

# Bioprothèses et TAVI : le Retour des Anticoagulants ?

B Diebold (Paris)

# Les Bioprothèses (et TAVI) sont associées à la notion d'absence d'anticoagulation

I

C

A bioprosthesis is recommended in patients of any age for whom anticoagulant therapy is contraindicated, cannot be managed appropriately, or is not desired.

# Les Bioprothèses (et TAVI) sont associées à la notion d'antiagrégation optionnelle

IIa

B

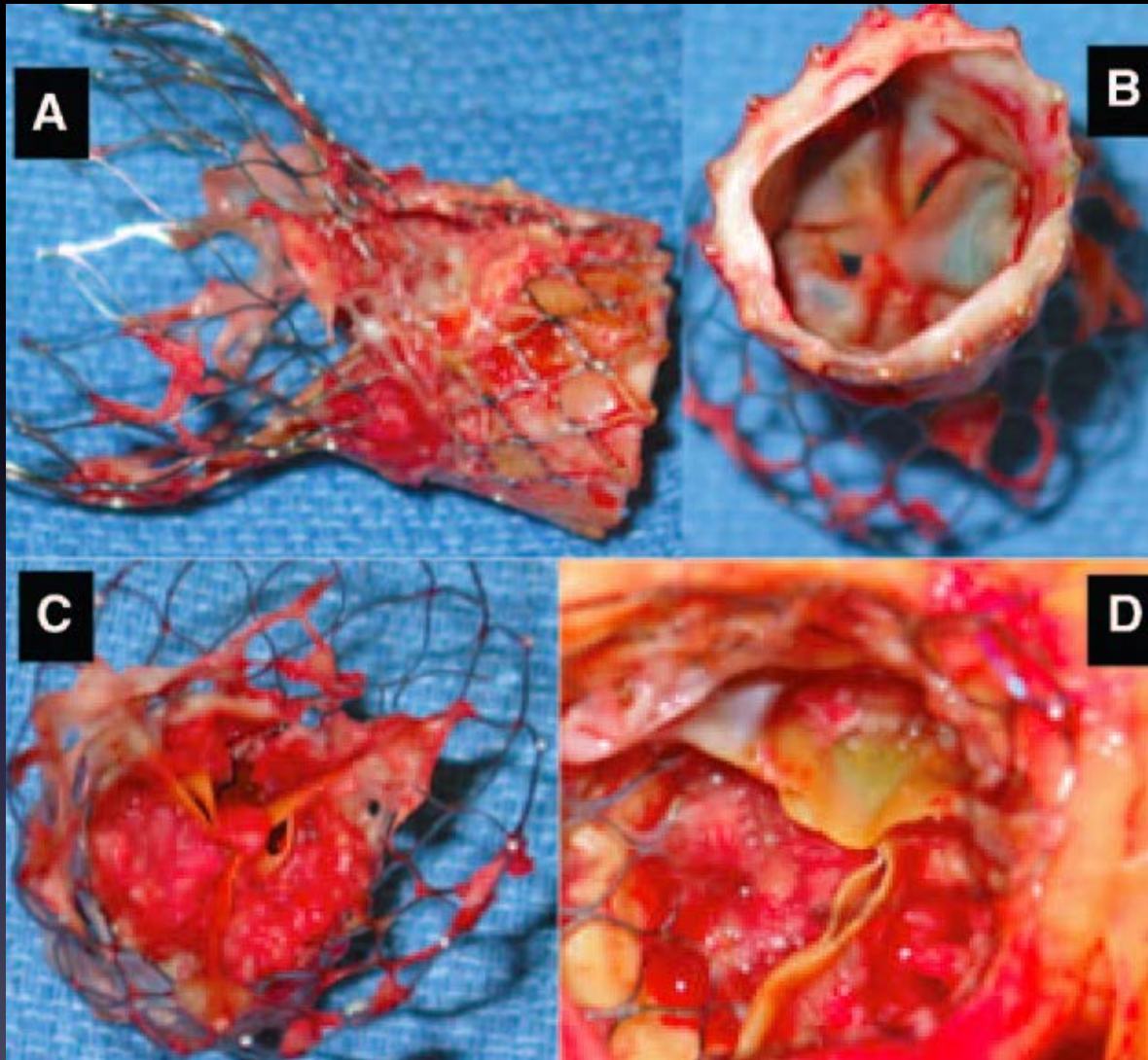
Aspirin 75 mg to 100 mg per day is reasonable in all patients with a bioprosthetic aortic or mitral valve (178,191-194).

