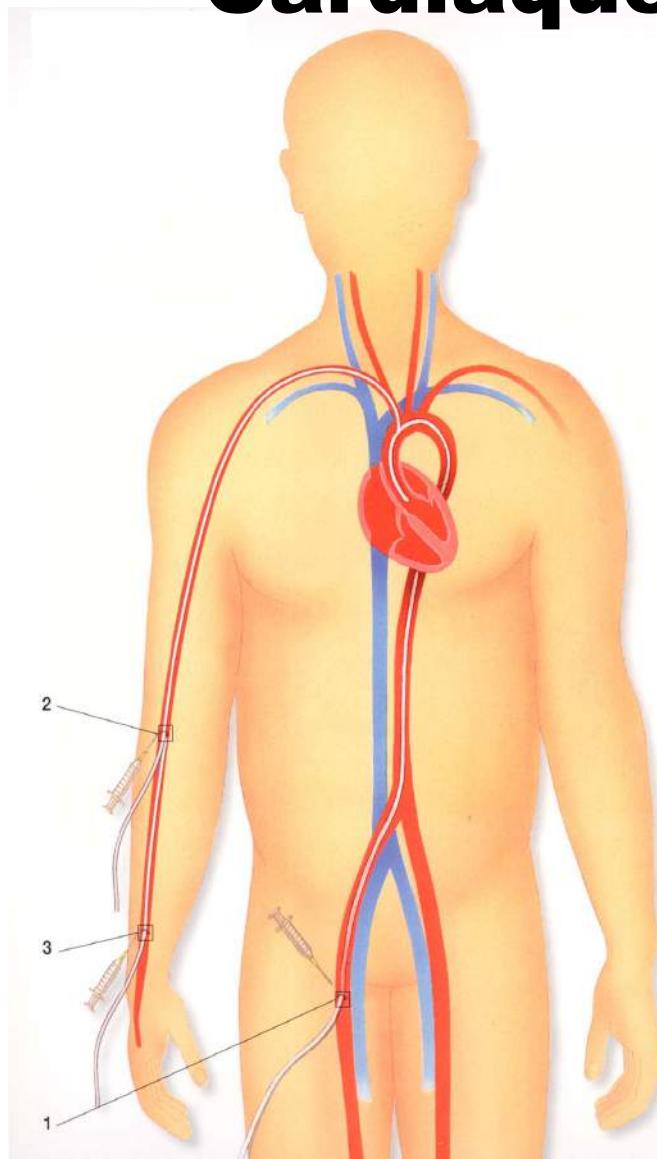
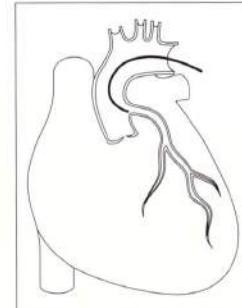


Cathéterisme Cardiaque



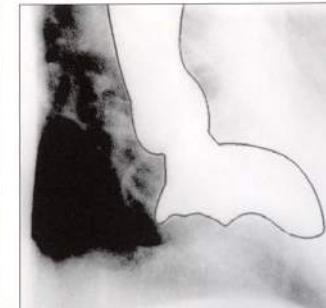
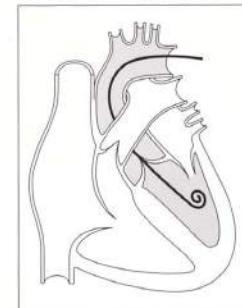
1. Coronarographie



2. ECG et mesure des pressions endocavitaires

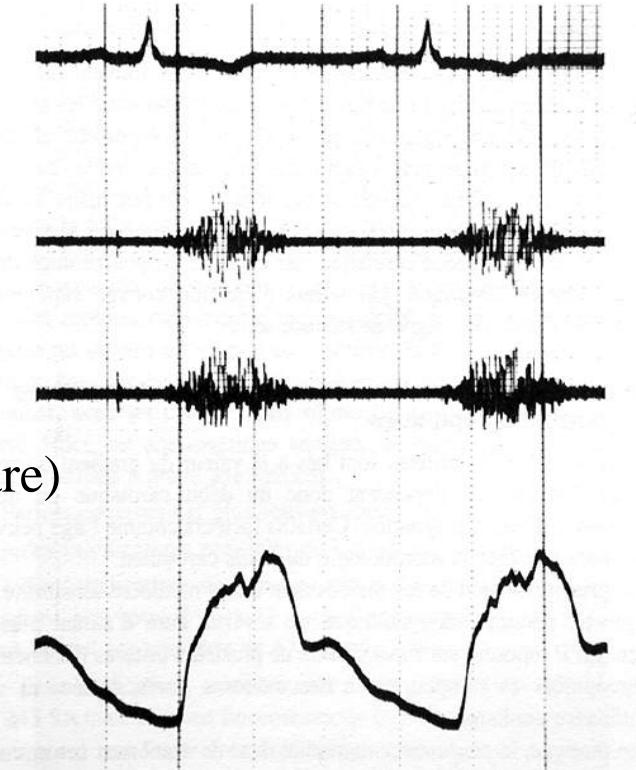


3. Ventriculographie :



Cathétérisme D + G

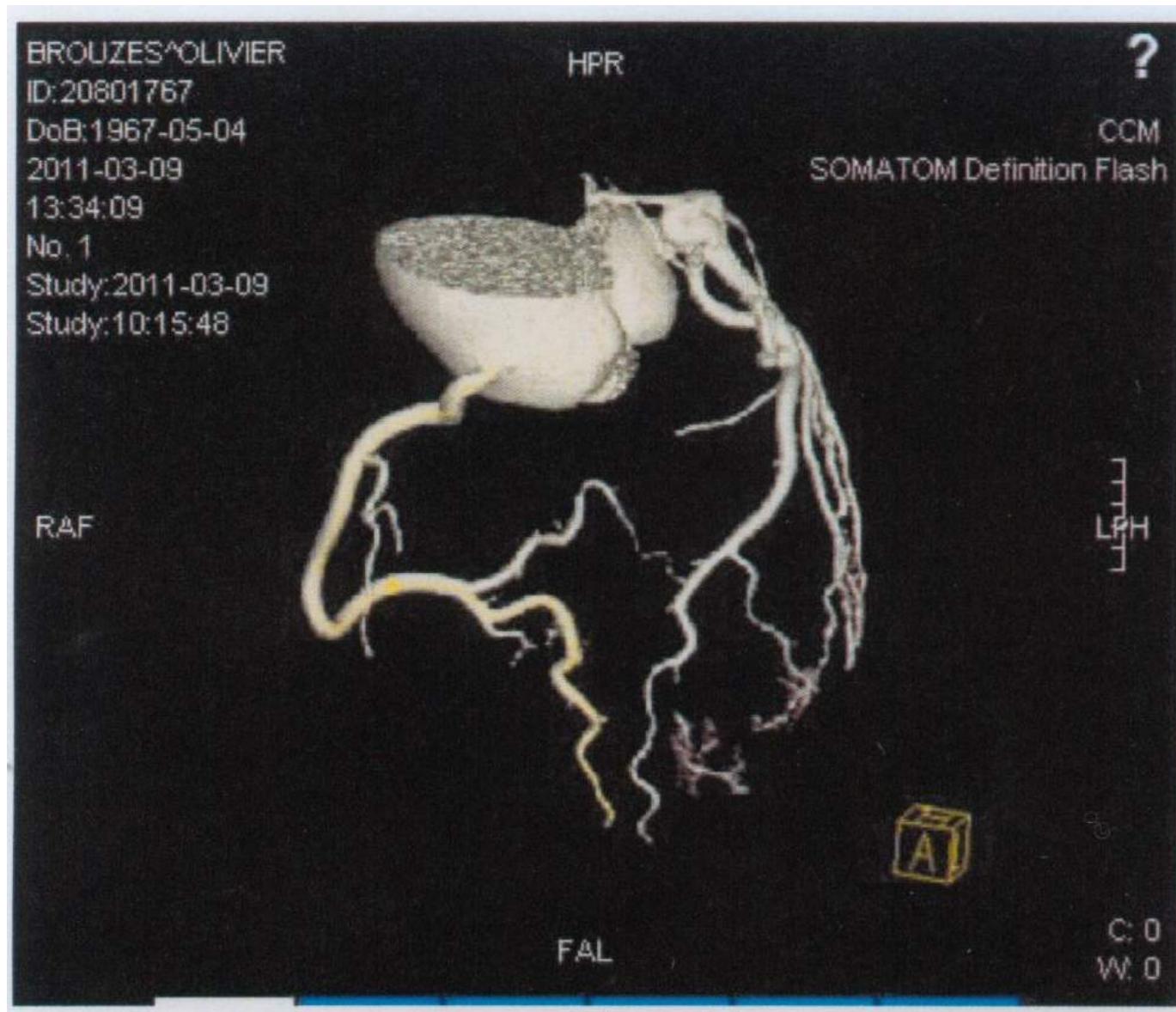
- Indiqué seulement en cas de discordance échographie et clinique (C'est de plus en plus rare)
- Formule de Gorlin :
 - $S_{Ao} = Fc$ (Débit cardiaque, TES, Gradient)
- Ventriculographie à éviter
 - évaluée en écho ou Scinti
 - FE diminuée par augmentation de la post-charge



