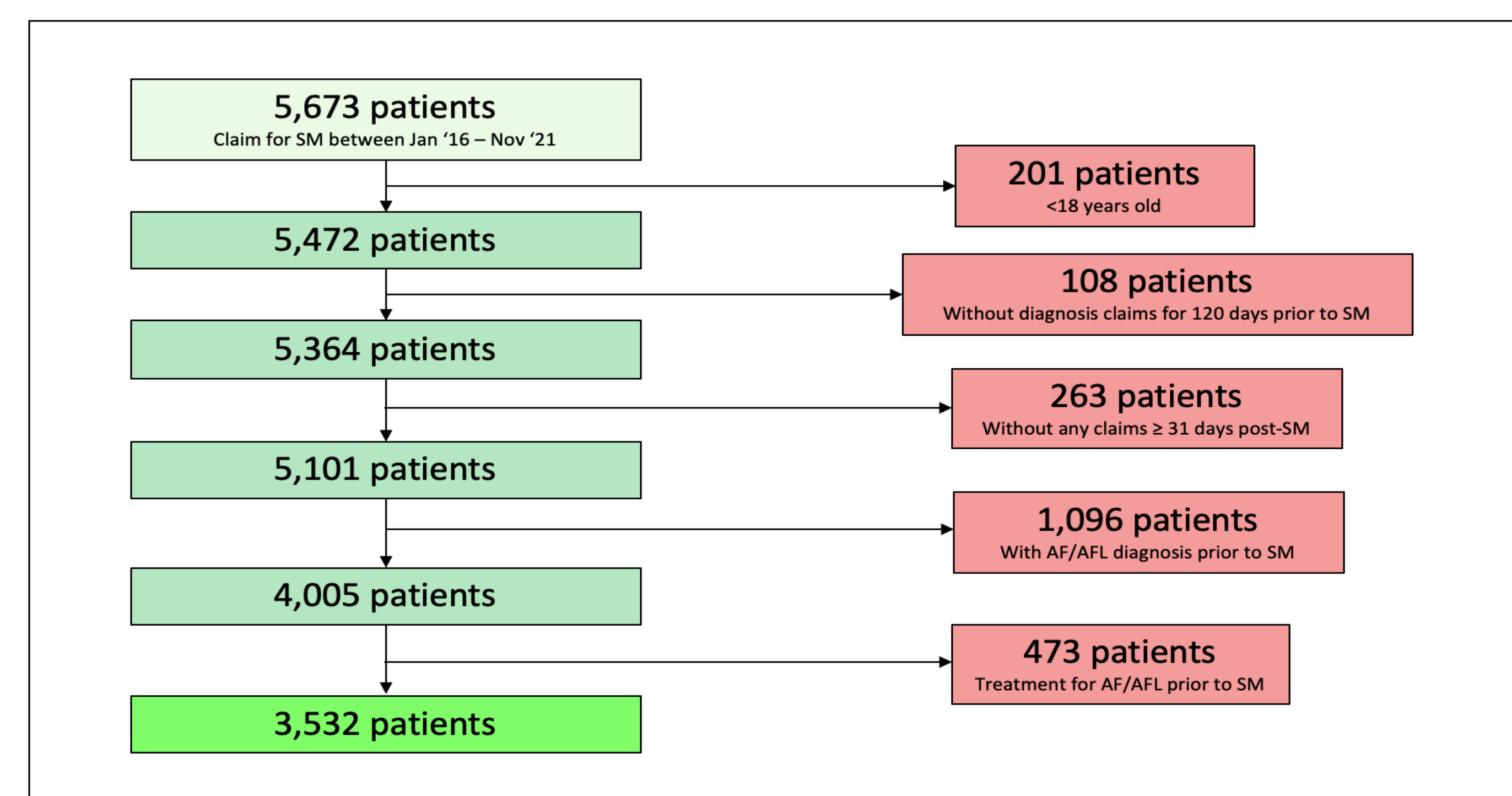
## OBJECTIVE

To assess whether BB use post-septal myectomy were associated with decreased rates of new AF/AFL requiring treatment.