IIb

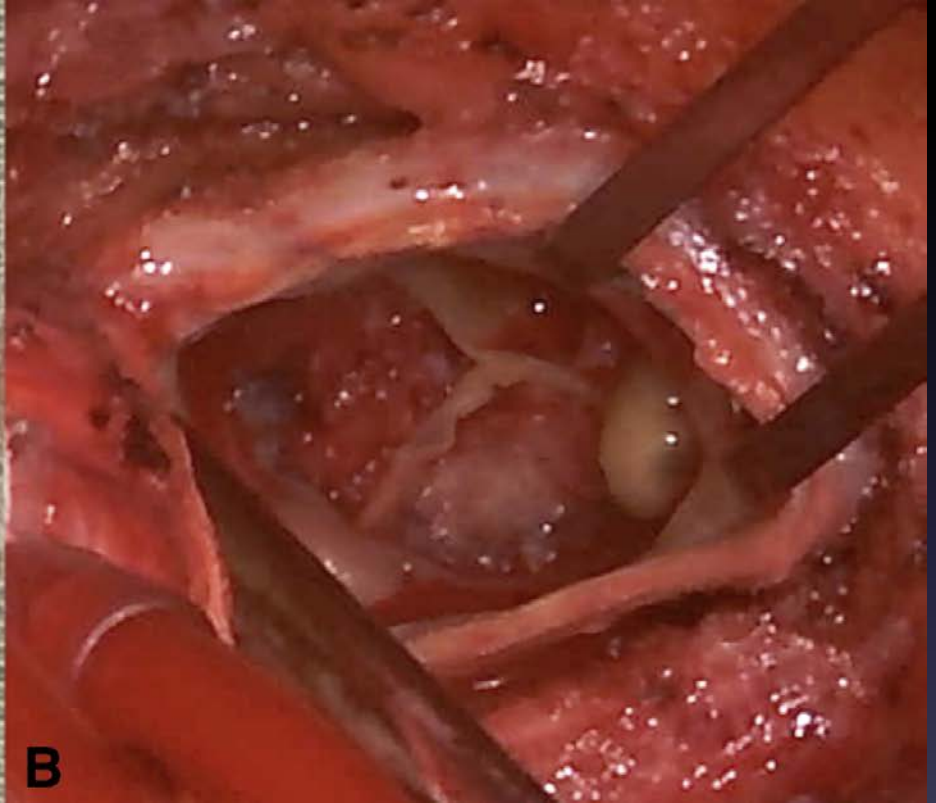
C

Clopidogrel 75 mg daily may be reasonable for the first 6 months after TAVR in addition to life-long aspirin 75 mg to 100 mg daily.

# Thrombose de Corevalve

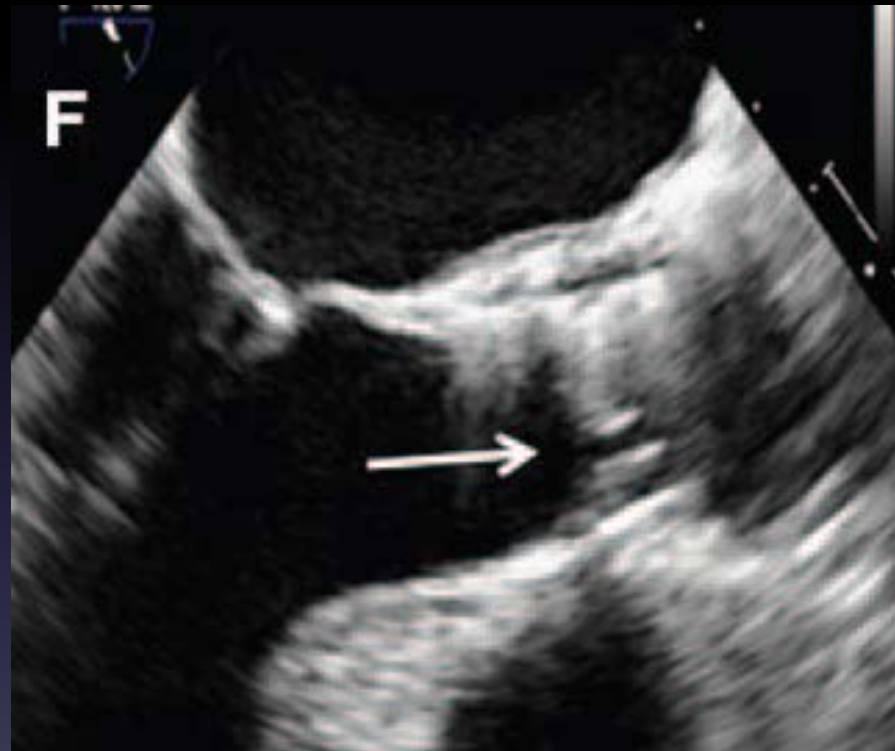
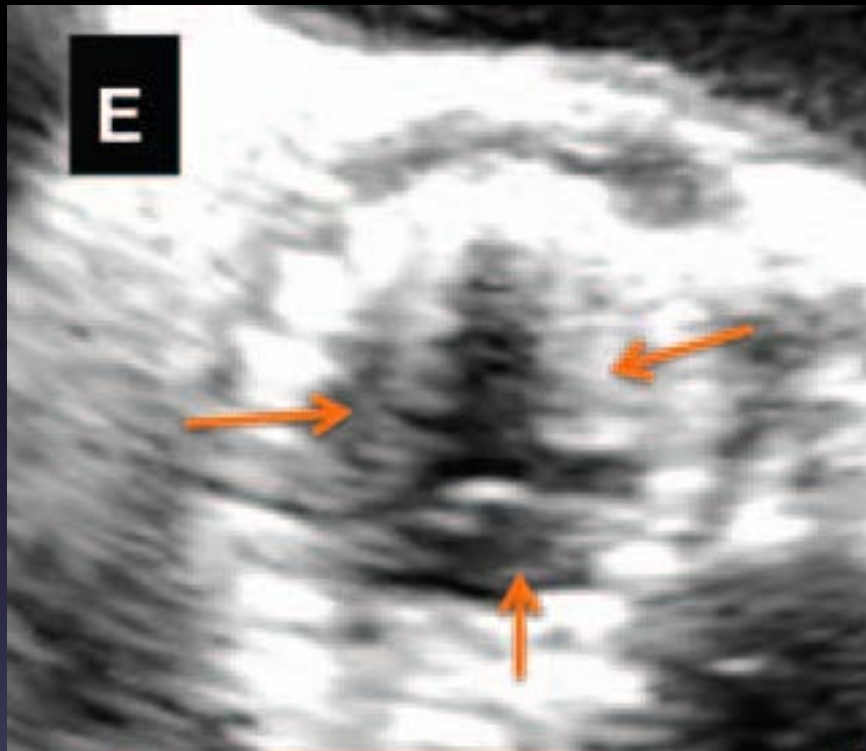


