

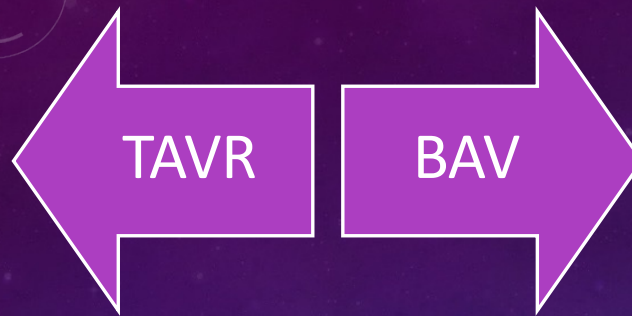


ATCSA2023
Ho Chi Minh city, Vietnam

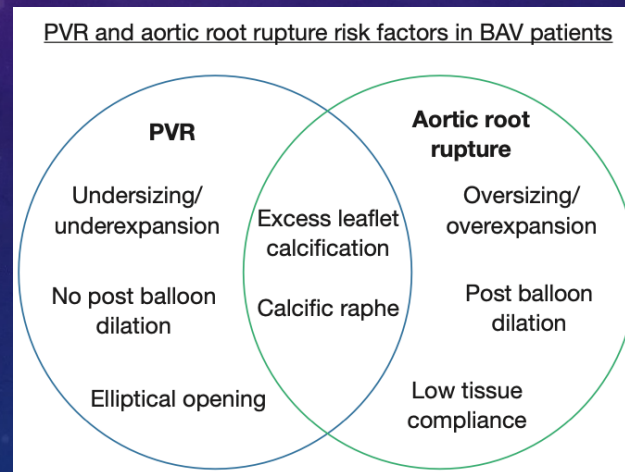


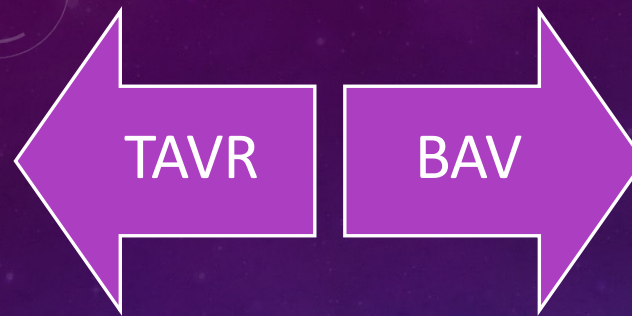
TAVR IN BICUSPID AORTIC VALVE UMC HCMC EXPERIENCE

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ADULT CARDIOVASCULAR DEPARTMENT, UMC



Unfavorable BAV anatomy for TAVR: calcified raphe, calcium area extending into LVOT, elliptical anulus, more risk of coronary occlusion, associated aortic dilation.