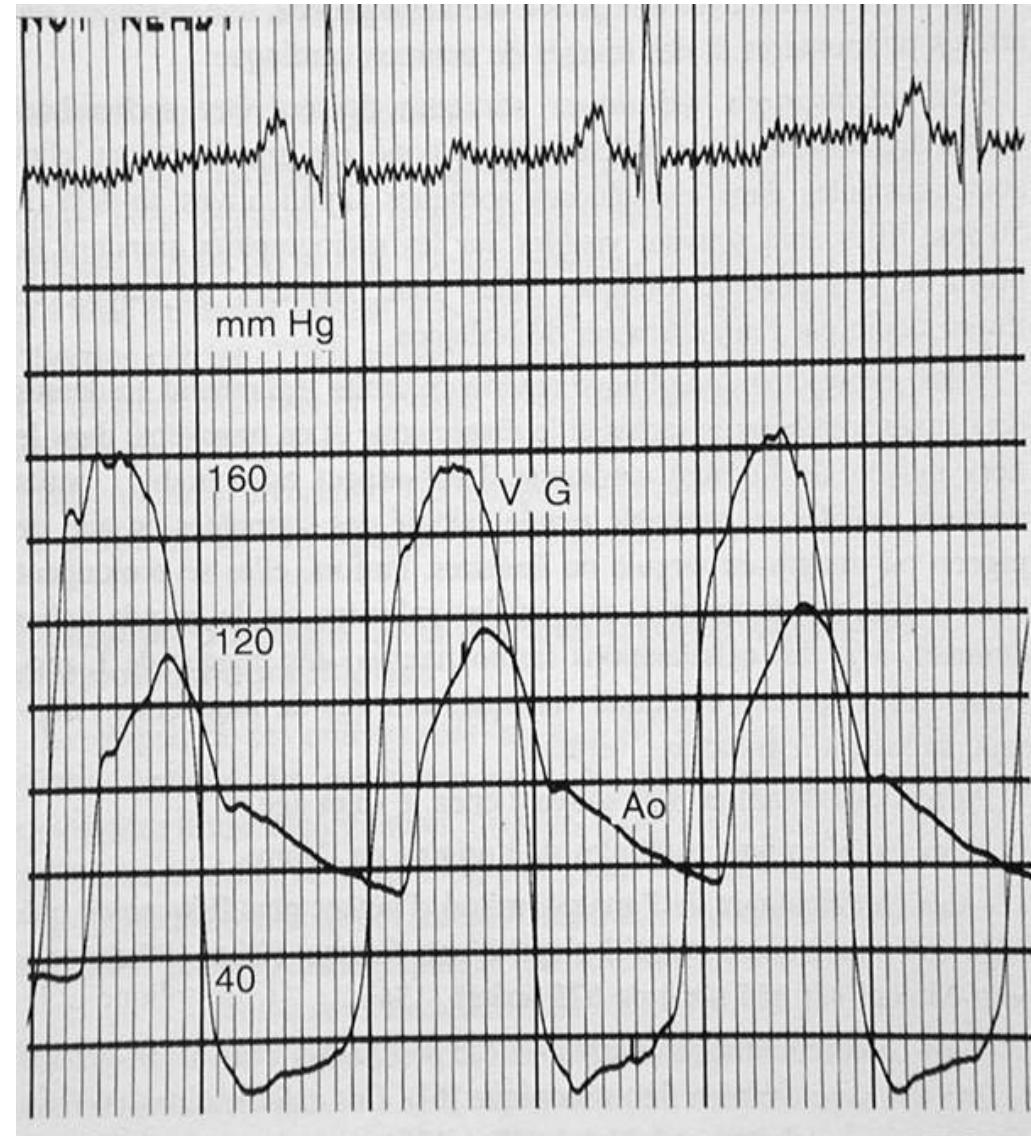
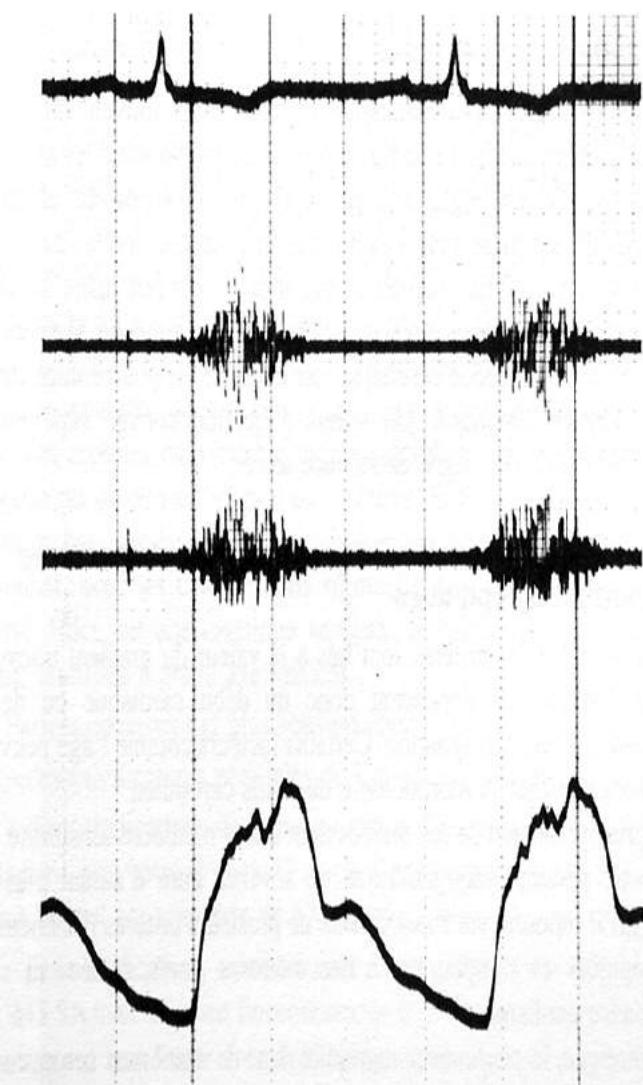
Coronarographie +++

- *Si angor*
- *Systématique* ➔ *homme > 40 ans, Femme > 50 ans*

Angio scanner



Cathétérisme Gauche



Diagnosis: Classification

Practice Guideline

2008 Focused Update Incorporated Into the ACC/AHA 2006 Guidelines for the Management of Patients With Valvular Heart Disease

Table 4. Classification of the Severity of Valve Disease in Adults

A. Left-sided valve disease

Indicator	Aortic Stenosis			Severe
	Mild	Moderate	Severe	
Jet velocity (m per s)	Less than 3.0	3.0–4.0	Greater than 4.0	
Mean gradient (mm Hg)*	Less than 25	25–40	Greater than 40	
Valve area (cm ²)	Greater than 1.5	1.0–1.5	Less than 1.0	
Valve area index (cm ² per m ²)			Less than 0.6	

Traitement

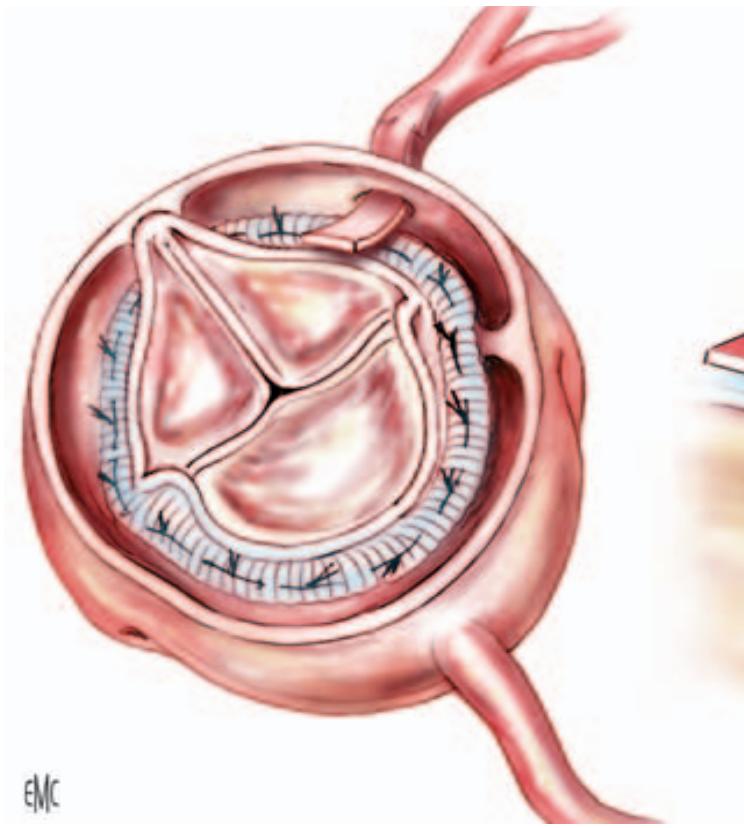
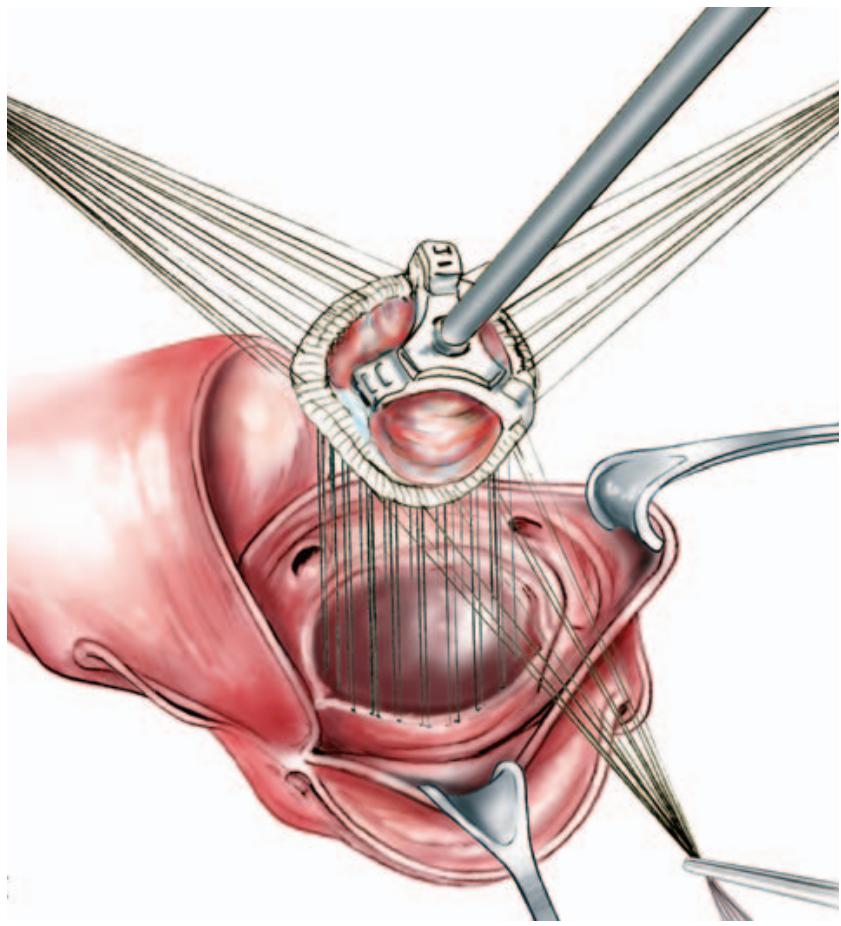
- Il n'y a pas de Ttt Médical du RA.
- Ttt de l'IVG
 - attention aux digitaliques,
 - diurétiques, IEC
- Valvuloplastie Per-Cutanée « exceptionnelle »
- CHIRURGIE :
 - Valvuloplastie = valvulotomie des congénitaux
 - RVAo
 - Mécanique → ± 65 ans (coronaropathie)
 - Biologique
 - Gestes associés
 - PAC,
 - Myectomie (septum > 18 mm, SAM, S ejection < 4 cm²)

Modalités de Suivi du RA non symptomatique

- Réévaluation Clinique bi annuelle
➔ Echographie Annuelle
- Si Calcifications importantes ou RA serré ($V>4\text{m/s}$)
➔ Echographie tous les 6 mois

