**Aortic valve function post-replacement of severe aortic stenosis by transcatheter procedure versus surgery: A systematic review and metanalysis.**

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**Supplementary materials**

**Supplementary section:** Search algorithms:

**MEDLINE**

#1. Transcatheter Aortic Valve Replacement/ 4747

#2. (trans?catheter or percutaneous or trans?cutaneous or trans?arterial or

trans?vascular or trans?femoral or trans?apical or trans?axillar\* or trans?aortic or

trans?subclavian or trans?carotid or TAVI or TAVR).mp. [mp=ti, ab, hw, tn, ot,

dm, mf, dv, kw, fx, dq, nm, kf, ox, px, rx, ui, sy] 193973  
#3. 1 or 2 193973  
#4. exp Aortic Valve Stenosis/ 40782  
#5. "aortic stenosis".mp. 17505  
#6. 4 or 5 45675   
#7. (replacement or implantation).mp. [mp=ti, ab, hw, tn, ot, dm, mf, dv, kw, fx,

dq, nm, kf, ox, px, rx, ui, sy] 511390

#8. random\*.tw. 1101085  
#9. 3 and 6 and 7 and 8 604

#10. limit 9 to yr =”2002-2019” 589

**EMBASE**

#1. Transcatheter Aortic Valve Replacement/ 18567

#2. (trans?catheter or percutaneous or trans?cutaneous or trans?arterial or

trans?vascular or trans?femoral or trans?apical or trans?axillar\* or trans?aortic or

trans?subclavian or trans?carotid or TAVI or TAVR).mp. [mp=ti, ab, hw, tn, ot,

dm, mf, dv, kw, fx, dq, nm, kf, ox, px, rx, ui, sy] 340337

#3. 1 or 2 340337  
#4. exp Aortic Valve Stenosis/ 2716 29041

#5. "aortic stenosis".mp. 29041   
#6. 4 or 5 30672   
#7. (replacement or implantation).mp. [mp=ti, ab, hw, tn, ot, dm, mf, dv, kw, fx,

dq, nm, kf, ox, px, rx, ui, sy] 669588

#8. random\*.tw. 1494029  
#9. 3 and 6 and 7 and 8 807

#10. limit 9 to yr =”2002-2019”

**COCHRANE**

#1 MeSH descriptor: [Aortic Valve Stenosis] this term only 600

#2 aortic near stenos?s 1417

#3 #1 or #2 1417

#4 transcatheter aortic valve implantation 758

#5 MeSH descriptor: [Transcatheter Aortic Valve Replacement] explode all trees 138

#6 #4 or #5 809

#7 #3 and #6 525

#8 #7 and surg\* 443

#9 #8 and randomi\*

with Publication Year from 2002 to 2019, in Trials 324

**Supplementary table 1:** Risk of bias assessment using the Rob 2.0 tool.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **PARTNER 1A** | **US CoreValve**  **High Risk** | **NOTION** | **PARTNER 2** | **SUR-TAVI** | **EVOLUT LOW RISK** |
| **Study design** | Randomized open label, parallel  group | Randomized, open label, parallel  group | Randomized, open label, parallel  group | Randomized, open label, parallel  group | Randomized,  open label, parallel  group | Randomized, open label, parallel group |
| **Outcome assessed** | Death from any cause | Rate of death from any cause | Combined outcome measure consisting of death from any cause, myocardial infarction, and stroke | Death from any cause or disabling stroke | All-cause mortality or disabling stroke | Composite of death from any cause or disabling stroke at 24 months |
| **Aim** | to determine the safety and effectiveness of the device and delivery systems (transfemoral and transapical) in high surgical risk patients with severe AS | to assess the safety and effectiveness of TAVI with a self-expanding prosthesis as compared with SAVR in patients with severe AS | to compare TAVI using Core Valve System and SAVR in patients with severe AS  in a cohort of low-risk, moderate risk and high-risk patients | to assess the safety and efficacy of balloon expandable TAVR compared with SAVR in AS patients with intermediate surgical risk | To compare the safety and efficacy of TAVR performed with the use of self-expanding bioprothesis with SAVR in AS patients with intermediate surgical risk | to evaluate the safety and effectiveness of TAVR with a self –expanding bioprosthesis compared with SAVR in AS patients with low surgical risk. |
| **Sources** | Journal articles and trial  protocol | Journal articles and trial protocol | Journal articles and trial protocol | Journal articles and trial protocol | Journal articles and trial protocol | Journal articles and trial protocol |
| **Bias arising from the randomization process** | | | | | | |
| **1.1** | Yes | Yes | Yes | Yes | Yes | Yes |
| **1.2** | Yes | NI | PY | PY | Yes | PY |
| **1.3** | No | No | No | No | No | No |
| **Risk of bias** | Low | Low | Low | Low | Low | Low |
|  |  |  |  |  |  |  |
| **Bias due to deviations from intended interventions** | | | | | | |
| **2.1** | Yes | Yes | Yes | Yes | Yes | Yes |
| **2.2** | Yes | Yes | Yes | Yes | Yes | Yes |
| **2.3** | Yes | No | No | PN | No | No |
| **2.4** | No | - | - | - | - | - |
| **2.5** | No | No | No | No | PY | No |
| **2.6** | - | - | - | - | No | - |
| **Risk of bias** | Low | Low | Low | Low | Low | Low |
| **Bias due to missing outcome data** | | | | | | |
| **3.1** | PY | PY | PY | PN | PN | PN |
| **3.2** | - | - | - | No | PN | PY |
| **3.3** | Yes | Yes | Yes | Yes | Yes | Yes |
| **Risk of bias** | Low | Low | Low | Low | Low | Low |
| **Bias in measurement of the outcome** | | | | | | |
| **4.1** | No | PN | PN | PN | PN | No |
| **4.2** | - | - | - | - | - | - |
| **Risk of bias** | Low | Low | Low | Low | Low | Low |
| **Bias due to selection of the reported result** | | | | | | |
| **5.1** | No | No | No | No | No | No |
| **5.2** | No | No | No | No | No | No |
| **Risk of bias** | Low | Low | Low | Low | Low | Low |
|  |  |  |  |  |  |  |
| **Overall Bias** | **Low** | **Low** | **Low** | **Low** | **Low** | **Low** |

**Supplementary Figure 1:** Pooled mean difference ofgradient at 2 years, according to (a) surgical risk on inclusion and (b) transcatheter heart valve system

Graphical user interface, application, Word

Description automatically generated

**Supplementary Figure 2:** Pooled mean difference ofeffective orifice area at 2 years, according to (a) surgical risk on inclusion and (b) transcatheter heart valve system

Graphical user interface, application, Word

Description automatically generated

Supplementary Figure 3**:** Pooled relative risk of moderate/severe paravalvular leak at 2 years, according to (a) surgical risk on inclusion and (b) transcatheter heart valve system

Graphical user interface, application, table, Word

Description automatically generated