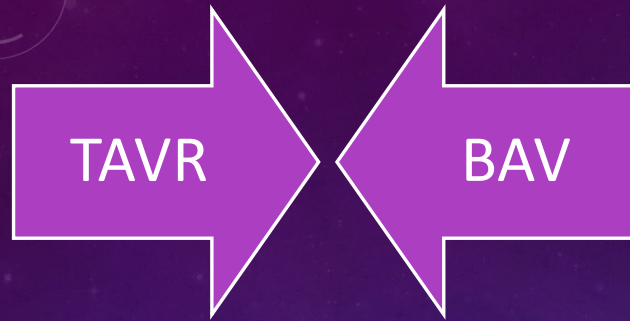




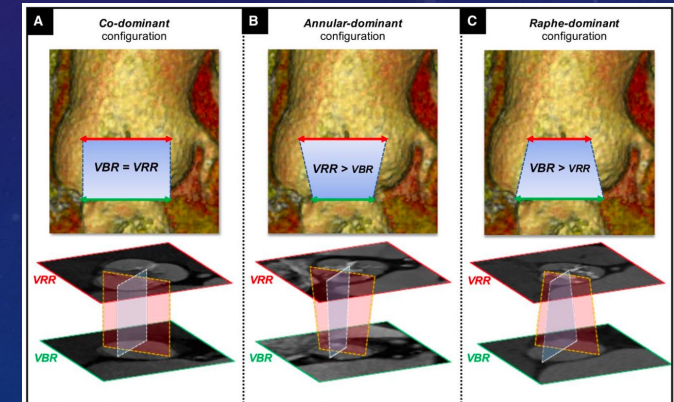
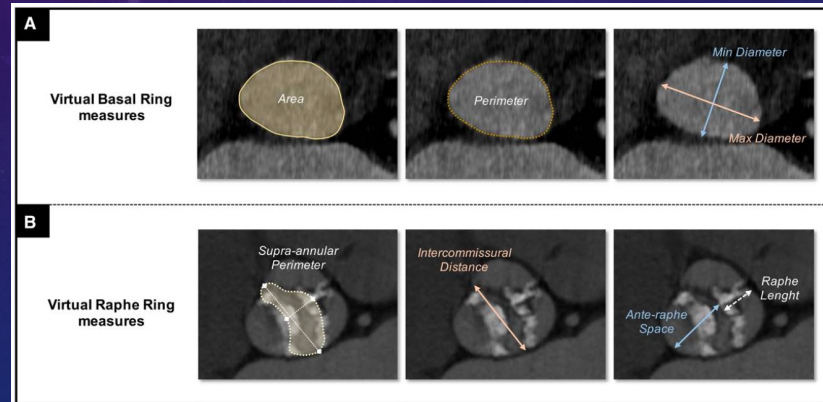
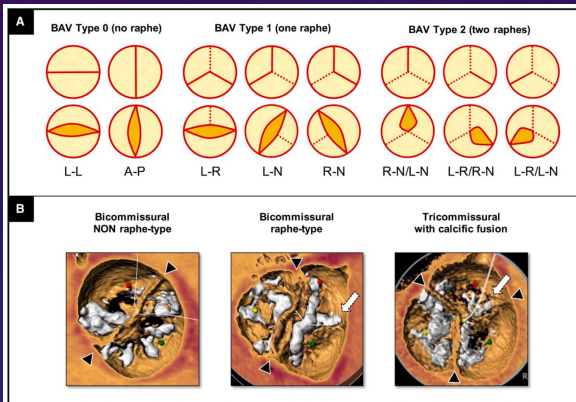
BAV can progress to severe aortic stenosis faster 10-20 years than TAV.

Trileaflet valves take approximately 20-30 years, while bicuspid valve need as little as 10-12 years.

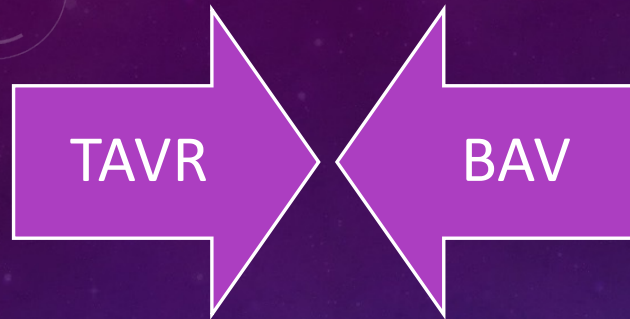
SAVR is recommended over TAVR in young low-risk patient (ESC 2021: < 75 years old; ACC/AHA 2020: < 65 years old)



Develop THV sizing and procedural planning by using subsequent advances in imaging techniques and understanding of BAV anatomy



Ueshima D, Nai Fovino L, Brener SJ, et al. Transcatheter aortic valve replacement for bicuspid aortic valve stenosis with first- and new-generation bioprostheses: A systematic review and meta-analysis. *Int J Cardiol.* Jan 1 2020;298:76-82. doi:10.1016/j.ijcard.2019.09.003