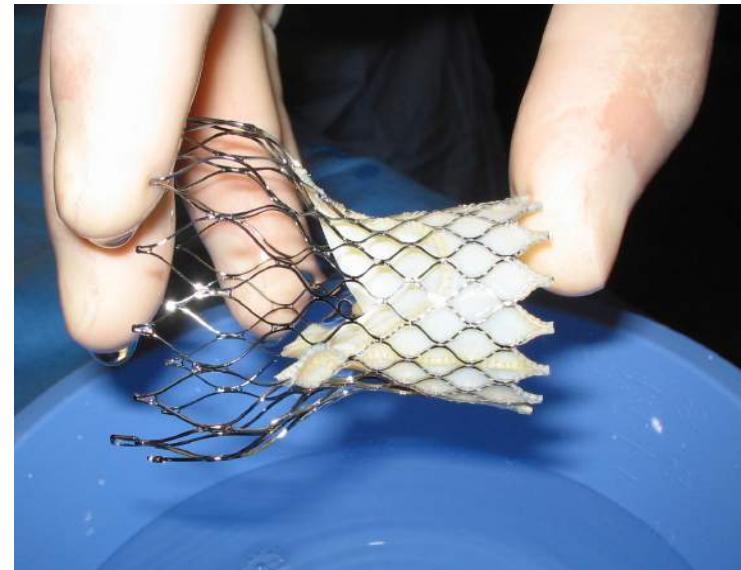
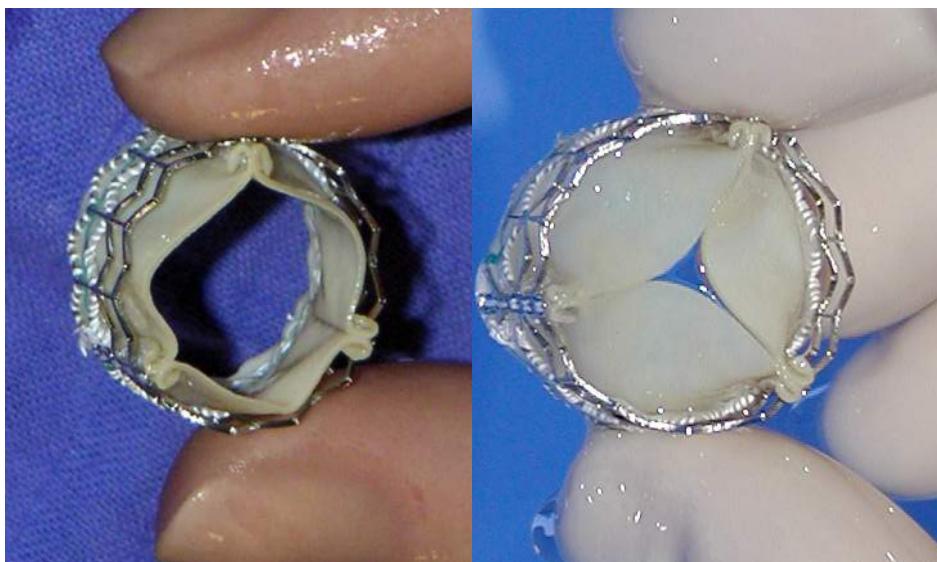
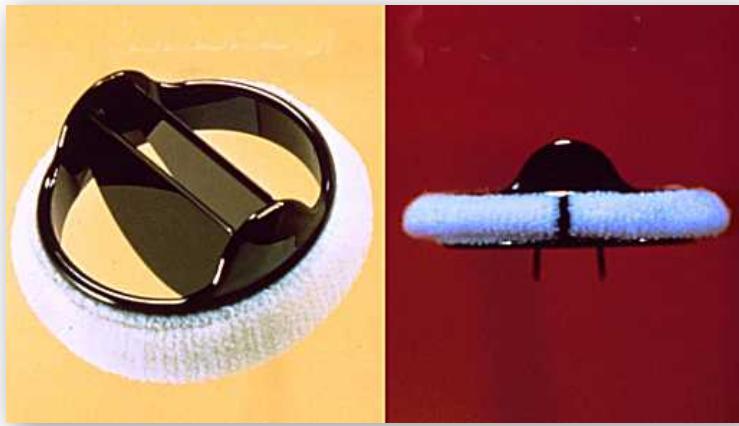


- * Information du patient,
- * Prophylaxie EI,
- * Recherche et traitement des facteurs de risque
HTA, Diabète, dyslipidémie, tabac...



EMC

Les bioprothèses aortiques percutanées

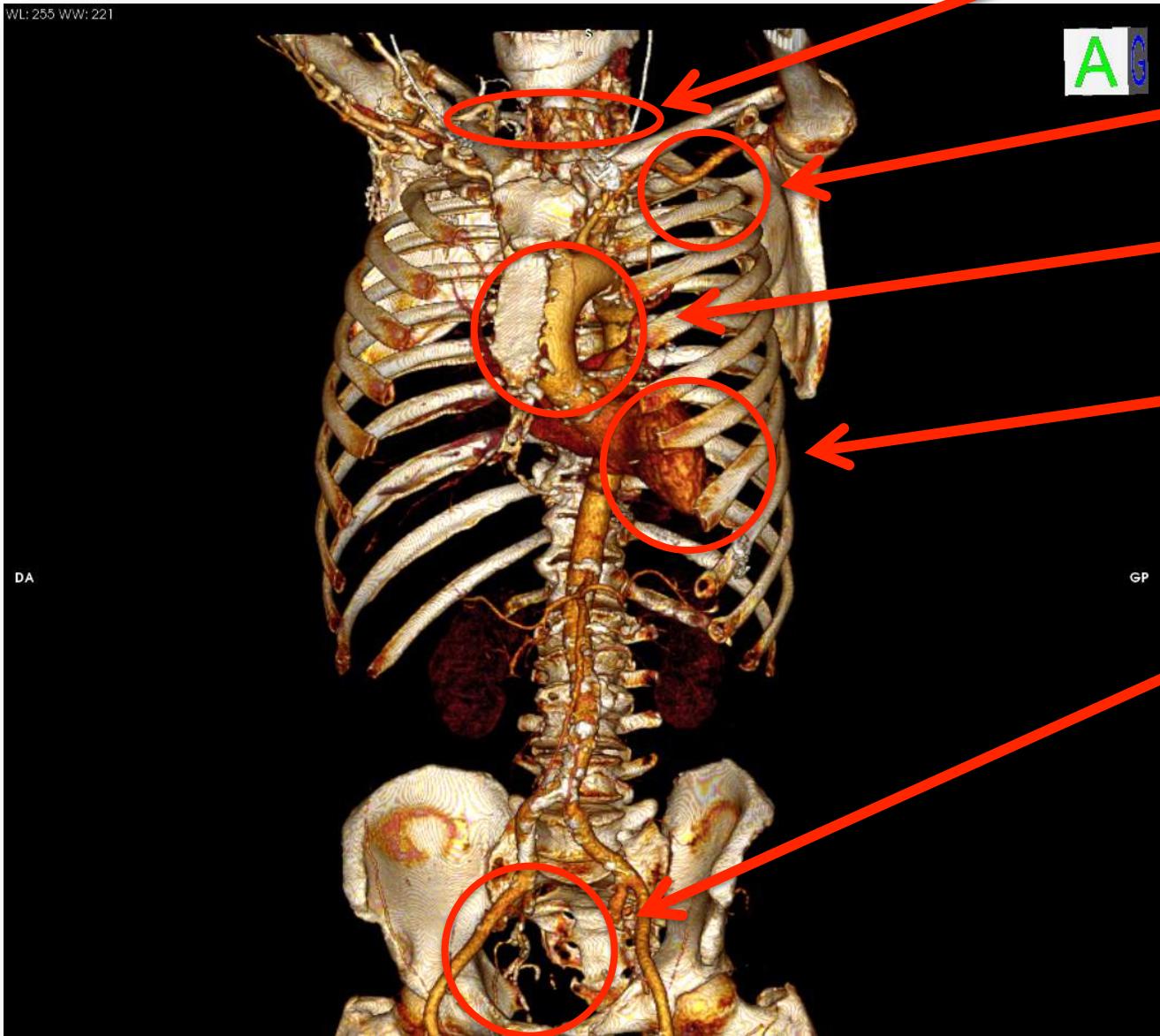


AVR versus TAVI



Les approches vasculaires

WL: 255 WW: 221



Carotide R and L

Sub-clavian

Direct transAo

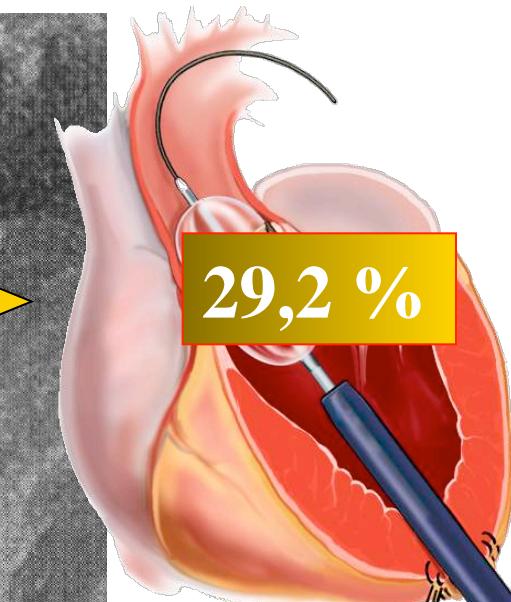
transapicale

Trans femoral

Que faire quand la voie fem. est impraticable ?