## METHODS

- Database: Deidentified healthcare claims from the Symphony Health Claims.
- Inclusion: 3,532 patients with oHCM who underwent SM between Jan '16 and Nov '21 with no known history of AF/AFL prior to the procedure.
- Primary outcome: new AF/AFL requiring treatment after 30 days post-SM.
- Exposure: Time-varying BB use was assessed in consecutive 30-day periods using medication fill claims.
  - BB use: Presence of a claim within a 30-day period.
  - Discontinuation: Absence of a claim for two or more 30-day periods after BB use.
  - No BB use: complete absence of a BB claim during follow-up.
- Covariates identified prior to SM include age; sex; insurance (commercial/other), tobacco use; obesity, hypertension, hyperlipidemia, diabetes, peripheral artery disease, peripheral vascular disease, coronary artery disease, sleep apnea, and chronic kidney disease; antihypertensive medications use; statin use; history of stroke/TIA, CABG, MI, and heart valve surgery.
- Extended Cox models were used to evaluate the association of BB use with AF/AFL.
  - Described covariates adjusted for *a priori* in the multivariable model.

Figure 1. CONSORT flow diagram for patient selection



## RESULTS

Figure 2. Kaplan-Meier curve for time to new AF/AFL requiring treatment

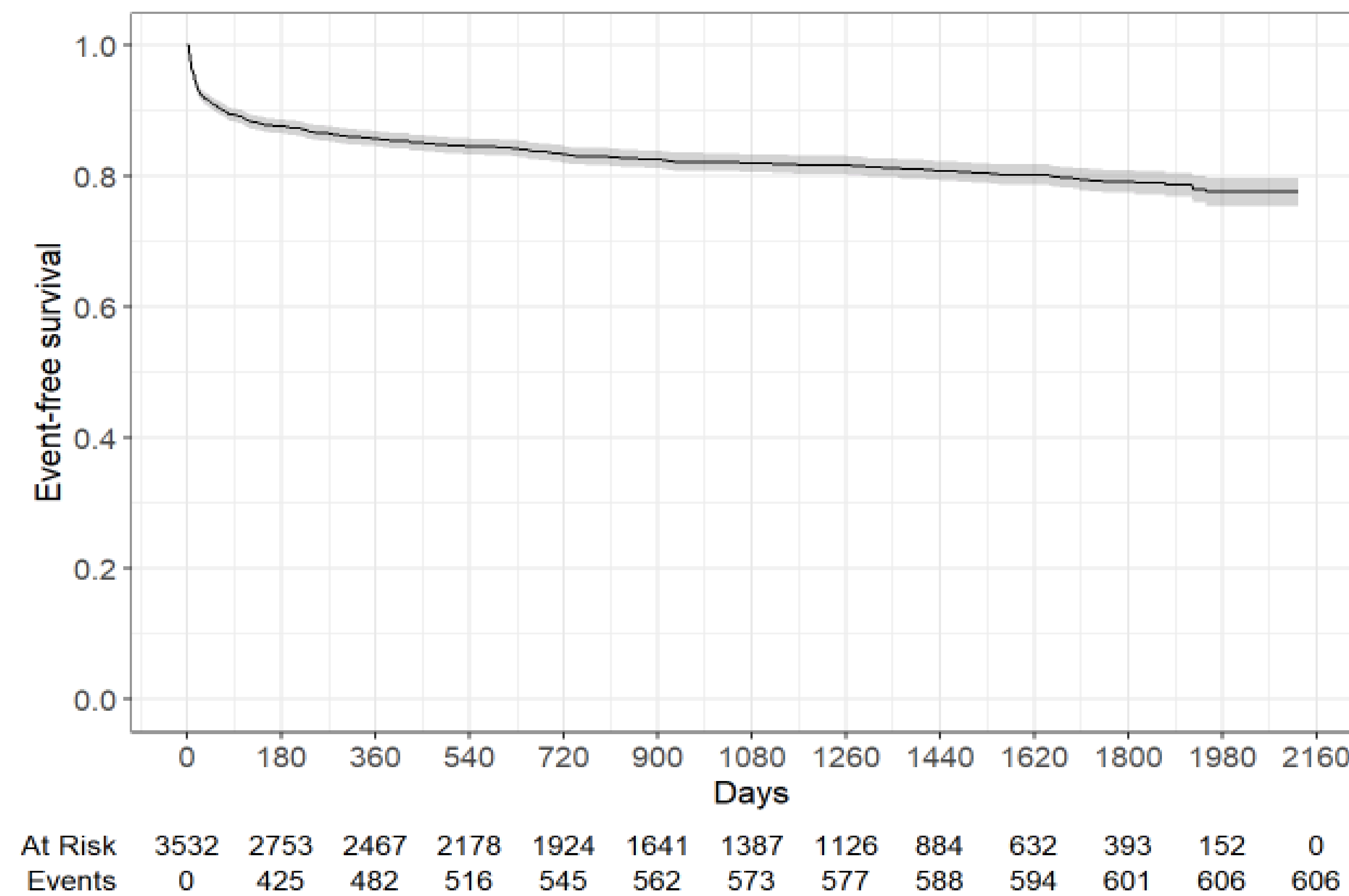


Table 1. Baseline characteristics of patients stratified by development of new AF/AFL\*