# Thrombose de SJM Epic

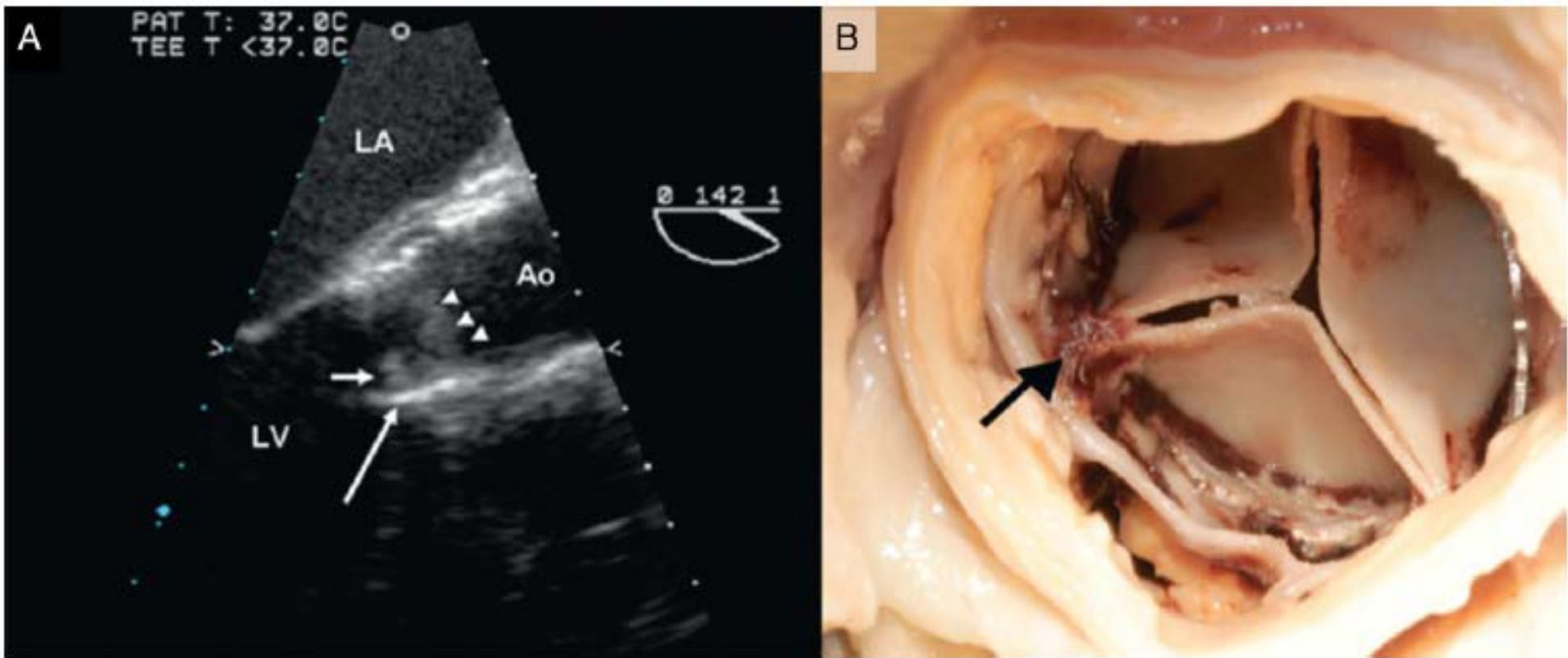


*Dohi & al. The Journal of Thoracic and Cardiovascular Surgery 2015 149, e83-e86DOI: (10.1016/j.jtcvs.2015.02.039)*

