Valve in Valve TAVR

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No conflicts to disclose

A 68 year-old lady, with symptomatic aortic stenosis (mean gradient 56), comes for advice

Mechanical valve

Bioprosthetic surgical valve

TAVI

AHA/ACC 2020 suggest age 65
ESC 2021 suggest age 75

When surgical approach is preferable to transcatheter VinV

Young age

High risk of coronary obstruction which cannot be overcome with TAVR techniques

Endocarditis/Thrombosis

Severe Prosthesis-Patient mismatch

Paravalvular leak which cannot be corrected

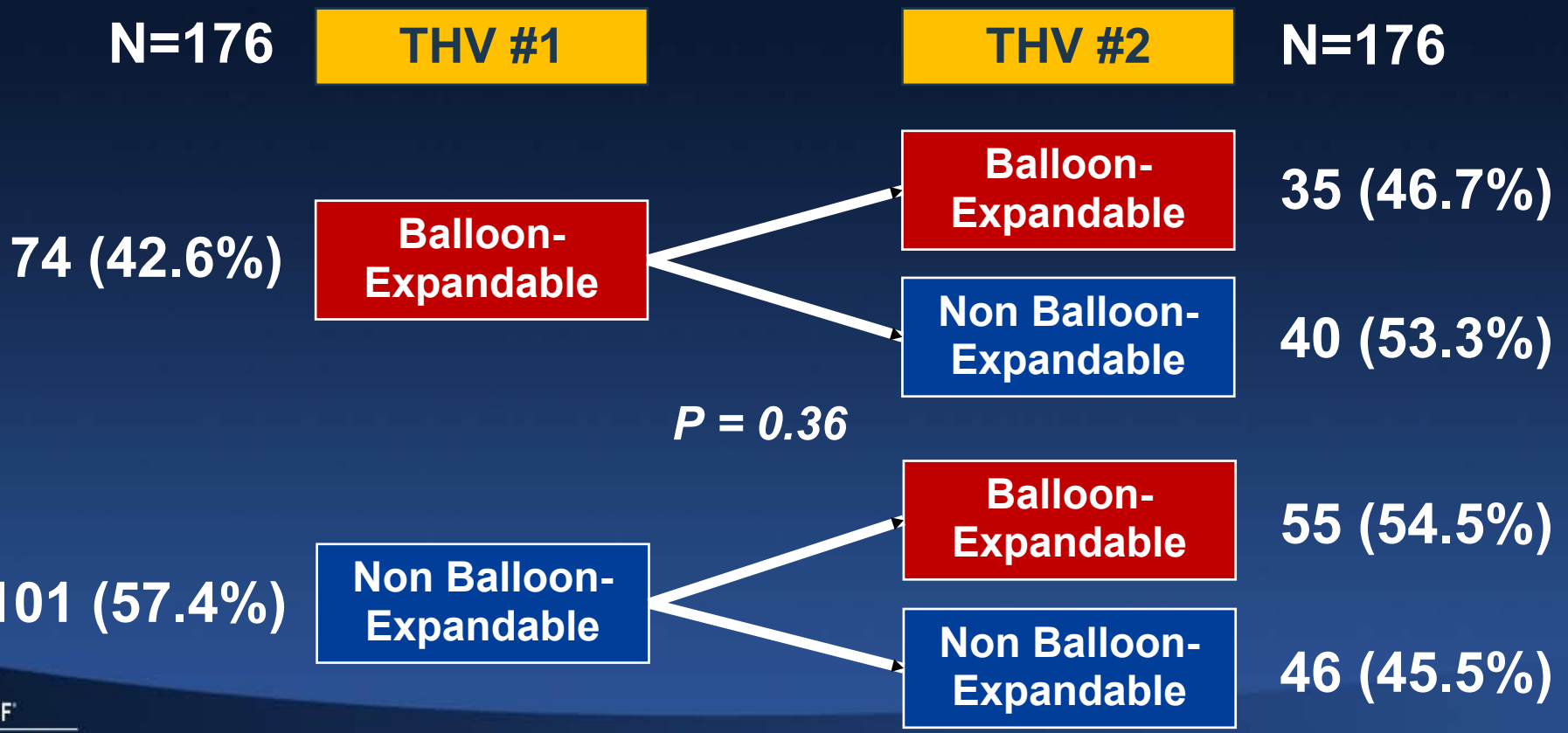
Need for additional heart surgery

EXPLANT Registry, Syed Zaid:
304 pts 176 redo TAVR, 178 explant

1 month mortality in surgically explanted valves

12% vs. 3.5% when ViV

Index TAVR and Redo TAVR Valve Types



CRF TVT

Transcatheter Aortic Valve Replacement for Degenerated Transcatheter Aortic Valves The TRANSIT International Project

Luca Testa et al. Circ. Cardiov. Interv. 2021