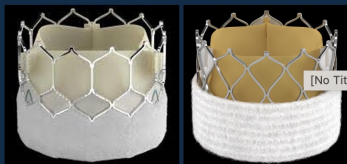


New BEV and SEV are released and new implantation techniques have flourished

Current Generation TAVR Devices

Balloon-expandable

Self-expanding



Sapien 3/Ultra

Sapien X4†

Supra-annular

Intra-annular

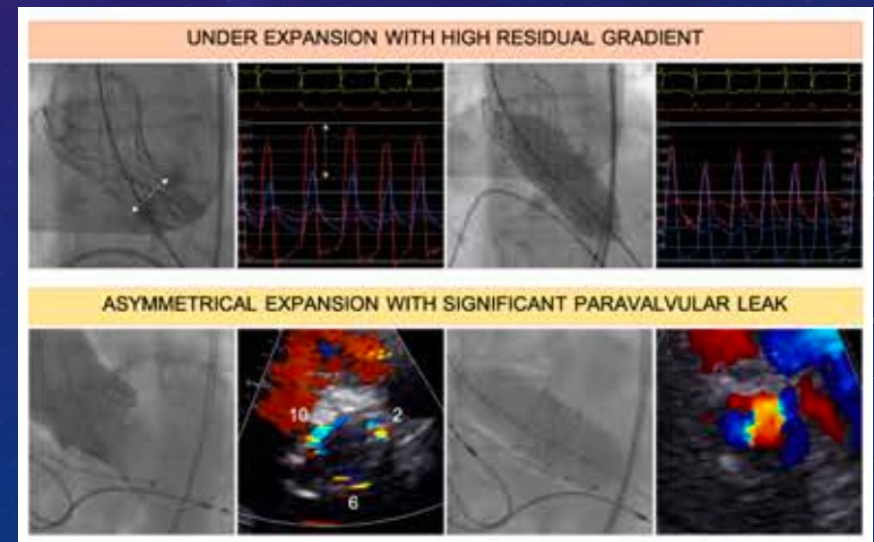


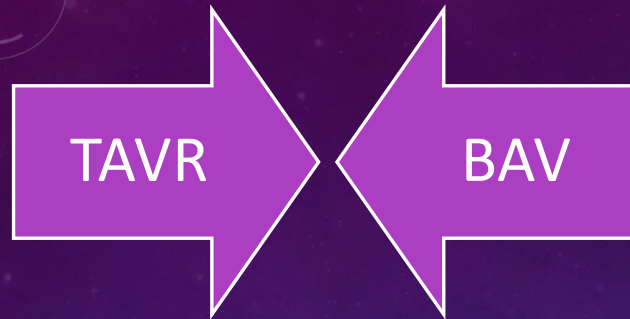
Evolut FX

Acurate-neo2*†

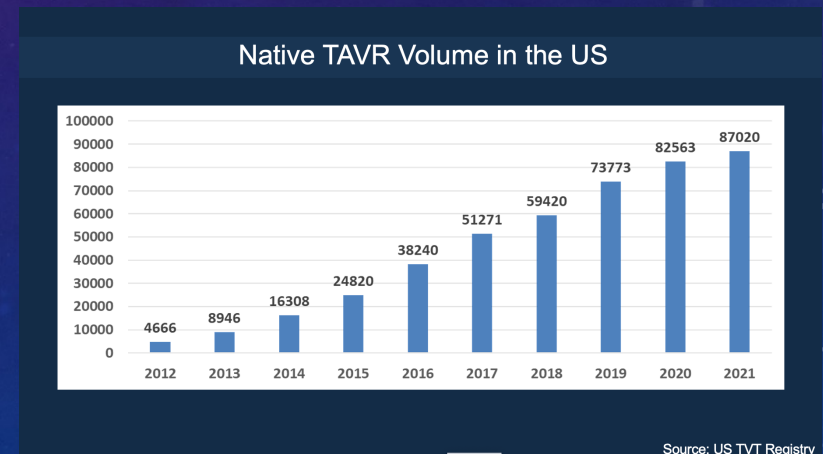
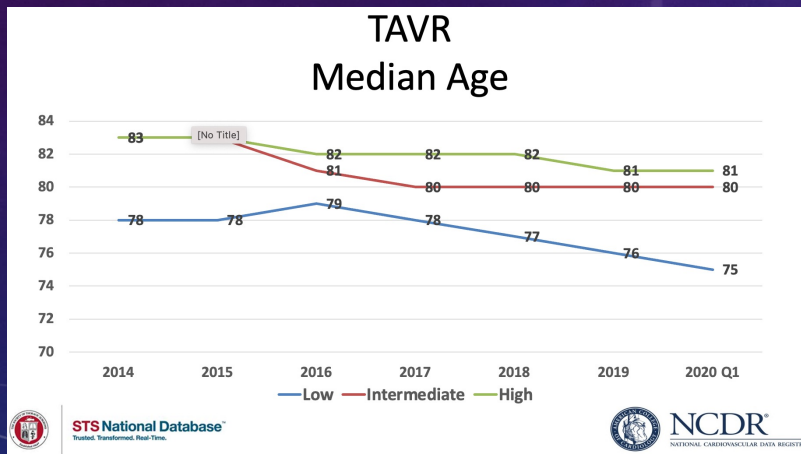
Navitor*†