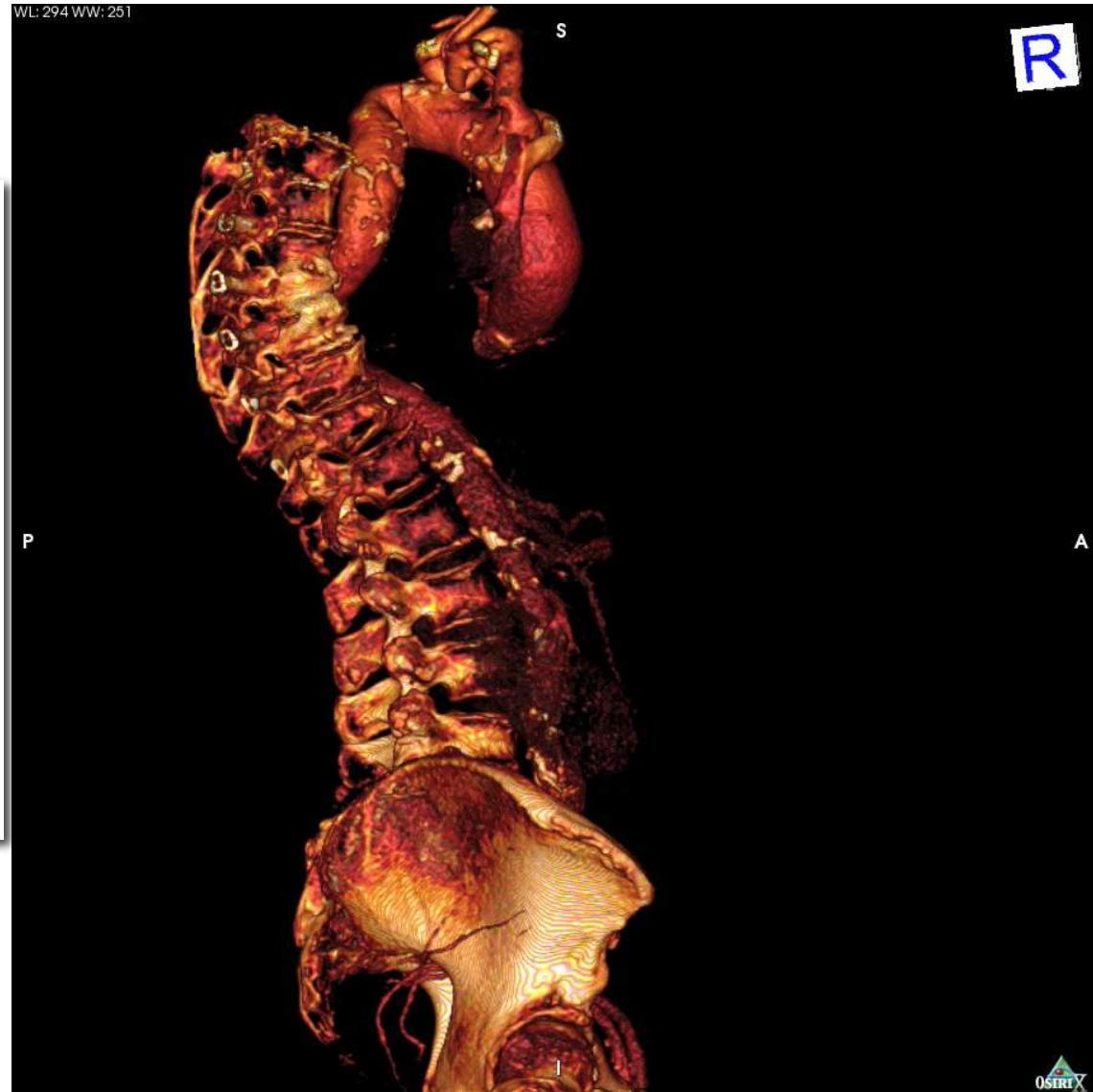
1) Sapiens



2) Corevalve

15,4 %

Navigation aortique



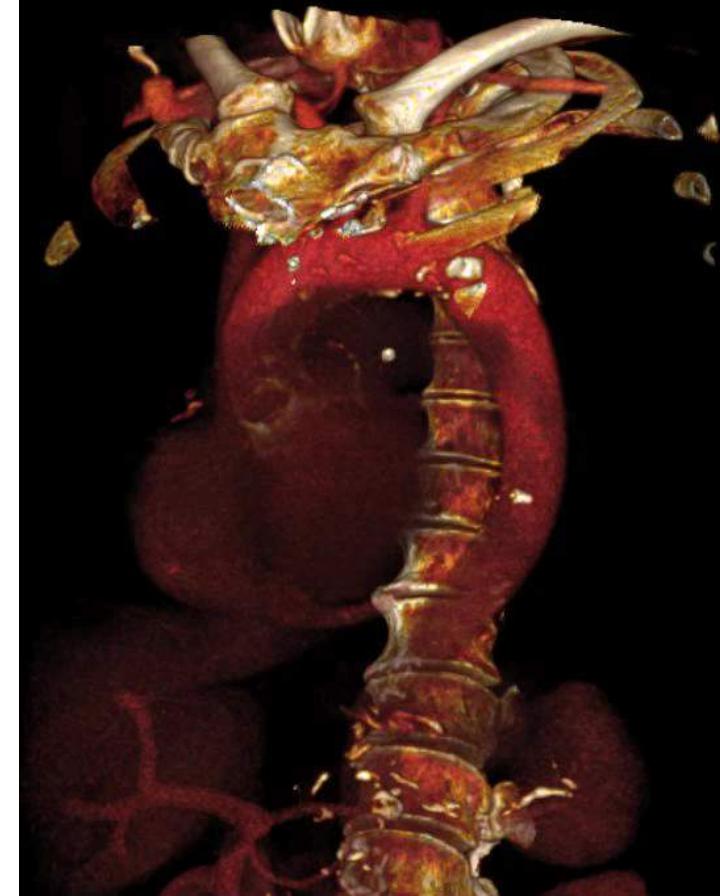
Navigation aortique

WL: 281 WW: 205



osirX

WL: 221 WW: 363



osirX

Procédure interventionnelle

Gestion Interventionnelle et chirurgicale avec échographie

**Chirurgien cardiaque et Cardiologues
interventionnistes**

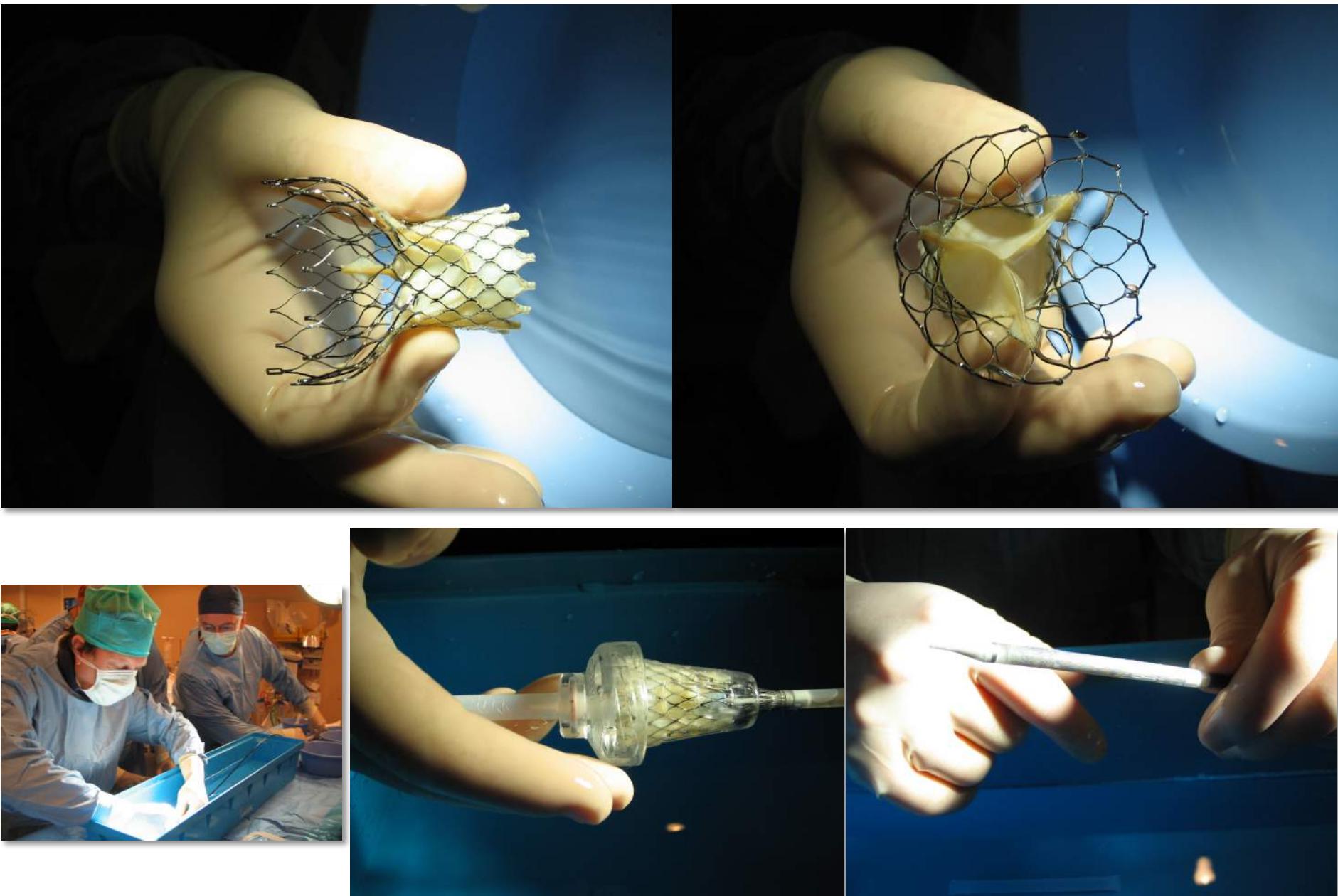
Anesthésiste-Réanimateur



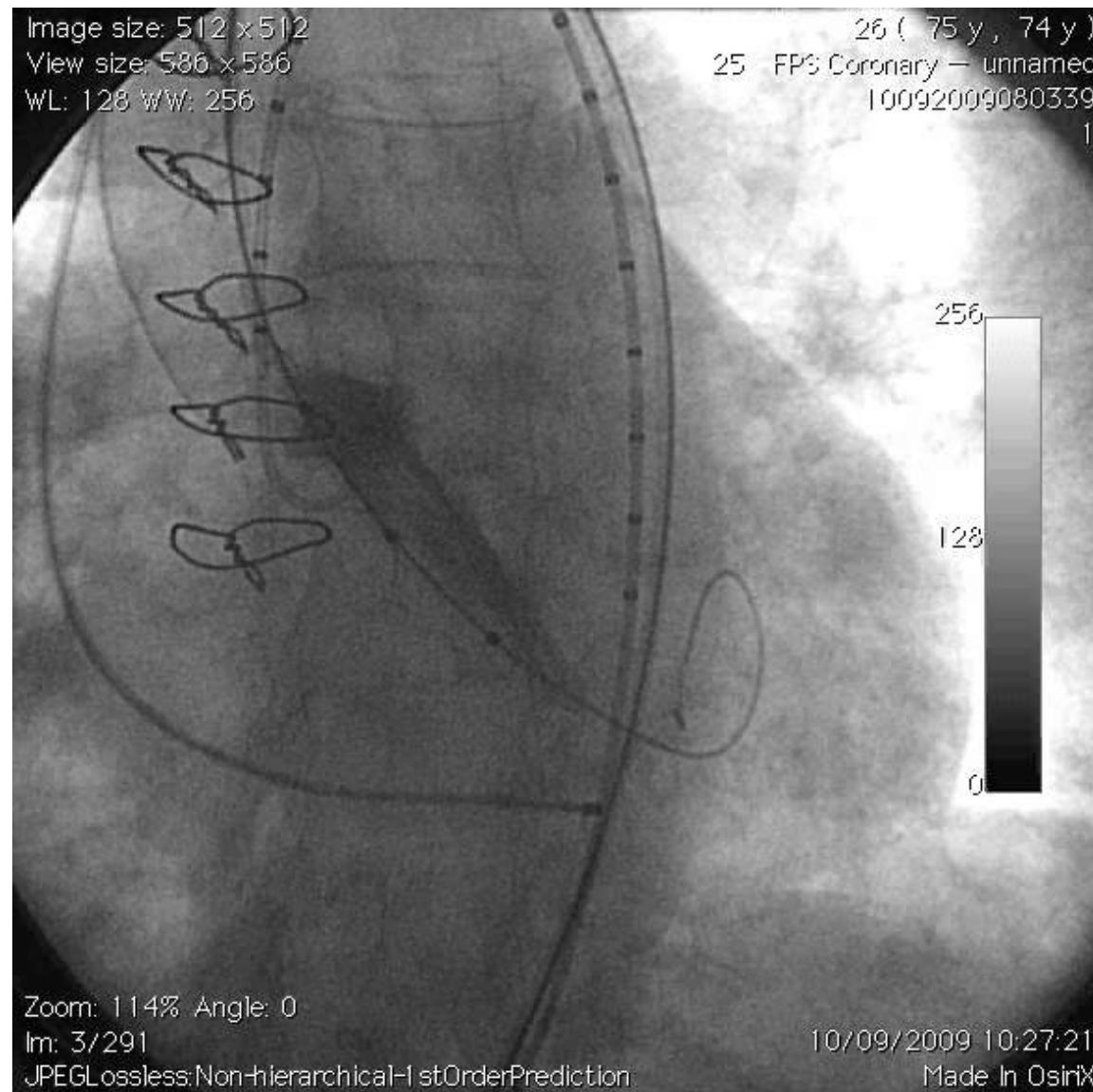
