**Electronic Appendices**

**Appendix Table 1. List of Enrolling Sites**

Oregon Heath & Science University, Portland, OR

University of California, Davis School of Medicine, Sacramento, CA

University of Rochester, NY

William Beaumont Hospital-Troy, Troy, MI

William Beaumont Hospital-Royal Oak, Royal Oak, MI

Brigham & Women's Hospital, Boston, MA

The Ohio State University Wexner Medical Center, Columbus, OH

Thomas Jefferson University Hospital, Philadelphia, PA

Wake Forest School of Medicine, Winston Salem, NC

Summa Health System, Akron, OH

Vanderbilt University, Nashville, TN

**Appendix Table 2. Characteristics of older adults with syncope with and without transthoracic echocardiography obtained**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **All Syncope Patients (N=3686)****No. (%)** | **No TTE Obtained (N=2691) No. (%)** | **TTE Obtained (N=995) No. (%)** | **p-value** |
| Age (mean) SD | 72.74 (8.98) | 72.23 (8.87) | 74.13 (9.12) | <0.001 |
| Male Gender | 1900 (51.5) | 1353 (50.3) | 547 (55.0) | 0.013 |
| Race |  |  |  | 0.445 |
| White | 3050 (83.2) | 2237 (83.7) | 813 (82.0) |
| Black | 500 (13.6) | 354 (13.2) | 146 (14.7) |
| Other | 114 (3.1) | 81 (3.0) | 33 (3.3) |
| Abnormal heart sounds  | 356 (9.8) | 223 (8.4) | 133 (13.5) | <0.001 |
| Exertional syncope  | 682 (18.6) | 488 (18.2) | 194 (19.6) | 0.368 |
| Shortness of breath | 770 (21.4) | 557 (21.2) | 213 (21.9) | 0.674 |
| Chest discomfort | 325 (9.0) | 239 (9.0) | 86 (8.9) | 0.912 |
| Near syncope | 1424 (38.6) | 1128 (41.9) | 296 (29.7) | <0.001 |
| SBP over 180 mmHg | 35 (1.0) | 25 (0.9) | 10 (1.0) | 0.981 |
| SBP under 90 mmHg | 143 (3.9) | 101 (3.8) | 42 (4.2) | 0.595 |
| History of SCD in 1st degree relative | 389 (10.6) | 294 (11.0) | 95 (9.6) | 0.235 |
| History of hypertension | 2436 (66.1) | 1753 (65.2) | 683 (68.8) | 0.044 |
| History of dysrhythmia | 823 (22.3) | 573 (21.3) | 250 (25.2) | 0.014 |
| History of renal failure | 415 (11.3) | 296 (11.0) | 119 (12.0) | 0.438 |
| History of diabetes | 904 (24.5) | 638 (23.7) | 266 (26.8) | 0.06 |
| History of CHF  | 469 (12.7) | 316 (11.7) | 153 (15.4) | 0.004 |
| History of CAD  | 1017 (27.6) | 713 (26.5) | 304 (30.6) | 0.015 |
| Abnormal ECG | 2007 (55.5) | 1396 (53.0) | 611 (62.2) | <0.001 |
| Hs-TnT over14 picogram/ml  | 1460 (42.9) | 981 (39.5) | 479 (52.1) | <0.001 |
| NT-proBNP over125 pg/ml | 2318 (66.2) | 1620 (63.4) | 698 (73.6) | <0.001 |

TTE: Transthoracic Echocardiography. SD: Standard deviation. SBP: Systolic Blood Pressure. mmHg: millimeters of mercury. SCD: Sudden Cardiac Death. CHF: Congestive Heart Failure. CAD: Coronary Artery Disease. ECG: Electrocardiogram. NT-proBNP: N-terminal pro B-type natriuretic peptide. Hs-TnT: high-sensitivity cardiac troponin T.

**Appendix Figure 1. Probability of Major Findings on Transthoracic Echocardiography as a Function of Number of High-Risk Clinical Variables**

****

**% of Patients with Major Findings on TTE**

**ROMEO Score**

TTE: Transthoracic Echocardiography.

**Appendix Figure 2. Receiver operating characteristic curve of the ROMEO criteria for clinically significant findings on transthoracic echocardiography**

ROMEO: Risk Of Major Echocardiography findings in Older adults with syncope.

Area Under the Curve, mean (95% CI): 0.755 (0.72, 0.79). Confidence interval obtained through 2000 stratified bootstrap replicates.