*CE Marked, in US trials; †in US trial

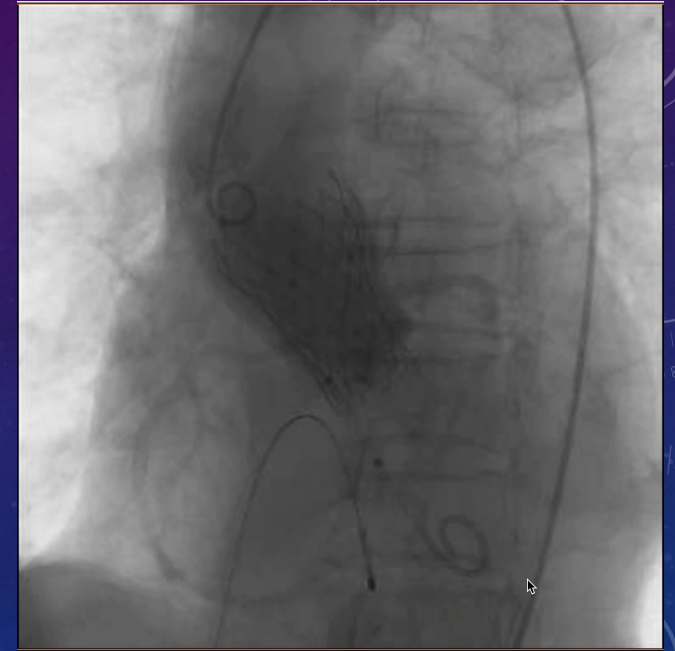
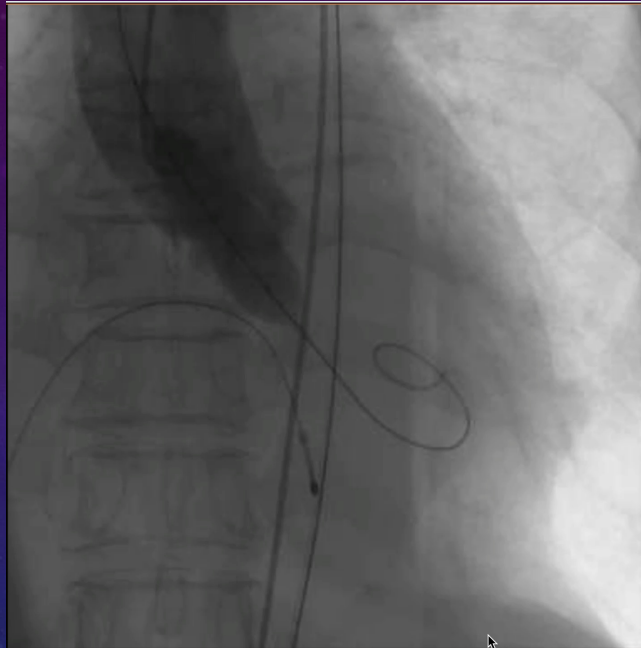
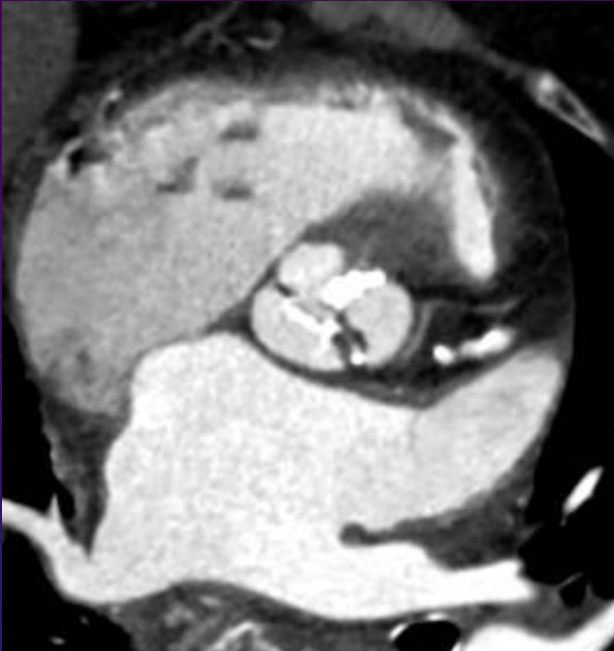




**A new trend throughout the world and in Vietnam
TAVR for BAV patients is supported by many research in the US, UK, China, Europe...**