172 pts underwent a 2nd TAVR

79% rate of device success according to VARC-2 criteria

Having evaluated that in the specific case transcatheter VinV is the more appropriate option rather that surgical replacement

When performing transcatheter Valve in Valve consider

Residual gradient

Risk of Coronary Occlusions and Access

V in V in surgical valves

V in V in Transcatheter Heart Valves

How to select the most appropriate VinV

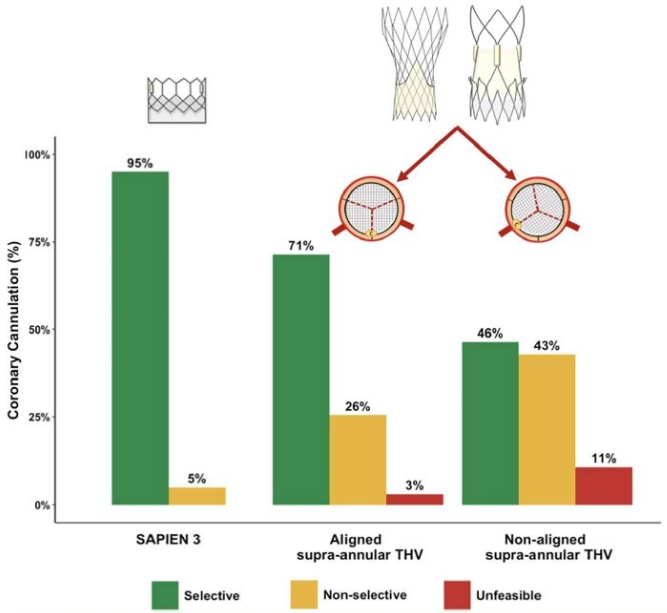
Coronary obstruction versus
prosthesis-patient mismatch (PPM)

Issues when Transcatheter V in V

- Coronary occlusion

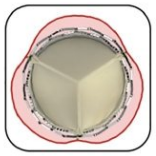
- Post-procedural high trans-valvular pressure gradients

Supra-annular valve = worse coronary access

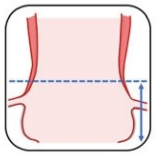


Predictors of impaired CA after TAVR

Non-aligned supra-annular THV
(OR 4.59, 95% CI 1.81-11.61, p<0.01)

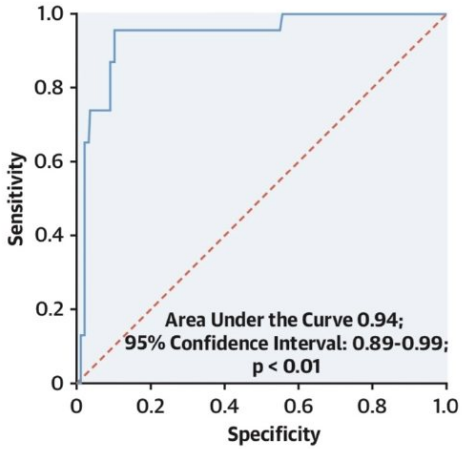


THV-Sinus of Valsalva relation
(OR 1.06, 95% CI 1.02-1.1, p<0.01)