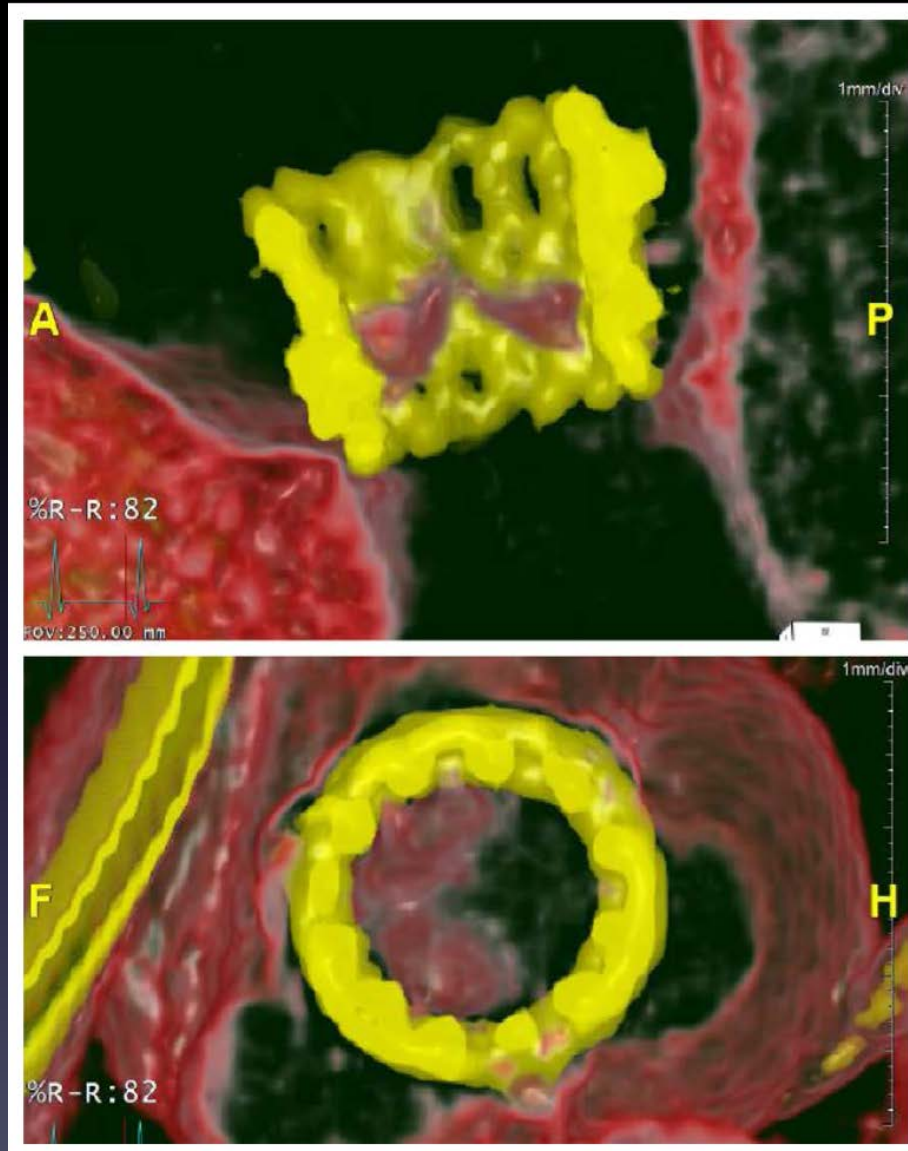
# ETO et Thrombose de TAVI



# Image de thrombose de TAVI en ETO



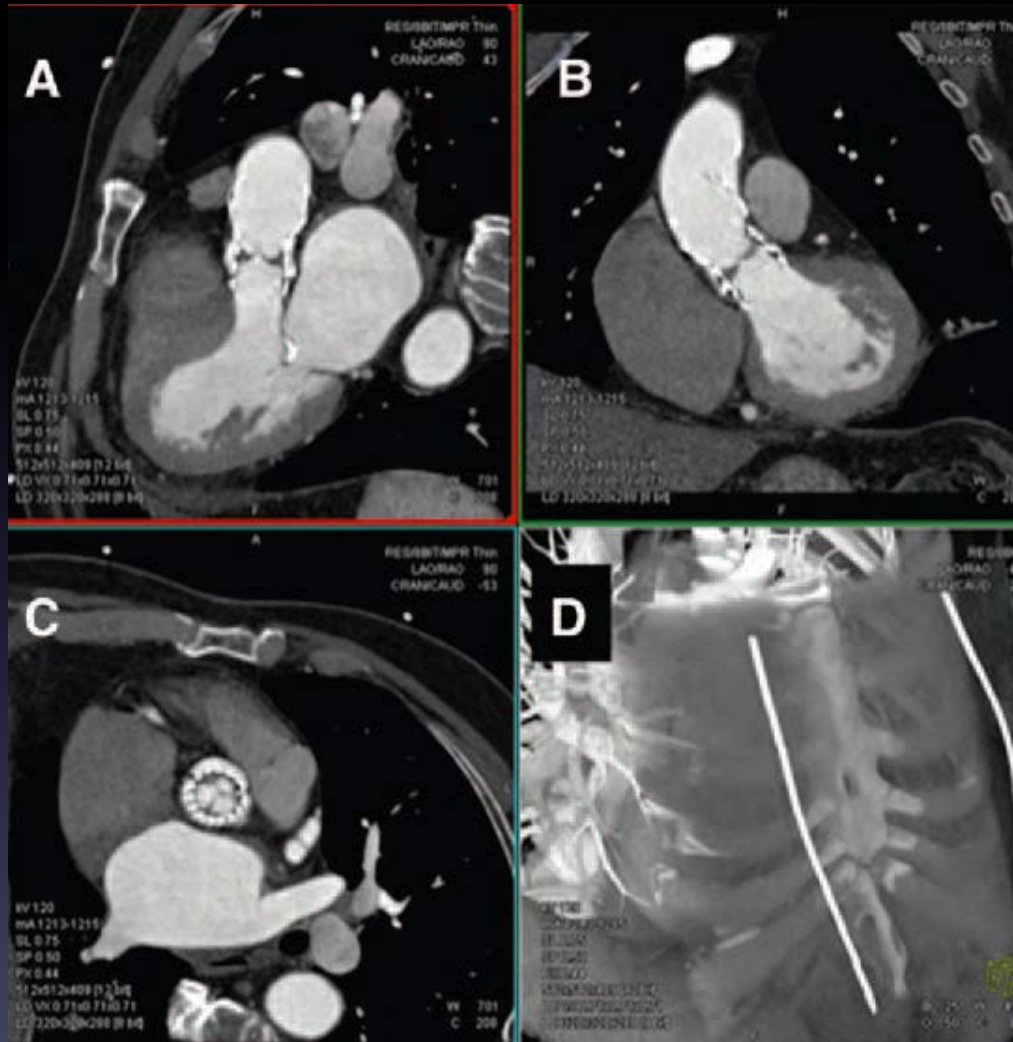
# Scanner et Thrombose de TAVI



Holmes & Mack *Circulation*. 2017;135:1749–1756

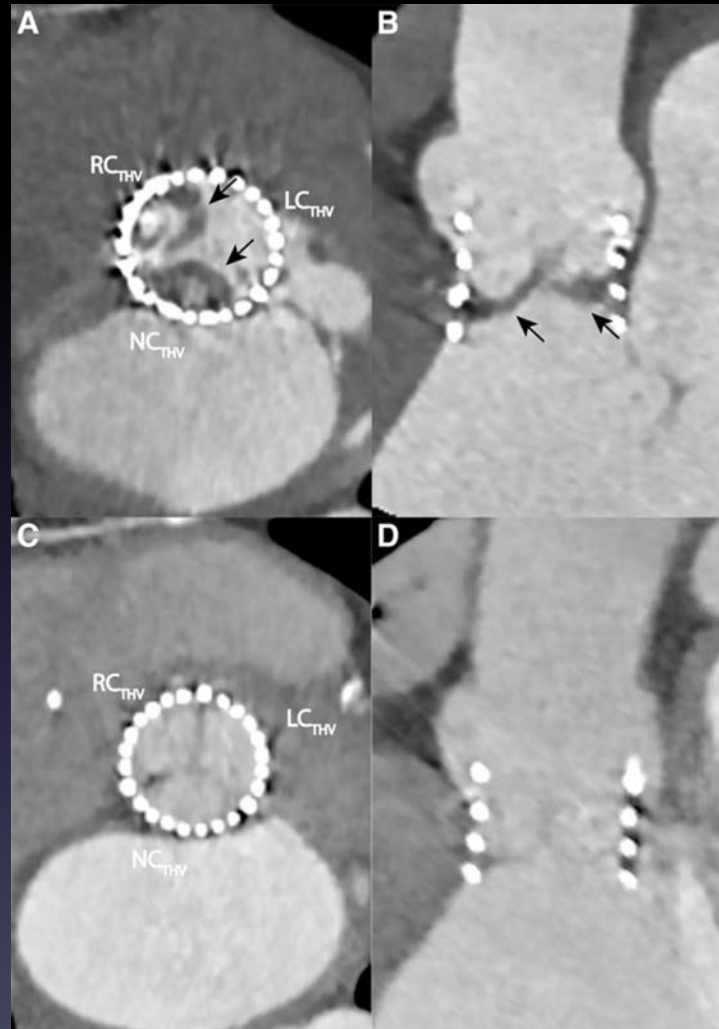


# Scanner et Thrombose de TAVI

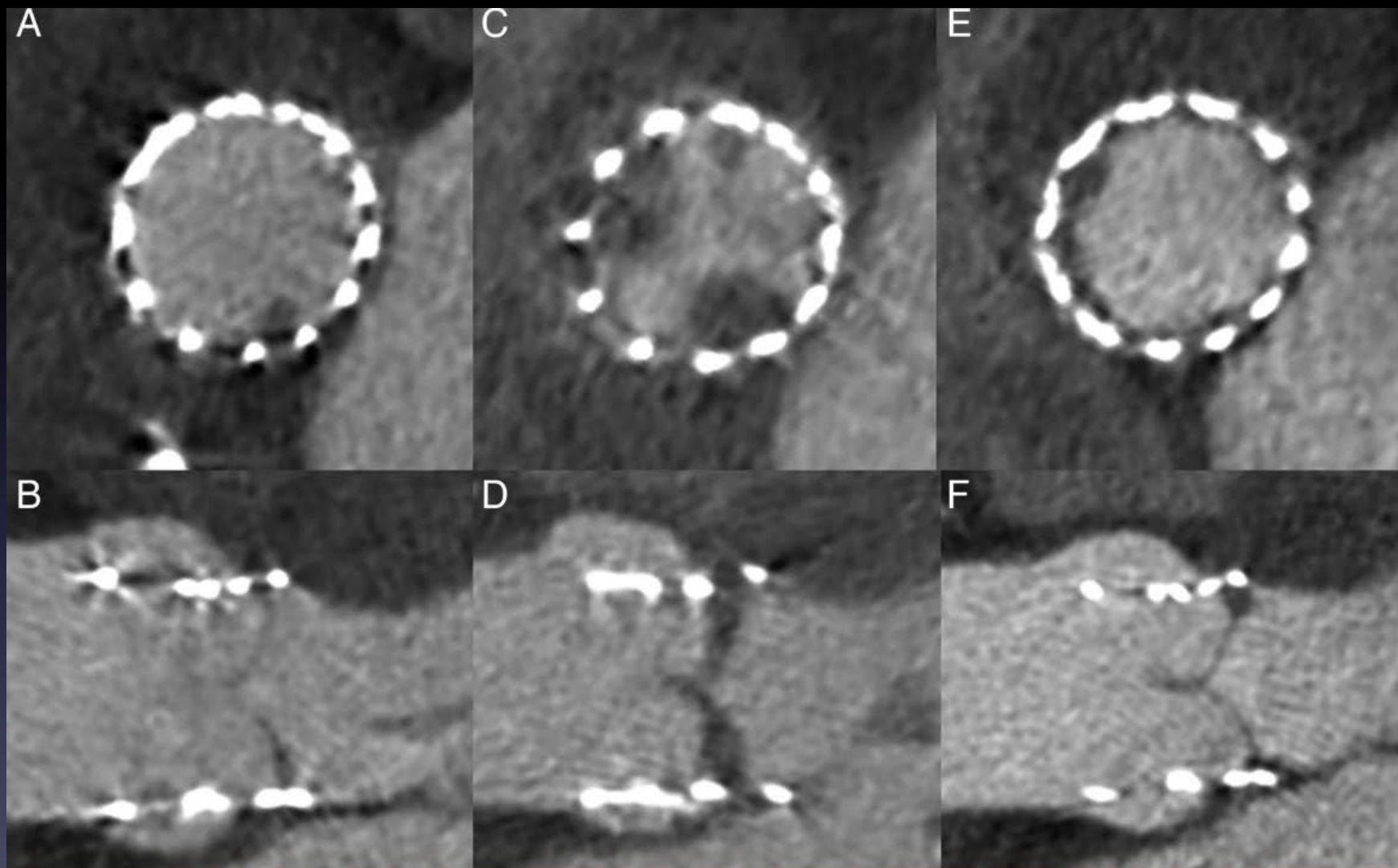


Lancelotti et al. *Circ Cardiovasc Interv.* 2013;6:e32-e33

# Scanner de TAVI : Thrombose et « HALT »

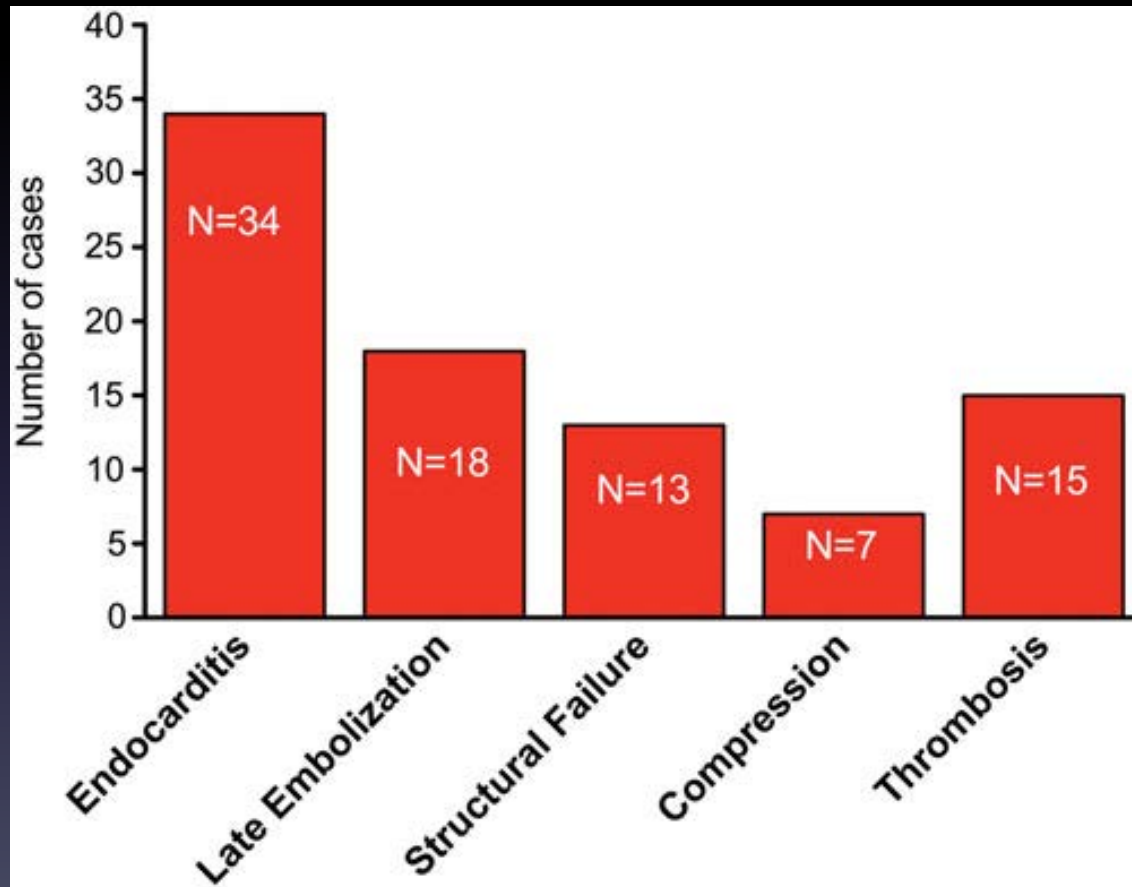


# Scanner et Thrombose de TAVI : « HALT »



# Incidence des thromboses de TAVI

## Analyse de 70 articles

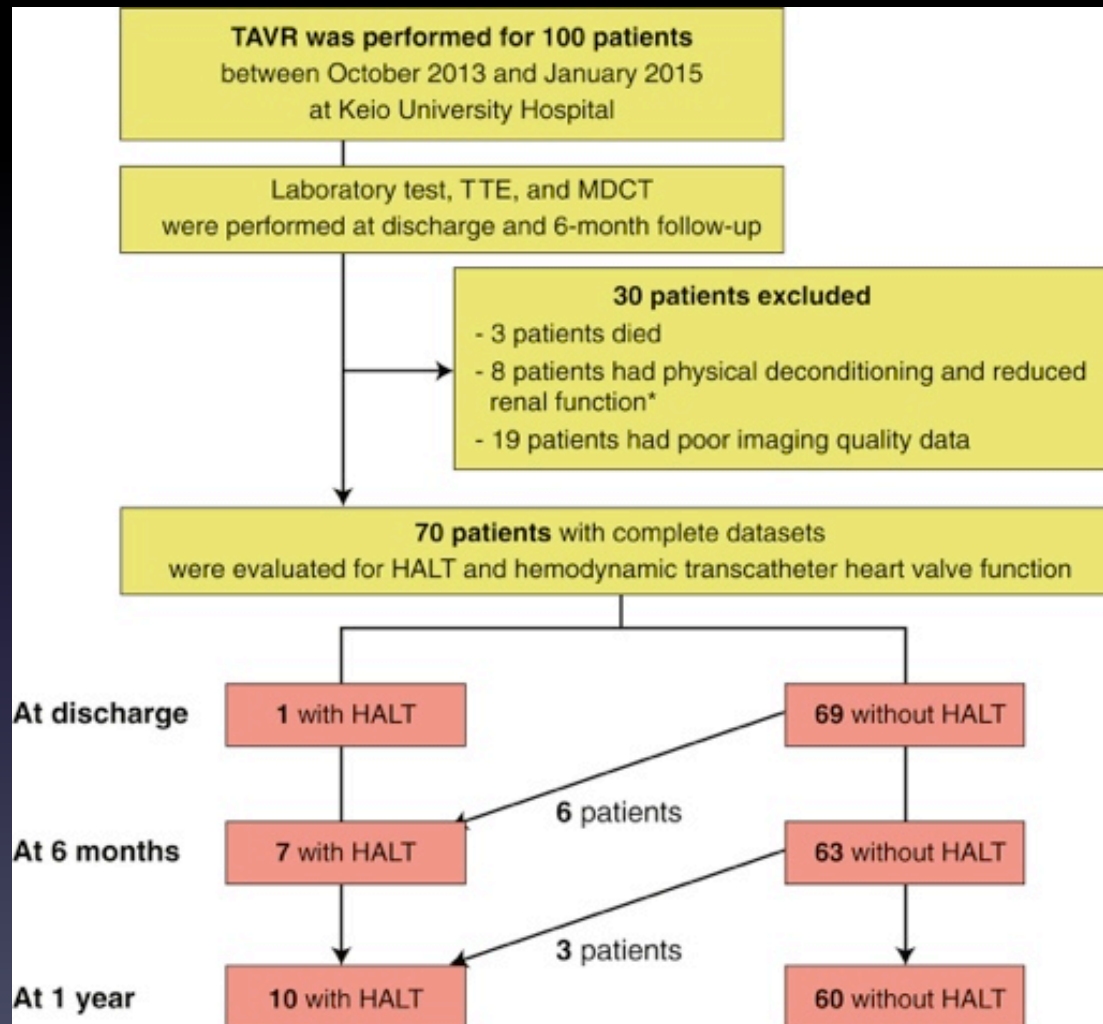


# TAVI : Types de Thromboses

|                                 |                 |      |                                 |        |           |
|---------------------------------|-----------------|------|---------------------------------|--------|-----------|
| Makkar et al <sup>1</sup>       | MDCT            | TAVR | Reduced leaflet motion          | 55     | 22 (40)   |
|                                 | MDCT            | SAVR | Reduced leaflet motion          | 132    | 17 (13)   |