Mesures valvulaires et aortiques



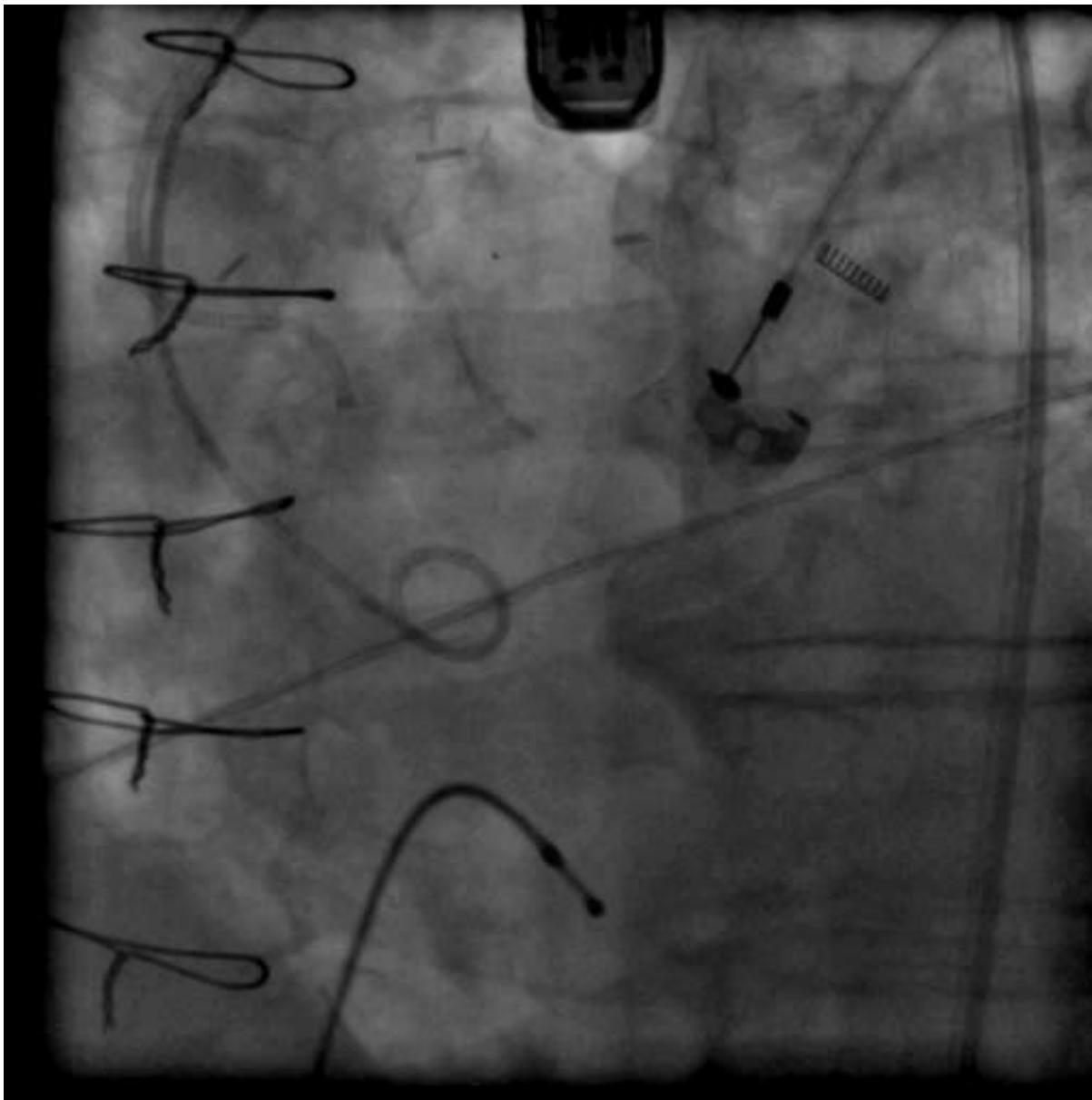
Procédure RVAP - CoreValve®



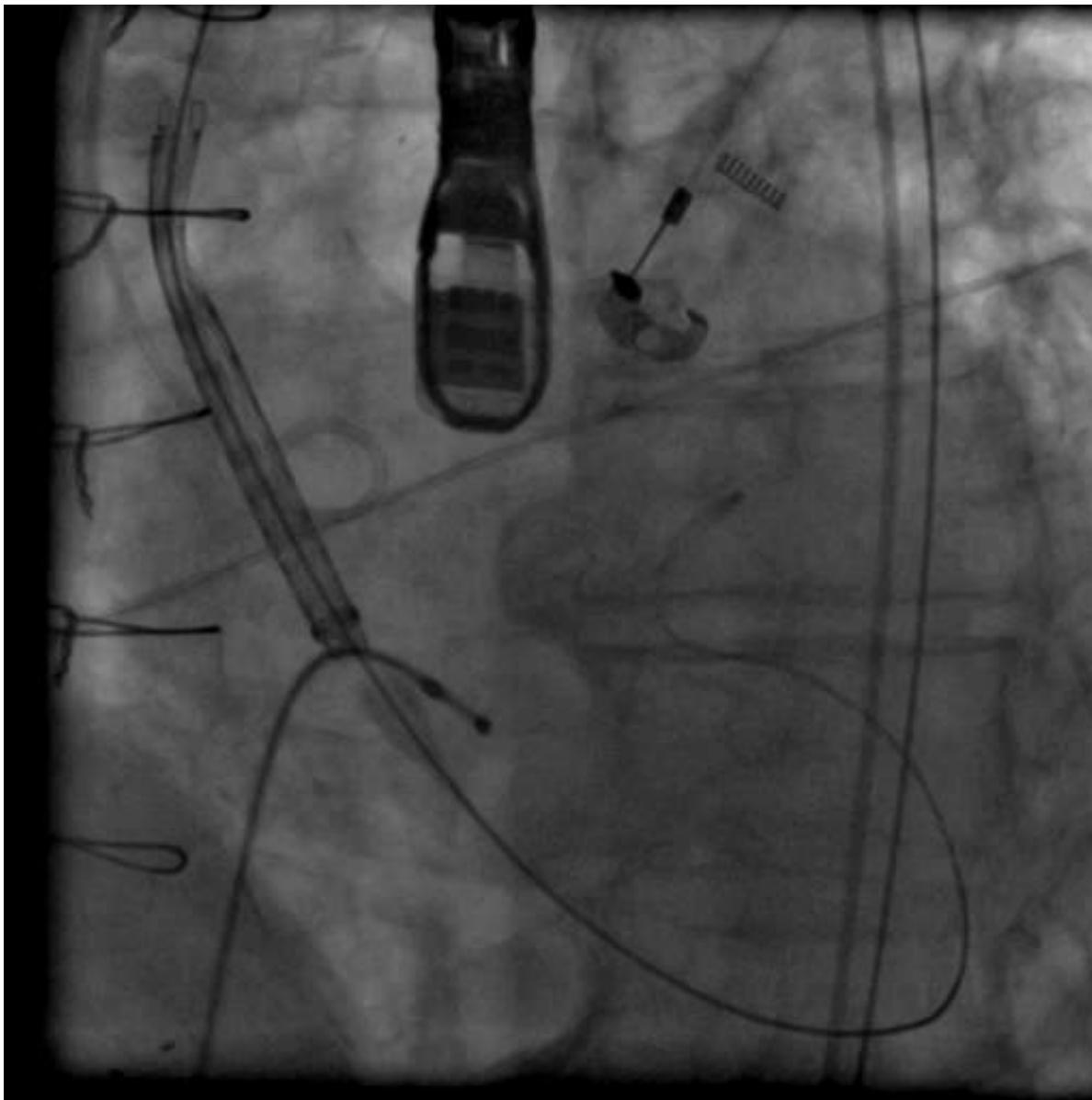
Dilatation RA



Angiography



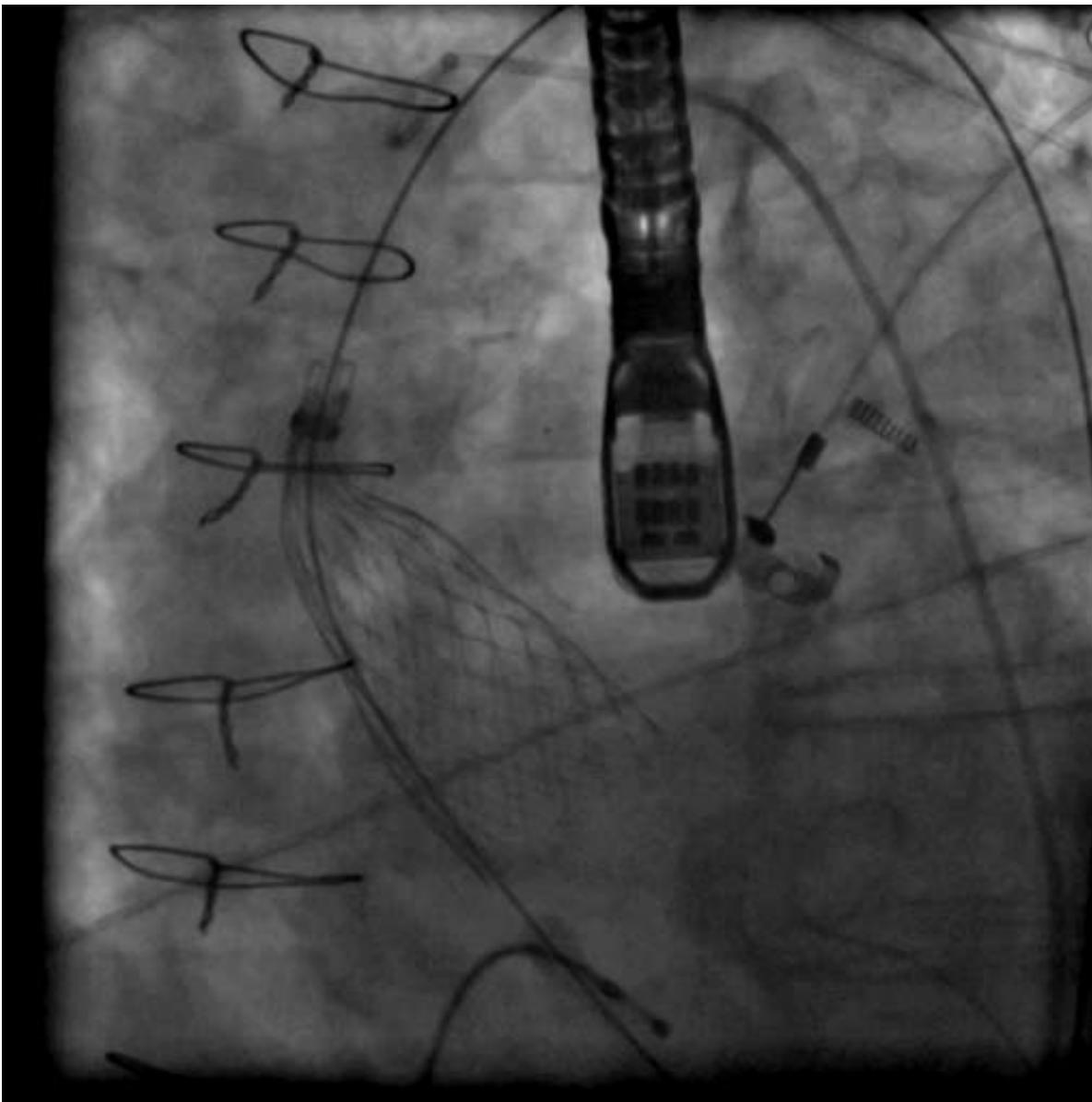
Ouverture



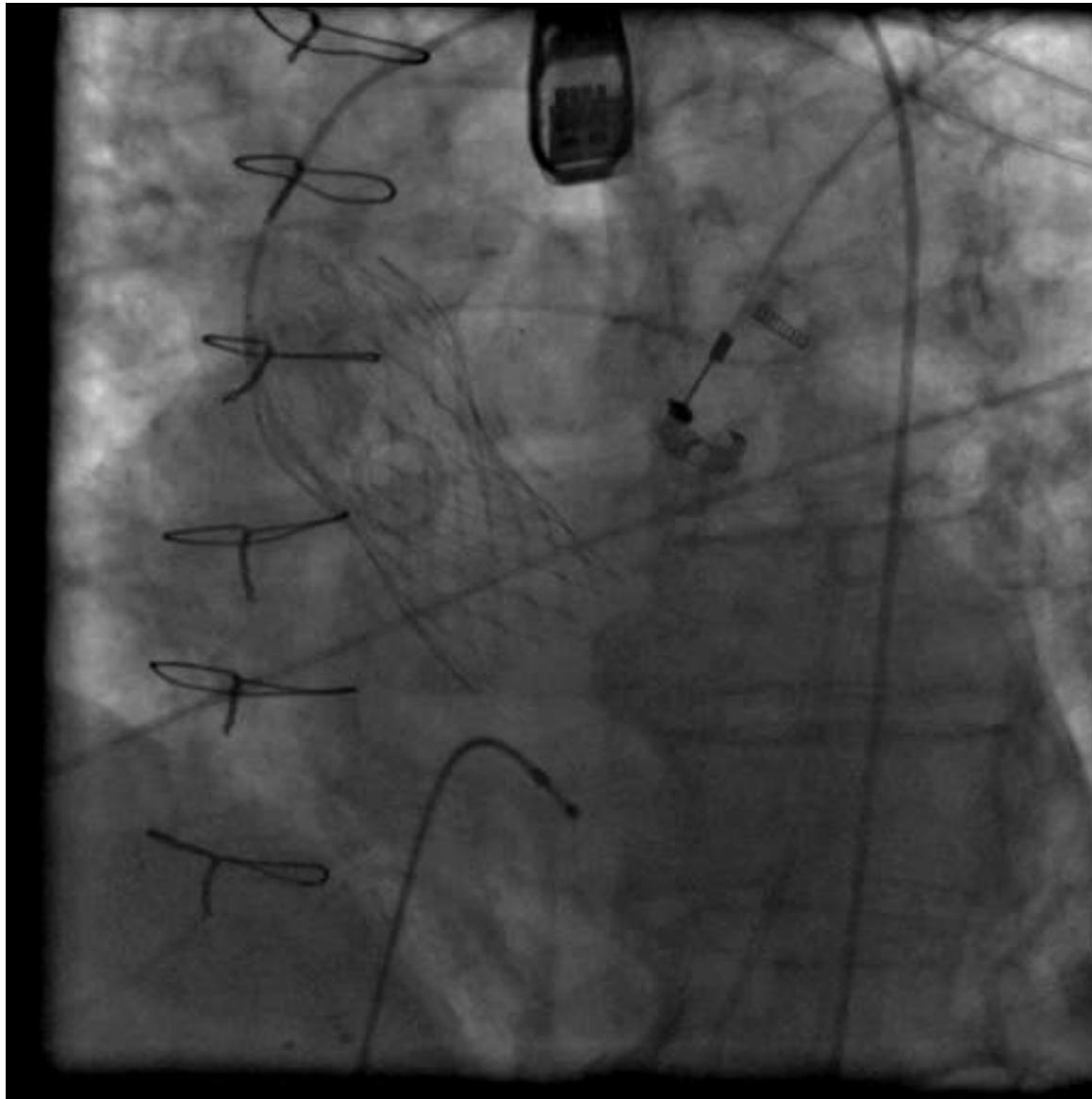
Ouverture



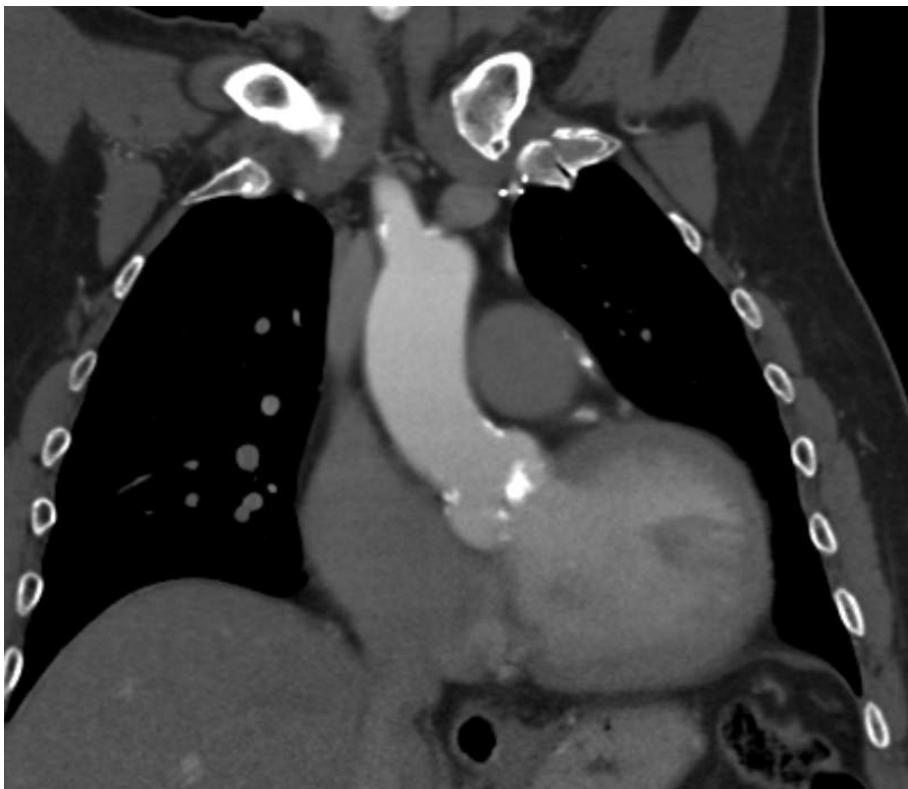
Ouverture



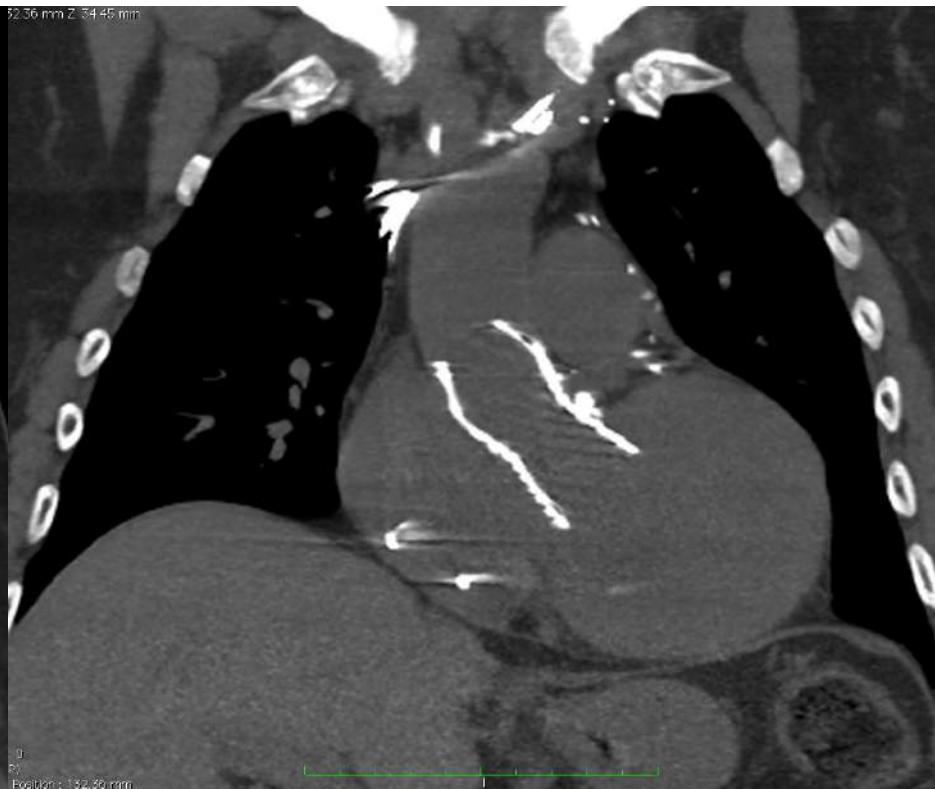
Ouverture

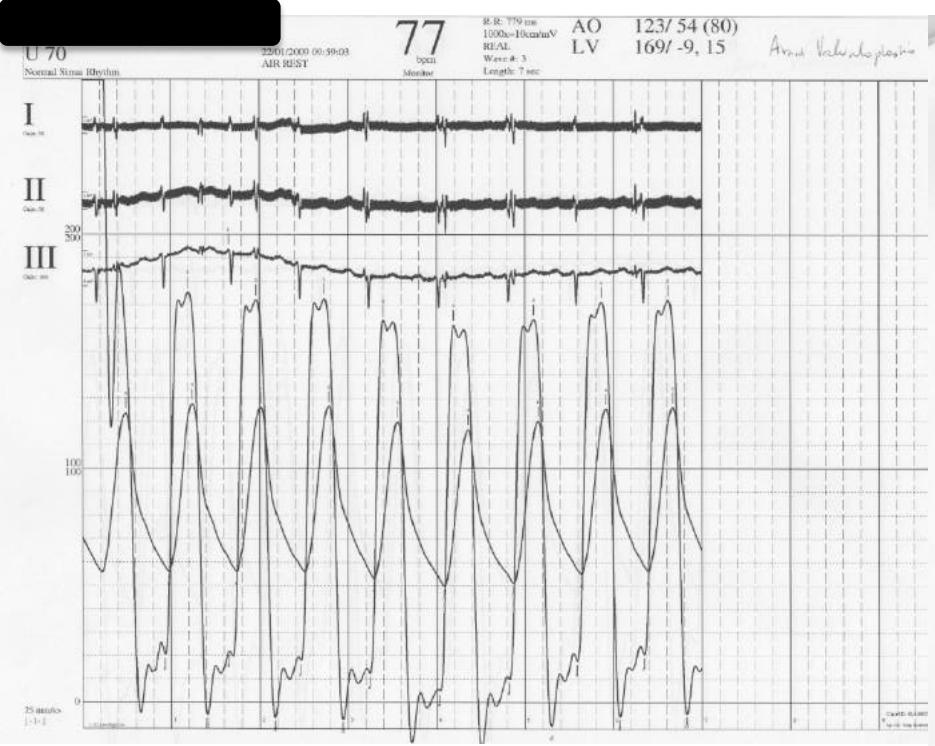


Basal



Contrôle à 1 mois





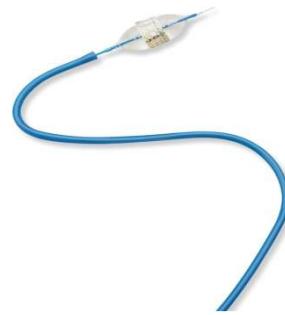