Sinus of Valsalva height
(OR 0.83, 95% CI 0.7-0.98, p=0.03)

CENTRAL ILLUSTRATION **Predictors of Unsuccessful Coronary Cannulation After Transcatheter Aortic Valve Replacement and Receiver-Operating Characteristic Curve Analysis Applied to Logistic Regression Model**



Transcatheter Aortic Valve/ Sinuses of Valsalva Relation
Odds Ratio 1.1;
95% CI: 1.0-1.2; p < 0.01

Transcatheter Aortic Valve Implant Depth
Odds Ratio 1.7;
95% CI: 1.3-2.3; p < 0.01

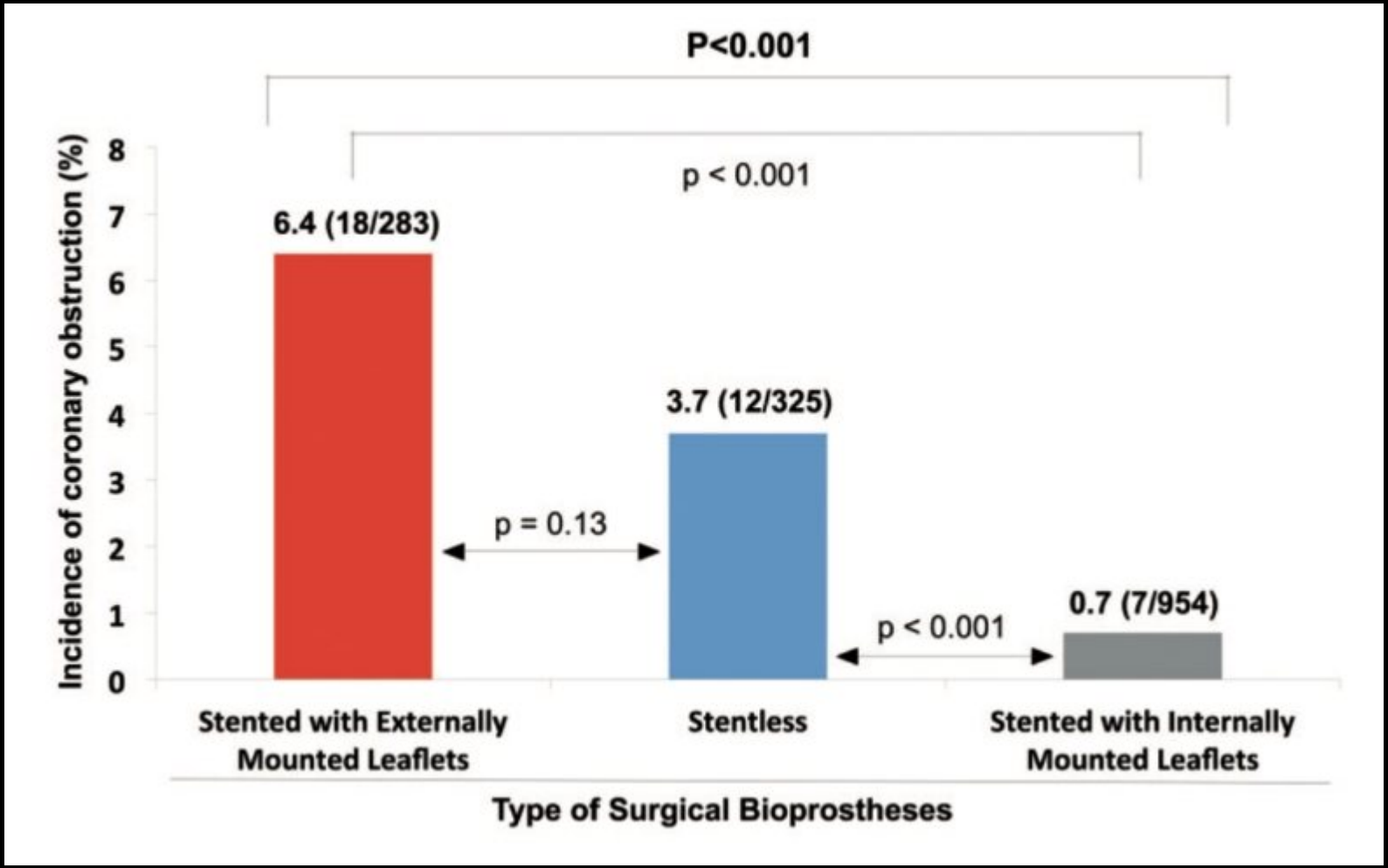
Evolut Transcatheter Aortic Valve
Odds Ratio 29.6;
95% CI: 2.6-335.0; p < 0.01