| Characteristic                                  | New AF/FL During Follow-up |                      | p-value |
|---|----------------------------|----------------------|---------|
|   | No AF/AFL (n = 2,926)      | New AF/AFL (n = 606) |         |
| Age at baseline, years, median (IQR) [min, max] | 60 (50, 69) [18, 80]       | 65 (57, 72) [18, 80] | <0.001  |
| Female  | 1,528 (54.1)               | 315 (52.0)           | 0.348   |
| Hypertension                                    | 1,773 (60.6)               | 424 (70.0)           | <0.001  |
| Hyperlipidemia                                  | 947 (32.4)                 | 245 (40.4)           | <0.001  |
| Diabetes  | 528 (18.0)                 | 124 (20.5)           | 0.163   |
| Peripheral artery disease                       | 195 (6.7)                  | 51 (8.4)             | 0.123   |
| Stroke/TIA                                      | 168 (5.7)                  | 37 (6.1)             | 0.727   |
| Coronary artery disease                         | 1,209 (41.3)               | 288 (47.5)           | 0.005   |
| Myocardial infarction                           | 290 (9.9)                  | 88 (14.5)            | <0.001  |
| Chronic kidney disease                          | 247 (8.4)                  | 68 (11.2)            | 0.029   |

\*Data are n (%) unless otherwise indicated.

Table 3. Results from Cox Proportional Hazards Models\*

| Exposure           | Unadjusted Model |              |         | Adjusted Model |              |         |
|--------------------|------------------|--------------|---------|----------------|--------------|---------|
|                    | HR               | (95% CI)     | p-value | aHR            | (95% CI)     | p-value |
| BB Use             | 2.05             | (1.69, 2.62) | <0.0001 | 2.03           | (1.66, 2.74) | <0.0001 |
| BB Discontinuation | 1.41             | (0.95, 1.85) | 0.0528  | 1.43           | (0.97, 1.92) | 0.0524  |

Abbreviations: BB = beta blocker, HR = Hazards Ratio, CI = Confidence Interval, aHR = adjusted Hazards Ratio. \*Confidence intervals estimated with 1,000 bootstrap samples.