Etude PARTNER

The NEW ENGLAND
JOURNAL *of* MEDICINE

September 22, 2010 on NEJM.org

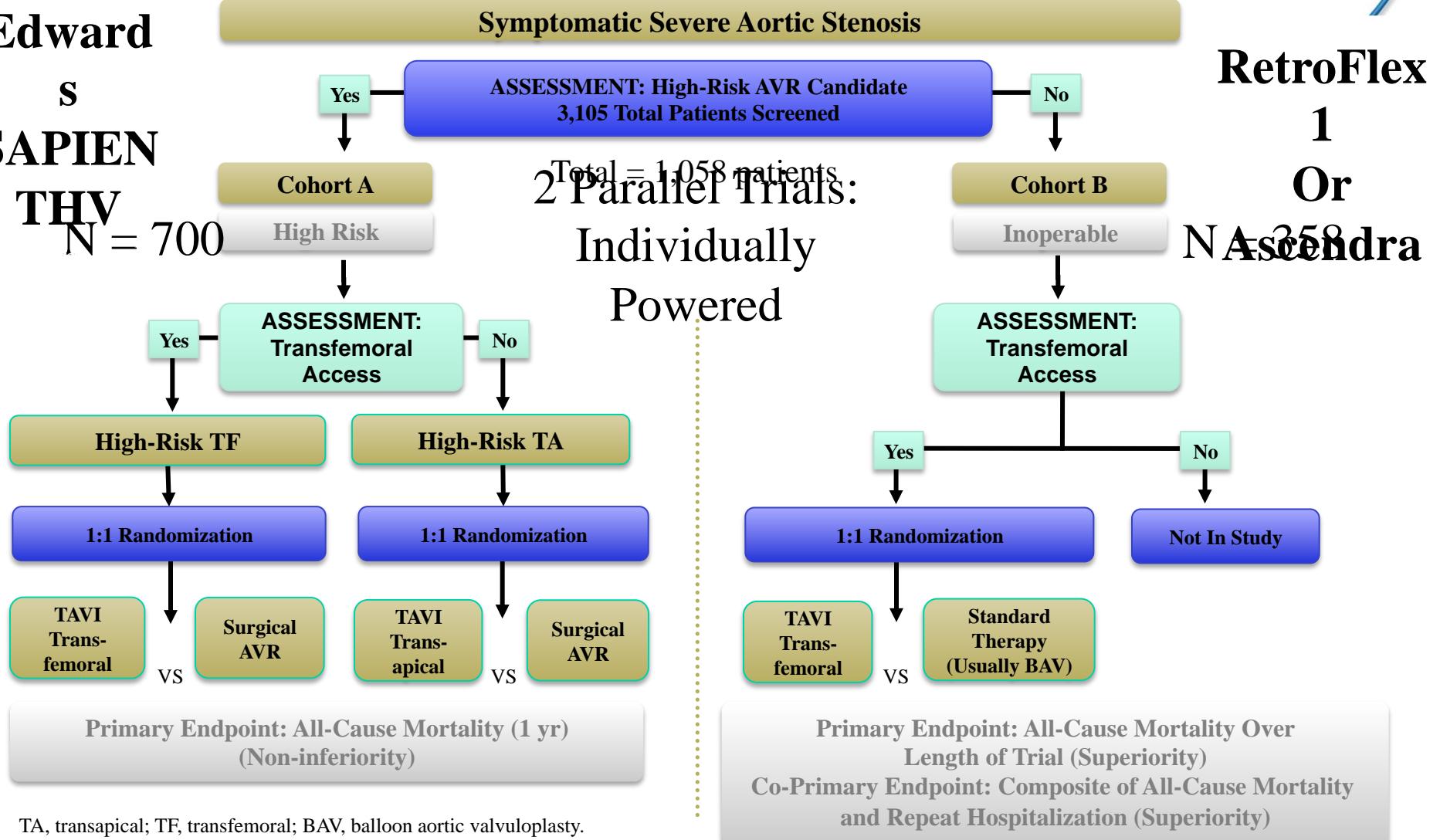
Transcatheter Aortic-Valve Implantation
for Aortic Stenosis in Patients Who Cannot Undergo Surgery

Martin B. Leon, M.D., Craig R. Smith, M.D., Michael Mack, M.D., D. Craig Miller, M.D., Jeffrey W. Moses, M.D.,
Lars G. Svensson, M.D., Ph.D., E. Murat Tuzcu, M.D., John G. Webb, M.D., Gregory P. Fontana, M.D.,
Raj R. Makkar, M.D., David L. Brown, M.D., Peter C. Block, M.D., Robert A. Guyton, M.D.,