Barbanti, M. et al. J Am Coll Cardiol Intv. 2020;13(21):2542-55.

Barbanti et al, JACC Int, Tarantini et al, Circ Int, 2021

Concerns in aortic ViV

Coronary obstruction according to surgical prosthesis type
[VIVID registry]



Ribeiro HB, et al. Eur Heart J. 2017

Factors affecting the risk of coronary obstruction

High of coronary ostia

Size of sinus of Valsalva and Sinotubular Junction (sequestration of the sinus of Valsalva)

Type of second THV

Commissural alignment

Implant depth

Additional expansion of the initial THV

Techniques to overcome coronary artery obstructions

BASILICA

Balloon Assisted BASILICA

Leaflet destruction (unicorn procedure)

Chimney stenting (use high radial force DES)

236 pts undergoing coronary protection during TAVR,

143 had stents implanted

At 3-year follow-up, rates of cardiac death were 7.8% in patients receiving stents and 15.7% in those not receiving stents

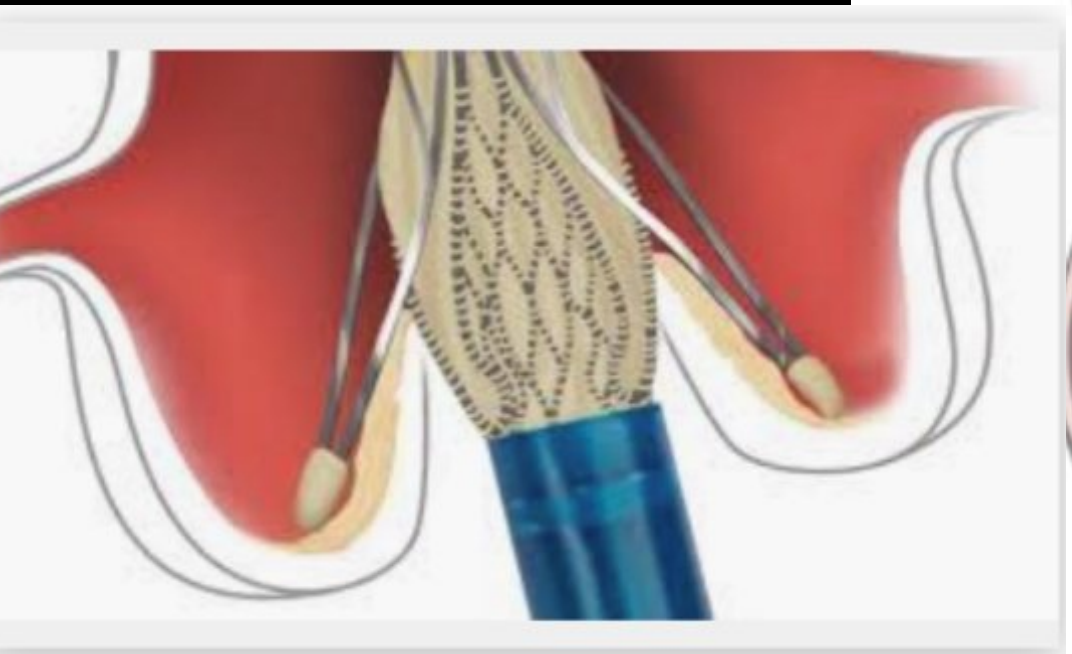
Palmerini et al. Coronary protection to prevent coronary obstruction during aortic valve replacement: a multicenter international registry. JACC Cardiovasc Interv 2020;13:739–47.

