

## SUPPLEMENTAL MATERIAL

### **Prevalence and predictors of permanent pacemaker implantation in patients with aortic stenosis undergoing Transcatheter Aortic Valve Implantation: A Prospective Cohort Study**

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**Supplemental Tables and Figures**

**Supplementary Table 1**

**Supplementary Table 2**

**Supplementary Table 3**

**Supplementary Table 4**

**Supplementary Figure 1**

**Supplementary Table 1.** Multivariable-adjusted model with right bundle branch block and atrial fibrillation tested together.

|                                     | Univariable |        |      |            |         | Multivariable |            |         |
|-------------------------------------|-------------|--------|------|------------|---------|---------------|------------|---------|
|                                     | N           | Events | OR   | 95% CI     | p-value | OR            | 95% CI     | p-value |
| <i>General predictors</i>           |             |        |      |            |         |               |            |         |
| Atrial fibrillation                 | 548         | 173    | 1.84 | 1.25, 2.70 | 0.002   | 1.88          | 1.23, 2.87 | 0.003   |
| Heart rate (bpm)                    | 548         | 173    | 0.99 | 0.97, 1.00 | 0.098   | 0.99          | 0.97, 1.00 | 0.029   |
| <i>ECG predictors</i>               |             |        |      |            |         |               |            |         |
| Abnormal ECG                        | 548         | 173    | 1.91 | 1.31, 2.80 | <0.001  | 1.92          | 1.28, 2.88 | 0.002*  |
| Right bundle branch block           | 548         | 173    | 1.93 | 1.05, 3.56 | 0.034   | 2.95          | 1.45, 5.98 | 0.003   |
| <i>Echocardiographic predictors</i> |             |        |      |            |         |               |            |         |
| Aortic root diameter (cm)           | 547         | 173    | 2.07 | 1.30, 3.29 | 0.002   | 1.63          | 0.98, 2.71 | 0.061   |
| SEV                                 | 548         | 173    | 0.70 | 0.48, 1.04 | 0.075   |               |            |         |
| - 1. Generation                     |             |        | 1.82 | 1.21, 2.73 | 0.004   |               |            |         |
| - 2. Generation                     |             |        | 0.62 | 0.41, 0.94 | 0.024   |               |            |         |
| - 3. Generation                     |             |        | 0.40 | 0.19, 0.84 | 0.016   |               |            |         |
| - Intra-annular                     |             |        | 0.73 | 0.36, 1.48 | 0.381   |               |            |         |
| Mechanically-expandable valve       | 548         | 173    | 4.22 | 2.68, 6.66 | <0.001  | 3.43          | 2.14, 5.52 | <0.001  |
| BEV                                 | 548         | 173    | 0.06 | 0.01, 0.24 | <0.001  | 0.07          | 0.02, 0.29 | <0.001  |

\*Abnormal ECG was replaced by atrial fibrillation and right bundle branch block in the same model.

BEV, balloon-expandable valve; bpm, beats per minute; CI, confidence interval; OR, odds ratio; SEV, self-expanding valve.

**Supplementary Table 2.** Multivariable model adjusted for study phases.

| Multivariable model             |                  |         |
|---------------------------------|------------------|---------|
|                                 | OR (95% CI)      | p-value |
| Age                             | 1.01 (0.98-1.04) | 0.461   |
| Sex                             | 0.88 (0.56-1.37) | 0.581   |
| Atrial fibrillation             | 1.98 (1.31-2.99) | 0.001   |
| Heart rate (bpm)                | 0.99 (0.97-1.00) | 0.061   |
| Right bundle branch block       | 2.12 (1.10-4.10) | 0.025   |
| Aortic root diameter (cm)       | 1.94 (1.13-3.34) | 0.017   |
| Study Phase (high volume phase) | 0.38 (0.26-0.56) | <0.001  |

bpm, beat per minute.