Augusto D. Pichard, M.D., Joseph E. Bavaria, M.D., Howard C. Herrmann, M.D., Pamela C. Douglas, M.D.,
John L. Petersen, M.D., Jodi J. Akin, M.S., William N. Anderson, Ph.D., Duolao Wang, Ph.D.,
and Stuart Pocock, Ph.D., for the PARTNER Trial Investigators*



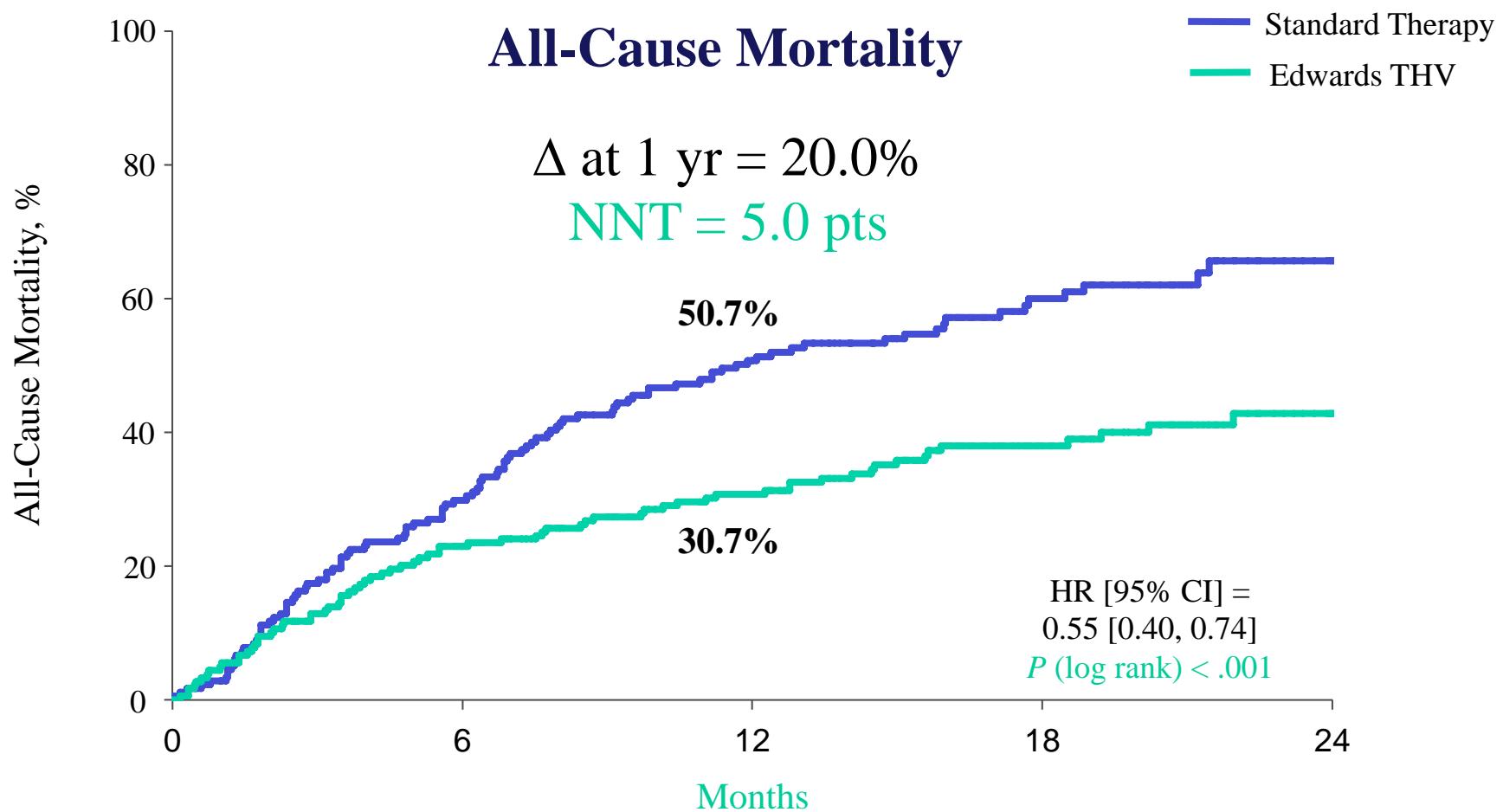
Two Individually Stratified and Powered Cohorts

Edward
S
SAPIEN
THV
 $N = 700$



TA, transapical; TF, transfemoral; BAV, balloon aortic valvuloplasty.