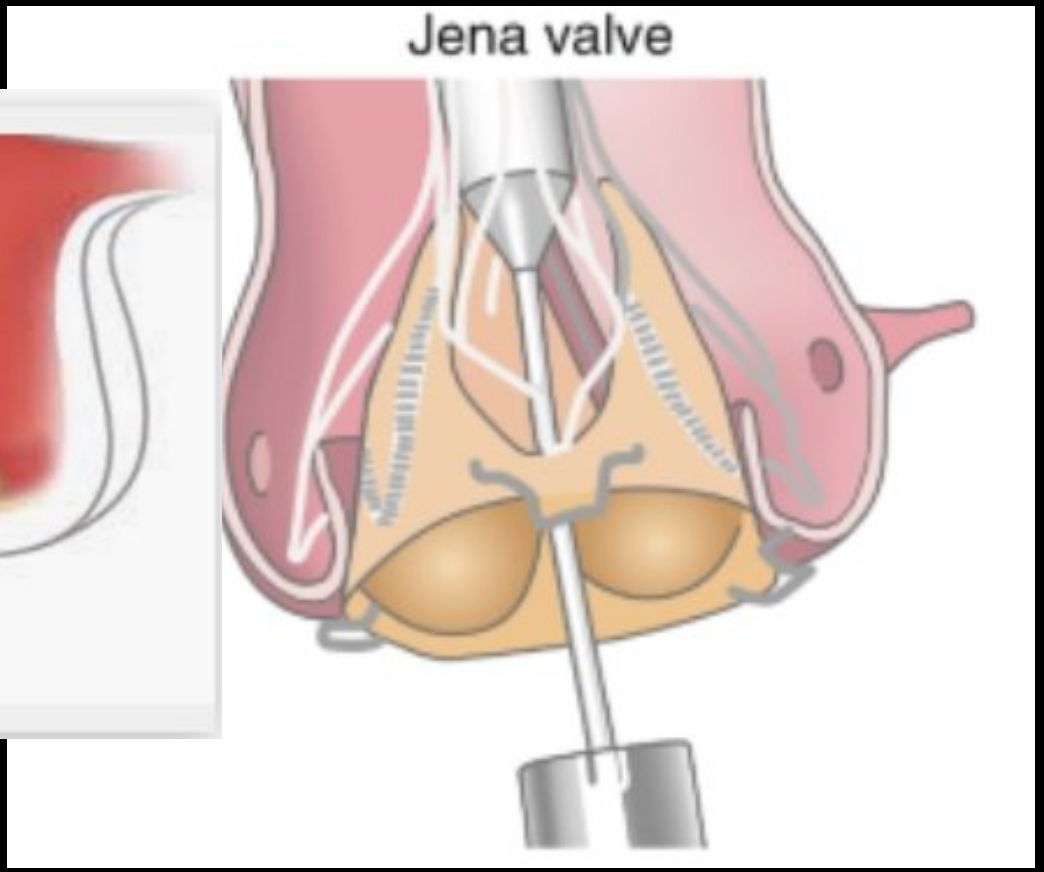
How to overcome prosthesis- patient mismatch

Supra-annular valve

Surgical valve fracture

An idea: using the Jena Valve to capture and stabilize the leaflets of the old valve





No risk of late coronary occlusion

How to optimize the performance of the new valve

Select the appropriate THV at the index procedure taking into account that the patient may need a new THV in the future