| De Marchena et al <sup>4</sup>  | Autopsy/surgery | TAVR | Valve thrombosis                | 4      | 4 (100)   |
| Leetmaa et al <sup>7</sup>      | MDCT            | TAVR | Valve thrombosis                | 140    | 5 (4)     |
| Brown et al <sup>11</sup>       | Surgery         | SAVR | Valve thrombosis                | 4568   | 8 (0.2)   |
| Egbe et al <sup>8</sup>         | Surgery         | SAVR | Valve thrombosis                |        | 46        |
| Del Trigo et al <sup>16</sup>   | TTE             | TAVR | Valve hemodynamic deterioration | 1521   | 68 (4.5)  |
| Jander et al <sup>18</sup>      | TTE             | SAVR | Valve hemodynamic deterioration | 1751   | 17 (1)    |
| Vemulapalli et al <sup>19</sup> | TTE             | TAVR | Valve hemodynamic deterioration | 10 099 | 212 (2.1) |
|                                 | TTE             | TAVR | Valve hemodynamic deterioration | 3175   | 79 (2.5)  |
| Latib et al <sup>15</sup>       | TTE             | TAVR | Valve thrombosis                | 4266   | 26 (0.61) |
| Pache et al <sup>27</sup>       | MDCT            | TAVR | HALT                            | 156    | 16 (10.3) |
| Hansson et al <sup>28</sup>     | MDCT            | TAVR | HALT                            | 405    | 28 (7)    |