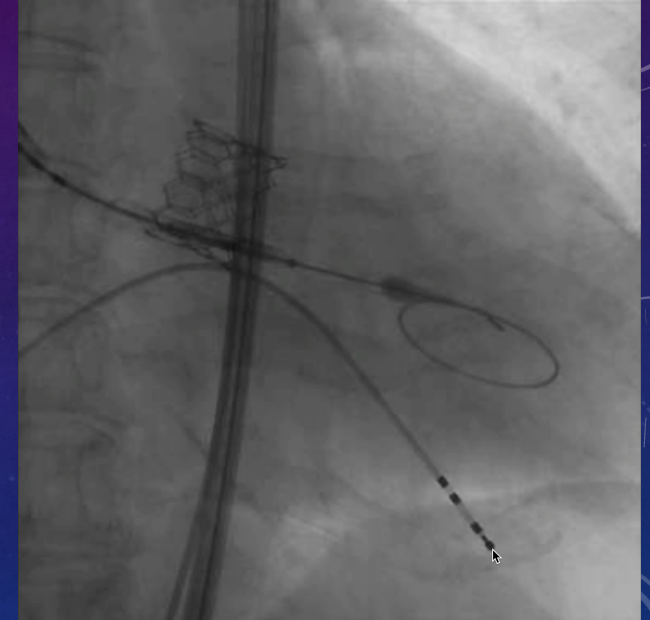


80 years-old female, STS score 4.34%, NYHA III, EF 33%, AVA 0.46, meanPG 92mmHg



MeanPG 14, mild PVL, EF 60%, discharge after 3 days without any complication.
30-days follow up: meanPG 10, mild PVL, EF 78%

64 years-old male, STS score 1.25%, NYHA II, EF 43%, AVA 0.53, meanPG 67mmHg



MeanPG 8 , no PVL, EF 55%, discharge after 5 days with minor bleeding from femoral artery access.
30-days follow up: meanPG 14, no PVL, EF 62%

BASELINE PATIENT CHARACTERISTICS

Characteristics	BAV	TAV
Total	22	23
Age	70.2 (±9)	72.7 (±8.6)
Female	10 (45.45%)	8 (34.78%)
STS score	2.42% (±1.68%)	3% (±1.8%)
NYHA class		
I	0	0
II	8 (36%)	6 (26%)
III	14 (64%)	11 (48%)
IV	0	6 (26%)
Diabetes II	6 (27.27%)	7 (30.3%)
Hypertension	15 (68.18%)	18 (78%)
Chronic lung disease	1 (4.55%)	3 (13.5%)
Chronic kidney disease	1 (4.55%)	1 (4,55%)
CAD	8 (36.36%)	9 (39%)
Pacemaker before TAVR	1 (4.55%)	2 (8.7%)
EF	58.39 (±8.02)	55.8 (±11.9)
AVA cm2	0.6 (±0.16)	0.63 (±0.21)
MeanPG	67.72 (±21.16)	60.7 (±15.9)

BASELINE PATIENT CHARACTERISTICS

Sievers	
Type 0	3 (13%)
Type 1	9 (41%)
Type 2	10 (46%)
Jilaihawi	
Bi-commissural without raphe	10 (46%)
Bi-commissural with raphe	9 (41%)
Tri-commissural	3 (13%)

OUTCOMES

Outcomes	BAV	TAV
Femoral artery	22 (100%)	23 (100%)
Death	1 (4.55%) (right ventricular wall rupture)	1 (4.3%) (heart failure)
Stroke	0	0
Myocardial infarction after TAVR	0	0
Major bleeding	1 (4.55%)	0
Pacemaker after TAVR	2 (9%)	4 (17.4%)
CCU time	42 (\pm 26.8)	76 (\pm 67)
EF	61.6 (\pm 7.34)	61.1 (\pm 11.25)
MeanPG	10.37 (\pm 3.6)	10.23 (\pm 4.05)
MeanPG decrease	54.41(\pm 24.17)	54.2(\pm 23.6)
Perivalvular leak		
No	10 (47.62%)	13 (65.52%)
Mild	8 (38.1%)	10 (43.48%)
Moderate	3 (14.29%)	0
Severe	0	0

OUTCOMES

Characteristics	Our BAV	SURTA VI	PARTNER 3	Yoon and Cs
Age	70.2 (±9)	79.8(±6.2)	73.3(±5.8)	74.7 (±9.3)
Female	10 (45.45%)	42.4%	32.5%	41%
STS score	2.42% (±1.68%)	4.4±1.5	1.9(±0.7)	3.7±3.3
Before TAVR				
EF	58.39 (±8.02)			53.5±15.3
AVA	0.6 (±0.16)			0.7±0.2
MeanPG	67.72 (±21.16)			47.5±16.5
After TAVR				
EF	61.6 (±7.34)			56.3 (±14.0)
MeanPG	10.37 (±3.6)			
Death	1 (4.55%)	2.8%	6.9%	2%
Stroke	0	3.4%	4.3%	2.7%