**Appendix Table 3: Probability of Major Findings on Echocardiography by number of predictors**

|  |  |  |  |
| --- | --- | --- | --- |
| **Number of Predictors** | **Major Finding on TTE** | **No Major Finding on TTE** | **Percent (95% CI)** |
| 0 | 1 | 120 | 0.8 (.02, 4.5) |
| 1 | 13 | 164 | 7.3 (4.0, 12.2) |
| 2 | 41 | 228 | 15.2 (11.2, 20.1) |
| 3 | 73 | 168 | 30.3 (24.6, 36.5) |
| 4 | 54 | 74 | 42.2 (33.5, 51.2) |
| 5 | 33 | 26 | 55.9 (42.4, 68.9) |
| **Total:** | **215** | **780** |  |

TTE: Transthoracic Echocardiography. CI: Confidence intervals (calculated using binomial method).

**Appendix Table 4. Frequency of missing data by variable, n=139**

|  |  |
| --- | --- |
| Variable | No. (%)  |
| Age | 0 (0.0) |
| Abnormal heart sounds | 11 (1.1) |
| Exertional syncope | 6 (0.6) |
| History of CHF | 2 (0.2) |
| History of CAD | 2 (0.2) |
| Abnormal ECG | 13 (1.3) |
| Hs-TnT >14 pg/ml | 76 (7.6) |
| NT-proBNP>125 pg/ml | 47 (4.7) |
| Male Gender | 0 (0.0) |
| Shortness of breath | 23 (2.3) |
| Chest pain | 24 (2.4) |
| Near syncope | 0 (0.0) |
| Family history of SCD | 2 (0.2) |
| SBP > 180 mmHg | 4 (0.4) |
| SBP < 90 mmHg | 3 (0.3) |
| History of hypertension | 2 (0.2) |
| History of dysrhythmia | 2 (0.2) |
| History of renal failure | 2 (0.2) |
| History of diabetes | 2 (0.2) |

CHF: Congestive Heart Failure. CAD: Coronary Artery Disease. ECG: Electrocardiogram. Hs-TnT: high-sensitivity cardiac troponin T. NT-proBNP: N-terminal pro B-type natriuretic peptide. SCD: Sudden Cardiac Death. SBP: Systolic Blood Pressure.

**Appendix Table 5. LASSO Model Selection Results using Troponin > 30 pg/ml**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  Variable | OR | 95% CI | P(OR<1) | P(OR=1) | P(OR>1) |
| Age | 1.00 | (1.00, 1.00) | 0.012 | 0.978 | 0.010 |
| Abnormal heart sounds | 1.00 | (1.00, 1.53) | 0.000 | 0.643 | 0.357 |
| Exertional syncope | 1.00 | (1.00, 1.28) | 0.000 | 0.803 | 0.197 |
| **History of CHF** | **1.75** | **(1.04, 2.69)** | **0.000** | **0.018** | **0.982** |
| **History of CAD** | **1.38** | **(1.00, 2.00)** | **0.000** | **0.085** | **0.915** |
| **Abnormal ECG** | **1.81** | **(1.17, 2.63)** | **0.000** | **0.002** | **0.998** |
| **Hs-TnT >30 pg/ml** | **1.45** | **(1.00, 2.06)** | **0.000** | **0.069** | **0.931** |
| **NT-proBNP >125 pg/ml** | **1.66** | **(1.03, 2.58)** | **0.000** | **0.015** | **0.985** |
| Male Gender | 1.00 | (1.00, 1.45) | 0.000 | 0.542 | 0.458 |
| **Shortness of breath** | **1.10** | **(1.00, 1.60)** | **0.000** | **0.411** | **0.589** |
| Chest pain | 1.00 | (1.00, 1.13) | 0.005 | 0.955 | 0.040 |
| Near syncope | 1.00 | (1.00, 1.39) | 0.000 | 0.643 | 0.357 |
| Family history of SCD | 1.00 | (1.00, 2.03) | 0.001 | 0.885 | 0.114 |
| SBP > 180 mmHg | 1.00 | (0.79, 1.00) | 0.088 | 0.912 | 0.000 |
| SBP < 90 mmHg | 1.00 | (1.00, 1.53) | 0.000 | 0.704 | 0.296 |
| History of hypertension | 1.00 | (1.00, 1.00) | 0.002 | 0.980 | 0.018 |
| History of dysrhythmia | 1.00 | (1.00, 1.17) | 0.000 | 0.904 | 0.096 |
| History of renal failure | 1.00 | (1.00, 1.00) | 0.004 | 0.981 | 0.015 |
| History of diabetes | 1.00 | (1.00, 1.12) | 0.001 | 0.914 | 0.085 |

CI: Confidence Interval. OR: Odds Ratio. CHF: Congestive Heart Failure. CAD: Coronary Artery Disease. ECG: Electrocardiogram. NT-proBNP: N-terminal pro B-type natriuretic peptide. Hs-TnT: high-sensitivity cardiac troponin T. SCD: Sudden Cardiac Death. SBP: Systolic Blood Pressure.