# « HALT » : Incidence sur des TAVI

## Analyse de 100 cas



# Mouvement réduit : TAVI versus SAVI

|                      |               |
|----------------------|---------------|
| Transcatheter valves | 101/752 (13%) |
| Edwards              | 63/453 (14%)  |
| Edwards-Sapien       | 1/22 (5%)     |
| Sapien XT            | 12/122 (10%)  |
| Sapien 3             | 50/309 (16%)  |
| Evolut or CoreValve  | 9/145 (6%)    |
| CoreValve            | 3/70 (4%)     |
| Evolut               | 6/75 (8%)     |

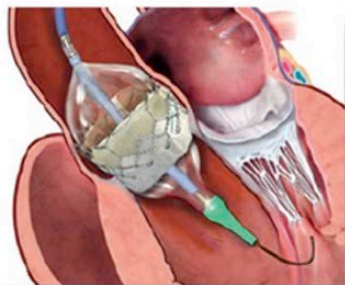
|                 |            |
|-----------------|------------|
| Surgical valves | 5/138 (4%) |
| Epic            | 0/16       |
| Freestyle       | 0/2        |
| Magna           | 4/37 (11%) |
| Mitroflow       | 0/11       |
| Perimount       | 1/39 (3%)  |

# Mouvement réduit : Pronostic

|                       | Normal leaflet motion (n=784) |                           | Reduced leaflet motion (n=106) |                           |
|-----------------------|-------------------------------|---------------------------|--------------------------------|---------------------------|
|                       | Number of patients            | Rate per 100 person-years | Number of patients             | Rate per 100 person-years |
| <b>All events</b>     |                               |                           |                                |                           |
| Death                 | 34 (4%)                       | 2.91                      | 4 (4%)                         | 2.66                      |
| Myocardial infarction | 4 (1%)                        | 0.34                      | 1 (1%)                         | 0.67                      |
| Stroke or TIA         | 27 (3%)                       | 2.36                      | 11 (10%)                       | 7.85                      |
| All stroke*           | 22 (3%)                       | 1.92                      | 6 (6%)                         | 4.12                      |
| Ischaemic stroke      | 21 (3%)                       | 1.83                      | 6 (6%)                         | 4.12                      |
| TIA                   | 7 (1%)                        | 0.60                      | 6 (6%)                         | 4.18                      |