**Supplementary Table 3.** Multivariable model adjusted for study phases and valve-types.

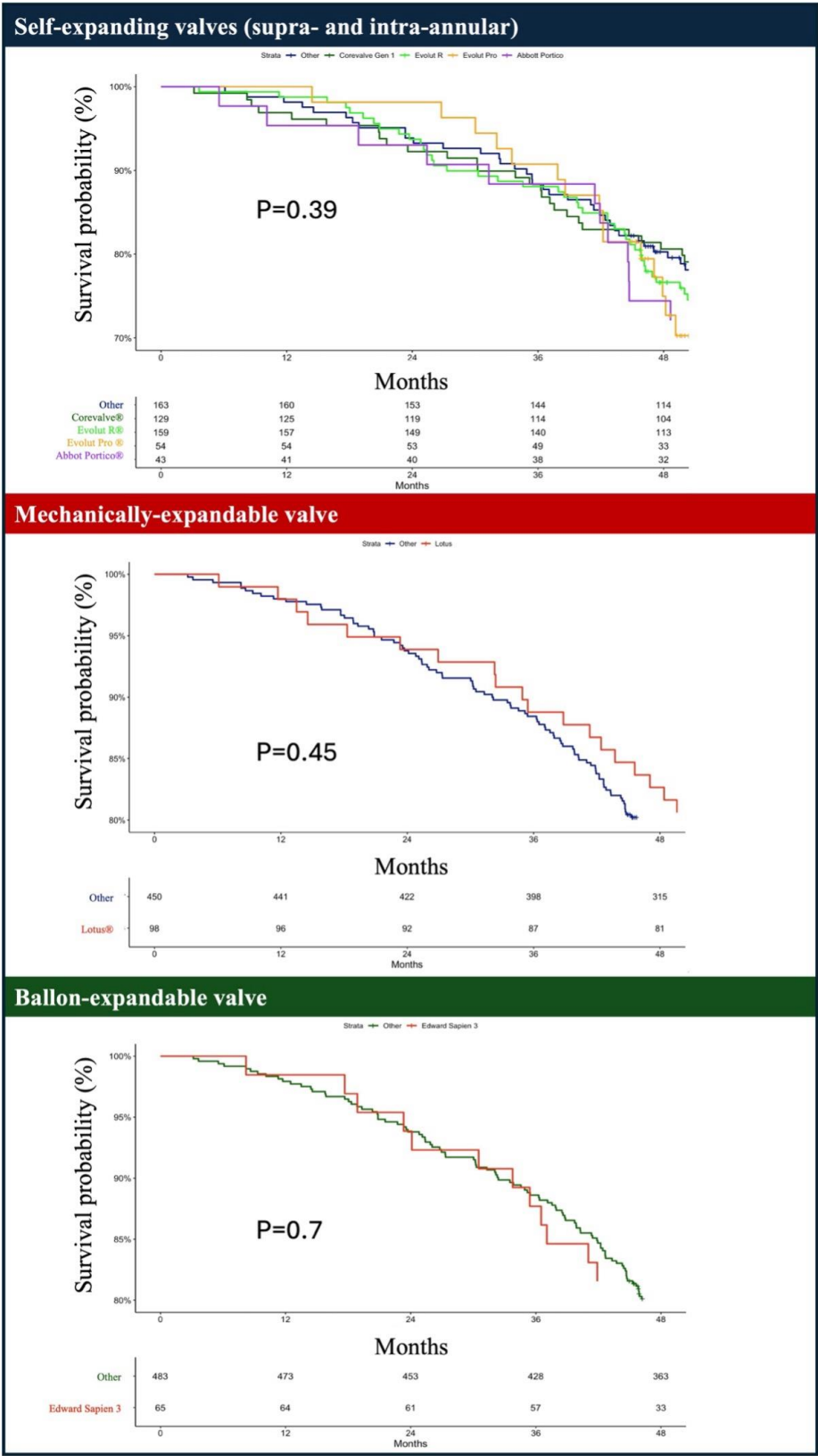
| Multivariable <b>model</b>      |                    |                |
|---------------------------------|--------------------|----------------|
|                                 | <b>OR (95% CI)</b> | <b>p-value</b> |
| Age                             | 0.99 (0.96-1.03)   | 0.895          |
| Sex                             | 0.97 (0.61-1.53)   | 0.886          |
| Atrial fibrillation             | 1.92 (1.24-2.98)   | 0.003          |
| Heart rate (bpm)                | 0.98 (0.97-1.00)   | 0.044          |
| Right bundle branch block       | 2.87 (1.38-5.95)   | 0.005          |
| Aortic root diameter (cm)       | 1.44 (0.80-2.56)   | 0.221          |
| Study phase (high volume phase) | 0.72 (0.38-1.34)   | 0.296          |
| 1. Generation Corevalve         | 1.44 (0.53-3.91)   | 0.478          |
| Evolut R                        | 0.87 (0.39-1.95)   | 0.733          |
| Evolut Pro                      | 0.59 (0.21-1.64)   | 0.313          |
| Lotus                           | 3.49 (1.46-8.34)   | 0.005          |
| Edward Sapien 3                 | 0.08 (0.02-0.38)   | 0.002          |
| bpm, beats per minute.          |                    |                |

**Supplementary Table 4.** Multivariable-adjusted model stratified by study phase (early low-volume phase and late high-volume phase).

|                                     | Low-volume phase |      |            |         | High-volume phase |      |            |         |
|-------------------------------------|------------------|------|------------|---------|-------------------|------|------------|---------|
|                                     | N                | OR   | 95% CI     | p-value | N                 | OR   | 95% CI     | p-value |
| <i>General predictors</i>           |                  |      |            |         |                   |      |            |         |
| Atrial fibrillation                 | 192              | 1.96 | 1.01, 3.86 | 0.049   | 356               | 1.96 | 1.12, 3.45 | 0.019   |
| Heart rate (bpm)                    | 192              | 0.99 | 0.97, 1.01 | 0.415   | 356               | 0.98 | 0.96, 1.00 | 0.046   |
| <i>ECG predictors</i>               |                  |      |            |         |                   |      |            |         |
| Abnormal ECG                        | 192              | 1.96 | 1.04, 3.70 | 0.039   | 356               | 1.84 | 1.08, 3.12 | 0.025   |
| Right bundle branch block           | 192              | 1.58 | 0.57, 4.52 | 0.378   | 356               | 4.82 | 1.82, 13.2 | 0.002   |
| <i>Echocardiographic predictors</i> |                  |      |            |         |                   |      |            |         |
| Aortic root diameter (cm)           | 191              | 2.22 | 0.96, 5.32 | 0.066   | 356               | 1.29 | 0.66, 2.51 | 0.451   |
| Mechanically-expandable valve       | 192              | 2.90 | 1.44, 6.01 | 0.003   | 356               | 3.72 | 1.94, 7.22 | <0.001  |
| BEV                                 |                  |      |            |         | 356               | 0.08 | 0.01, 0.28 | <0.001  |

\* Abnormal ECG was replaced by atrial fibrillation and right bundle branch block in the same model.

BEV, balloon-expandable valve; bpm, beats per minute; OR, odds ratio; CI, confidence interval.



Supplementary Figure 1: Kaplan-Meier curves showing survival for different valve types.