DICUSSION

Publication	Outcomes
Forrest et al, JACC Cardiovasc interv, 2020	More reintervention in BAV, no difference in mortality, stroke, coronary obstruction, PPM, hemodynamics
Makkar et al, JAMA 2019	Stroke was higher at 30 day and 1-year in BAV, no difference in mortality, gradients or PVL
Kawamori et al, Eur Heart J Cardiovasc Imaging 2018	No difference mortality, stroke, PPM
Ueshima et al, META-analysis Eur Heart 41:2, 2020	BAV had higher risk for conversion to surgery, second valve implant, PVL and device failure. No difference in mortality, stroke, PVL between BE and SE valves. BE valves had lower rate of second valve and PPM but higher rate of annular rupture

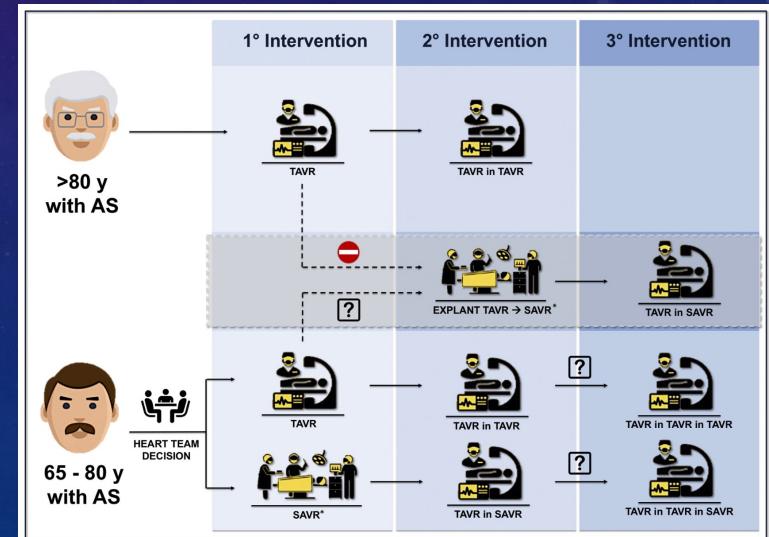
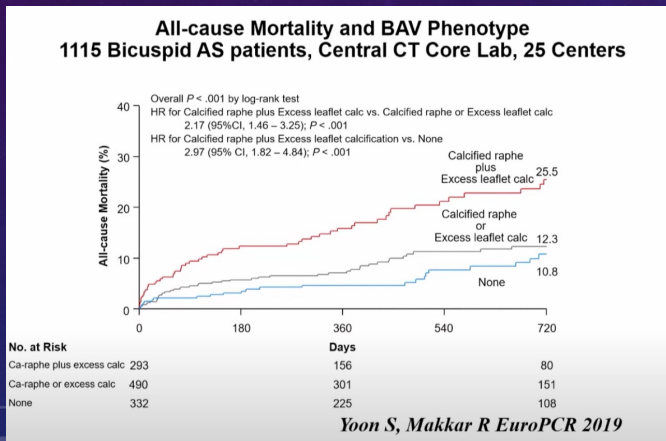
DISCUSSION

- **TAVR for BAV has an acceptable result in comparison with TAVR for TAV at our hospital, and it is similar to the result of other TAVR for BAV research around the world.**
- **Therefore, TAVR can be a possible alternative option for patients with BAV who have aortic valve stenosis.**
- **However, we still need to make a consideration...**

TAVR FOR BAV IS CHALLENGING BECAUSE...

Unfavorable anatomy of BAV can lead to deteriorous outcomes

Is TAVR suitable for patient's age? What will we do the patient need a second, third intervention → lifetime management for aortic stenosis



OUR ATTITUDE TOWARD THIS SITUATION

- **Recommend to the patient that TAVR is an alternative option which need to be considered carefully by both the patient and the Heart Team.**
- **Take a deep look into the BAV anatomy, ask for advice for TAVR specialist if it is necessary.**
- **Keep in mind that the patient may need another intervention in the future.**



THANK YOU!