# Facteurs associés à des thromboses de TAVI (642 TAVI)



- Balloon-expandable valves



- Valve-in-valve TAVR

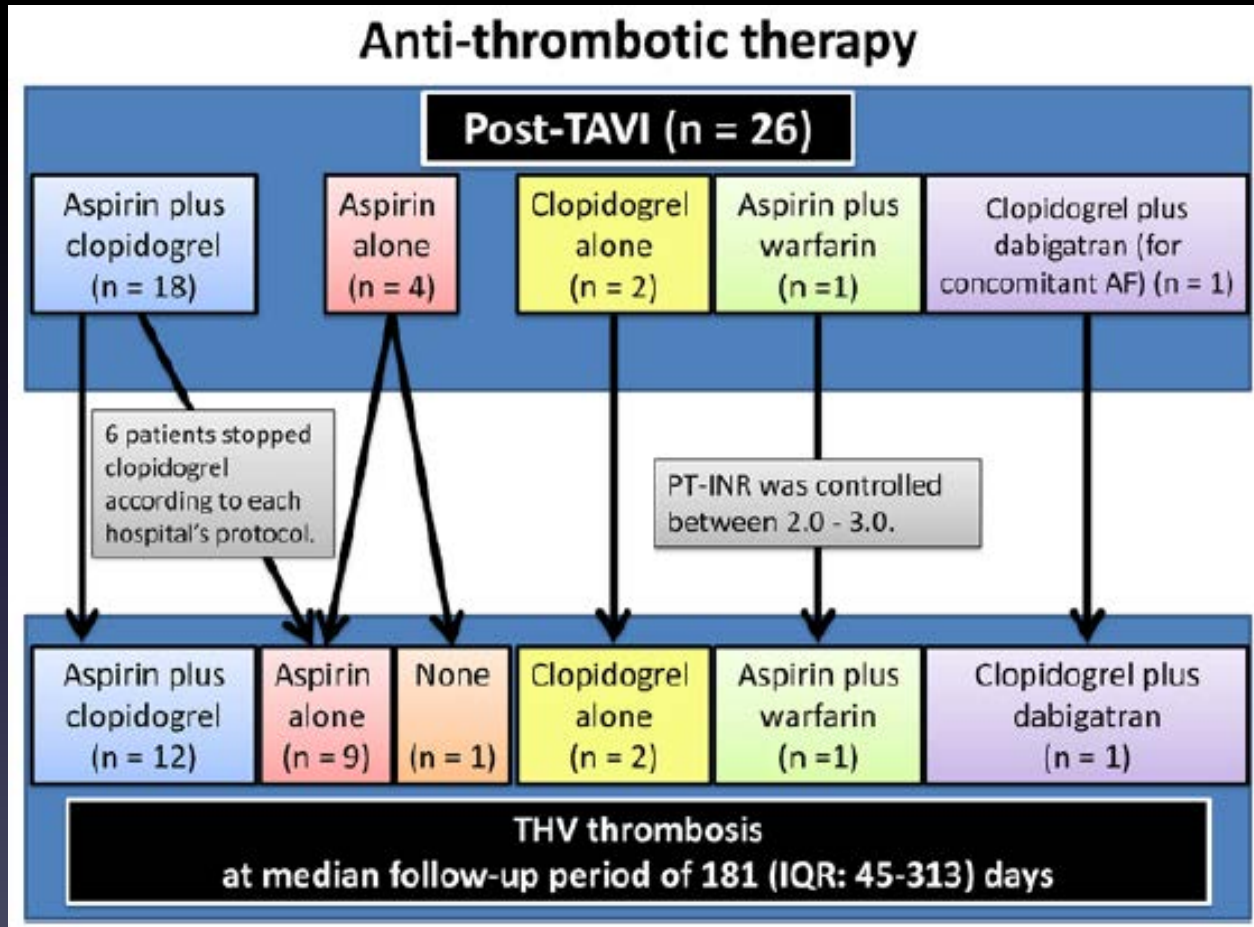


- Use of antiplatelet therapy alone

# Thromboses de TAVI et Traitements

|                                    | THV Thrombosis,<br>n=5 | No THV Thrombosis, n=135 |
|------------------------------------|------------------------|--------------------------|
| None                               | 0                      | 1 (1)                    |
| Aspirin only                       | 2 (40)                 | 6 (4)                    |
| Clopidogrel only                   | 0                      | 5 (4)                    |
| Aspirin+clopidogrel                | 3 (60)                 | 62 (46)                  |
| Warfarin only                      | 0                      | 12 (9)                   |
| Warfarin+aspirin or<br>clopidogrel | 0                      | 41 (31)                  |
| Warfarin+aspirin+clopidogrel       | 0                      | 5 (4)                    |
| Dabigatran                         | 0                      | 5 (4)                    |

# Thromboses de TAVI et Traitements



# Mouvement réduit : Traitements

|                                       | Normal leaflet motion | Reduced leaflet motion | p value |
|---------------------------------------|-----------------------|------------------------|---------|
| Anticoagulation vs no anticoagulation | n=784                 | n=106                  | <0.0001 |
| Anticoagulation                       | 216 (28%)             | 8 (8%)                 | ..      |
| No anticoagulation                    | 568 (72%)             | 98 (92%)               | ..      |
| Anticoagulation vs DAPT               | n=393                 | n=39                   | <0.0001 |
| Anticoagulation                       | 216 (55%)             | 8 (21%)                | ..      |
| DAPT                                  | 177 (45%)             | 31 (79%)               | ..      |

# « HALT » et Traitements

156 Sapien étudiés à J5

16 pts (10 %) avec HALT

Soit 6/45 avec 1 AA et 10/111 avec 2 AA

Régression sous anticoagulants chez 13/13 contrôles  
par Scanner

# Les thromboses de Bioprothèses (et TAVI) justifient une anticoagulation et plus si besoin

## Recommendations for Prosthetic Valve Stenosis

| COR | LOE  | RECOMMENDATIONS   |
|-----|------|---|
| I   | C    | Repeat valve replacement is indicated for severe symptomatic prosthetic valve stenosis (239-241).   |
| IIa | C-LD | In patients with suspected or confirmed bioprosthetic valve thrombosis who are hemodynamically stable and have no contraindications to anticoagulation, initial treatment with a VKA is reasonable (203,242-246). |

See Online Data Supplement 8.

Les Bioprothèses (et TAVI) sont, donc, maintenant, associées à la notion d'anticoagulation transitoire optionnelle systématique

**Ila**

**B-NR**

See [Online Data Supplement 6](#).

Anticoagulation with a VKA to achieve an INR of 2.5 is reasonable for at least 3 months and for as long as 6 months after surgical bioprosthetic MVR or AVR in patients at low risk of bleeding (195-197).

Les Bioprothèses (et TAVI) sont associées à la notion d'anticoagulation transitoire optionnelle

MODIFIED:

(.....) Stroke risk and mortality rate are lower in patients who receive anticoagulation for up to 6 months after implantation of a tissue prosthesis than in those who do not have anticoagulation.

Anticoagulation for a tissue prosthesis is also supported by reports of valve thrombosis for patients undergoing bioprosthetic surgical AVR or MVR, a phenomenon that may be warfarin responsive.

Recommandations ACC – AHA 2017