Figure 3. Survival curves for time to new AF/AFL requiring treatment by BB use

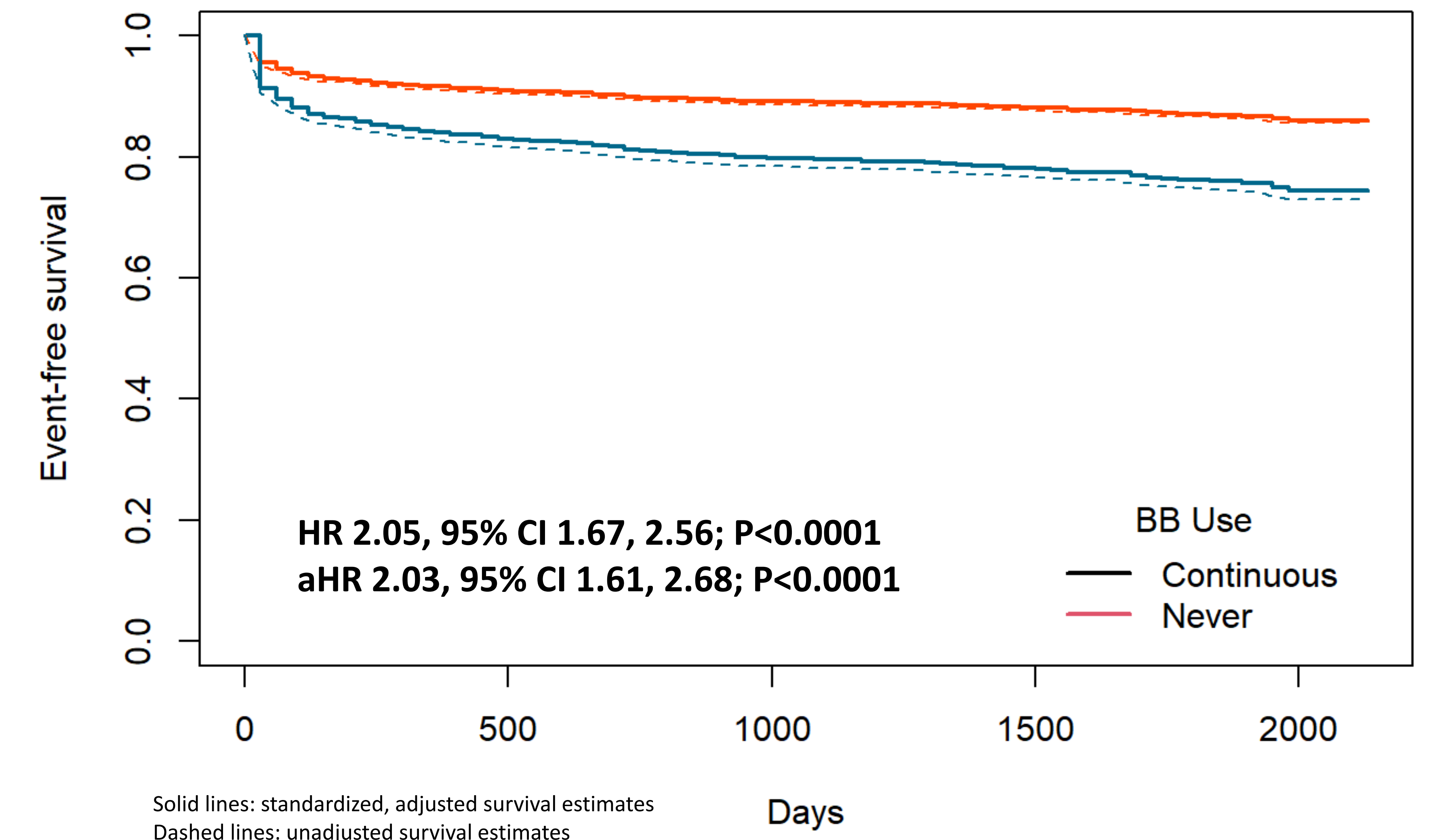


Table 2. Baseline characteristics of patients stratified by BB use\*

| Characteristic                                  | Any Beta Blocker Use During Follow-up |                      | p-value |
|---|---------------------------------------|----------------------|---------|
|   | No Use (n = 895)                      | Any Use (n = 2,637)  |         |
| Age at baseline, years, median (IQR) [min, max] | 63 (52, 71) [18, 80]                  | 61 (51, 69) [18, 80] | <0.001  |
| Female  | 474 (53.0)                            | 1,423 (54.0)         | 0.603   |
| Hypertension                                    | 565 (63.1)                            | 1,632 (61.9)         | 0.509   |
| Hyperlipidemia                                  | 293 (32.7)                            | 899 (34.1)           | 0.459   |
| Diabetes  | 171 (19.1)                            | 481 (18.2)           | 0.564   |
| Peripheral artery disease                       | 75 (8.4)                              | 171 (6.5)            | 0.054   |
| Stroke/TIA                                      | 66 (7.4)                              | 139 (5.3)            | 0.020   |
| Coronary artery disease                         | 390 (43.6)                            | 1,107 (42.0)         | 0.404   |
| Myocardial infarction                           | 101 (11.3)                            | 277 (10.5)           | 0.514   |
| Chronic kidney disease                          | 96 (10.7)                             | 219 (8.3)            | 0.028   |

\*Data are n (%) unless otherwise indicated.

## CONCLUSIONS

- In oHCM patients who underwent SM, BB use was associated with development of new AF/AFL requiring treatment.
- The risks/benefits of routine BB use in post-septal myectomy oHCM patients require further investigation.

## DISCLOSURES

FUNDING: ACCESS TO THE DATA WAS FUNDED BY CYTOKINETICS, INC. STATISTICAL PLANNING AND ANALYSIS WERE PERFORMED INDEPENDENTLY AND SPONSORED BY OHSU.  
COI: AHMAD MASRI REPORTS RESEARCH GRANTS FROM PFIZER, IONIS, ATTRALUS, AND CYTOKINETICS AND FEES FROM CYTOKINETICS, BMS, EIDOS/BRIDGEBIO, PFIZER, IONIS, LEXICON, ATTRALUS, ALNYLAM, HAYA, ALEXION, AKROS, PROTHENA, BIOMARIN, ASTRAZENECA, AND TENAYA. MICHAEL BUTZNER IS AN EMPLOYEE OF CYTOKINETICS, INC. OTHER CO-AUTHORS HAVE NO DISCLOSURES.

## CONTACT INFORMATION

Morris Kim, MD; Kimmor@ohsu.edu; Twitter: @MorrisKimMD