20% Absolute Reduction in Mortality at 1 Year



Numbers at Risk

Edwards THV

179

Standard Therapy

179

138

121

122

83

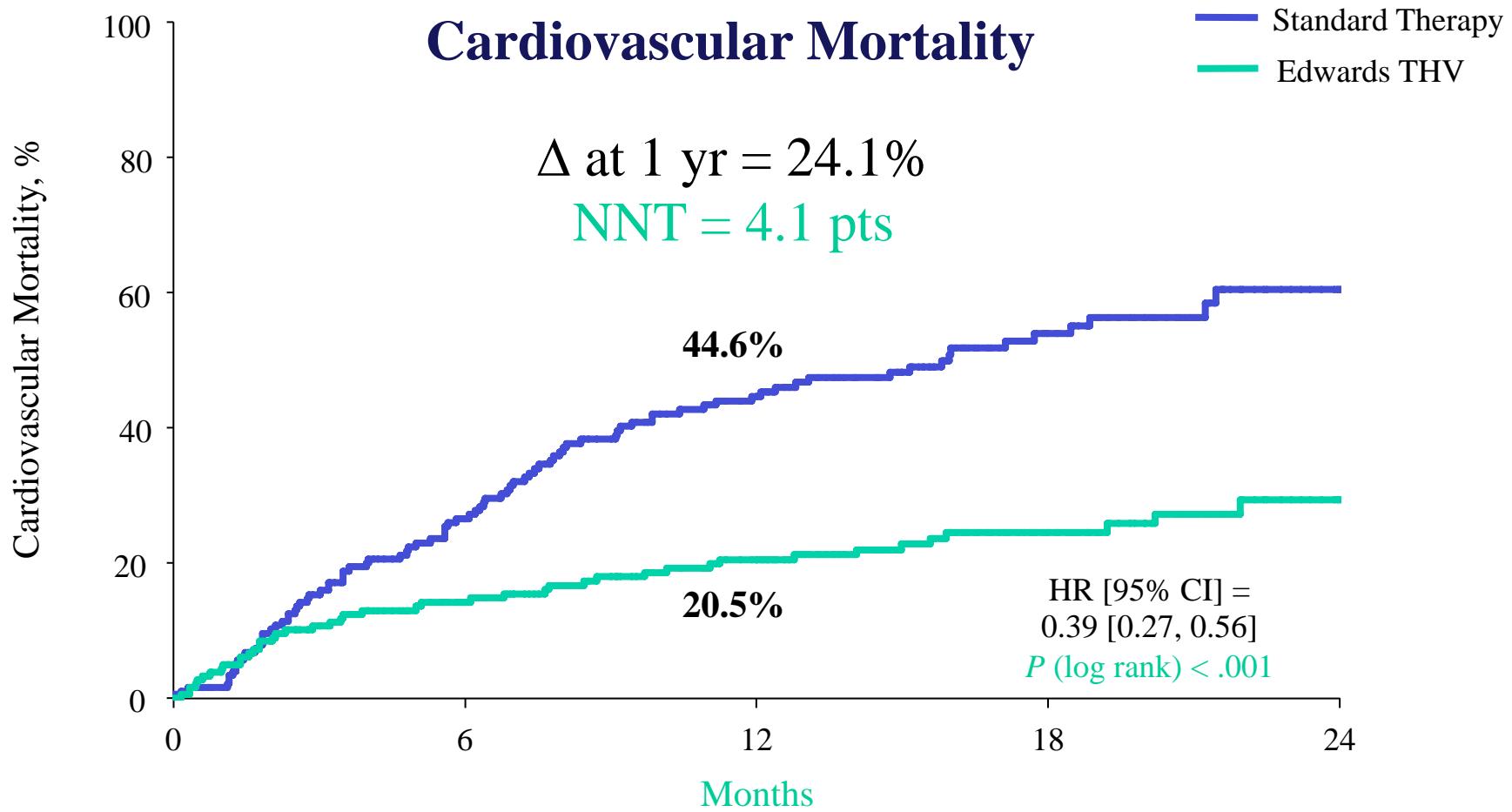
67

41

26

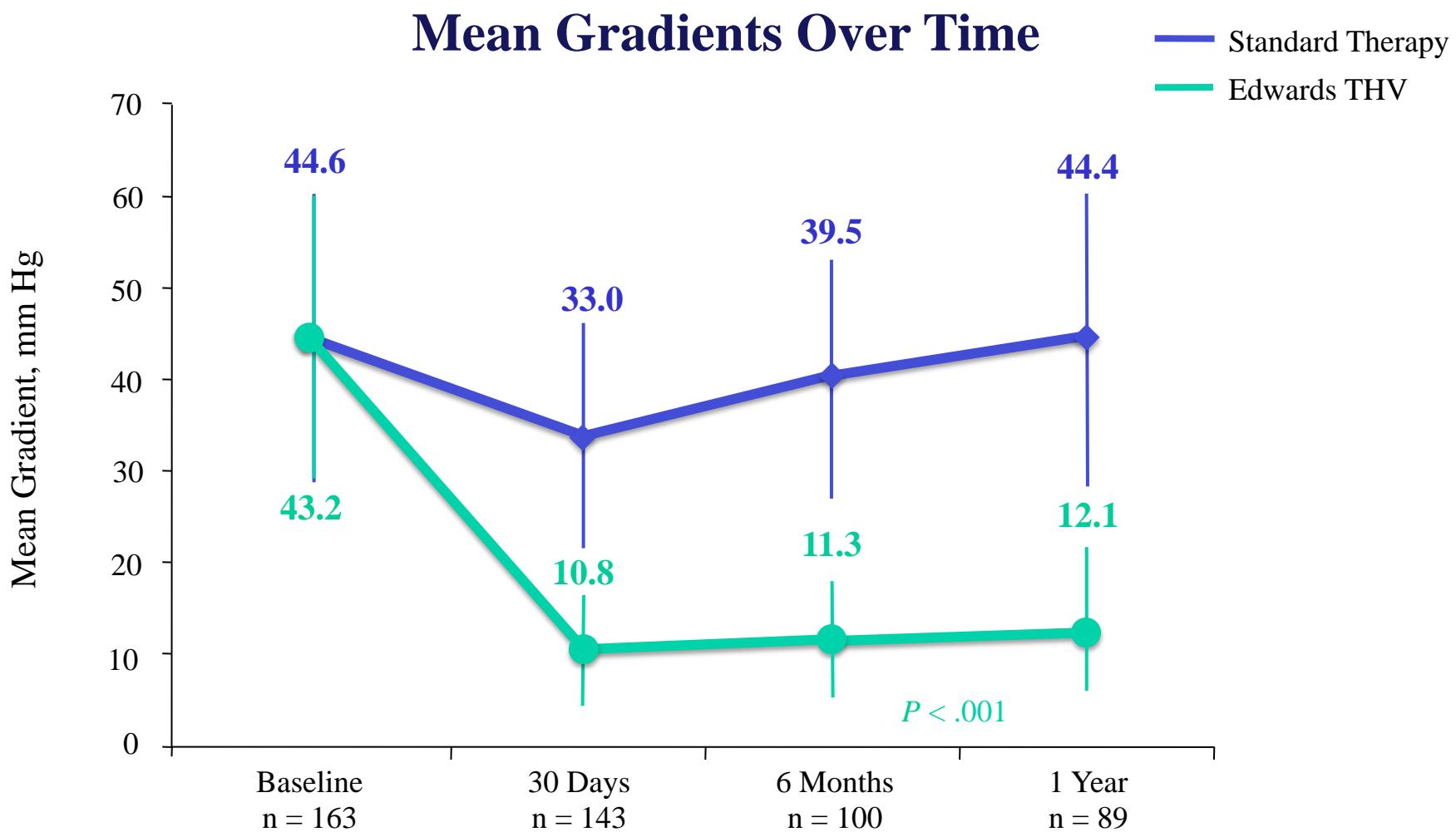
12

24% Absolute Reduction in Cardiovascular Mortality at 1 Year



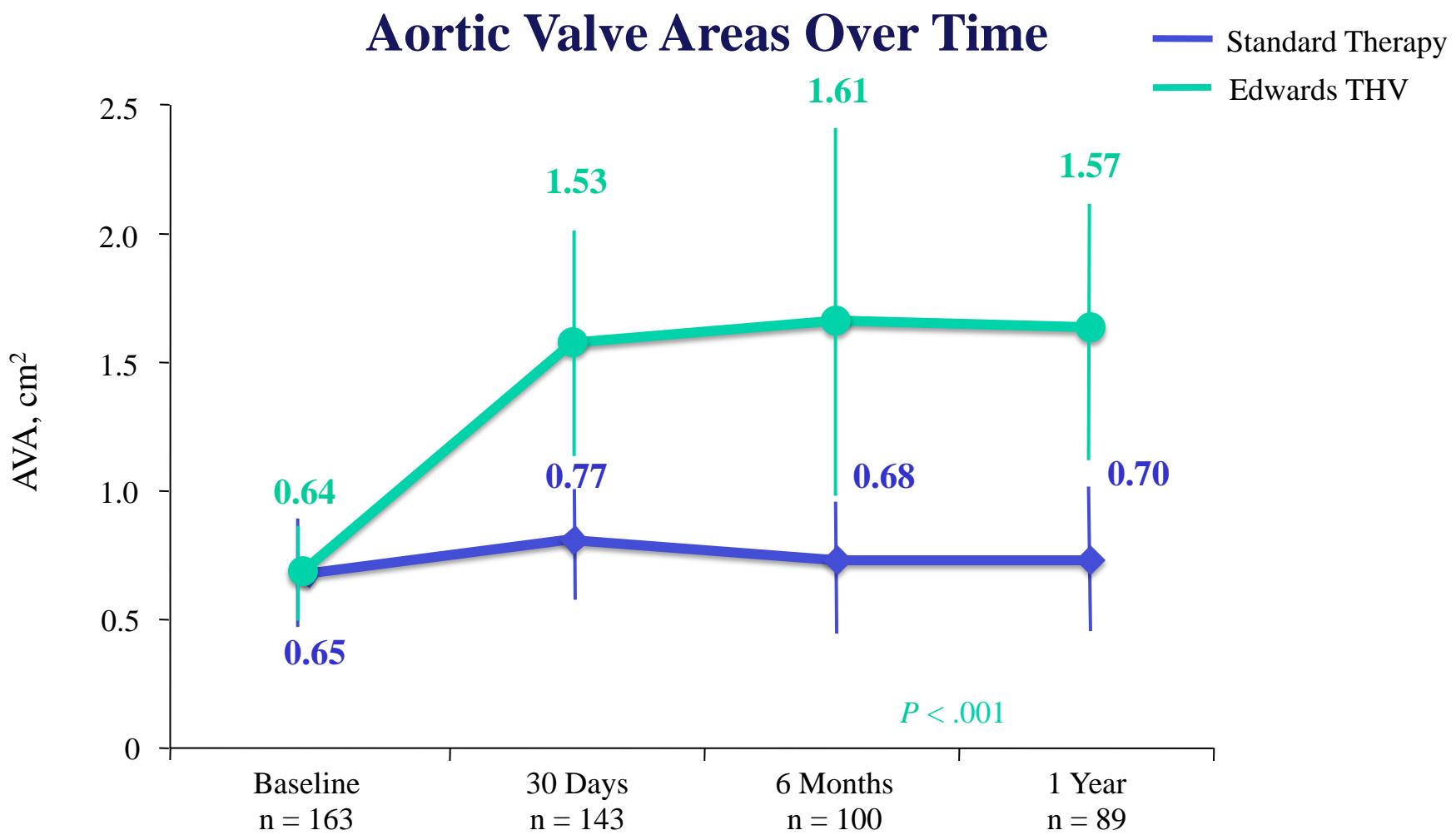
Numbers at Risk					
Edwards THV	179	138	122	67	26
Standard Therapy	179	121	83	41	12

Significantly Reduced Mean Gradient



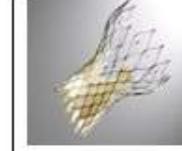
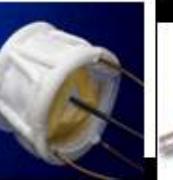
Error bars = ± 1 standard deviation.

Significantly Increased Aortic Valve Area

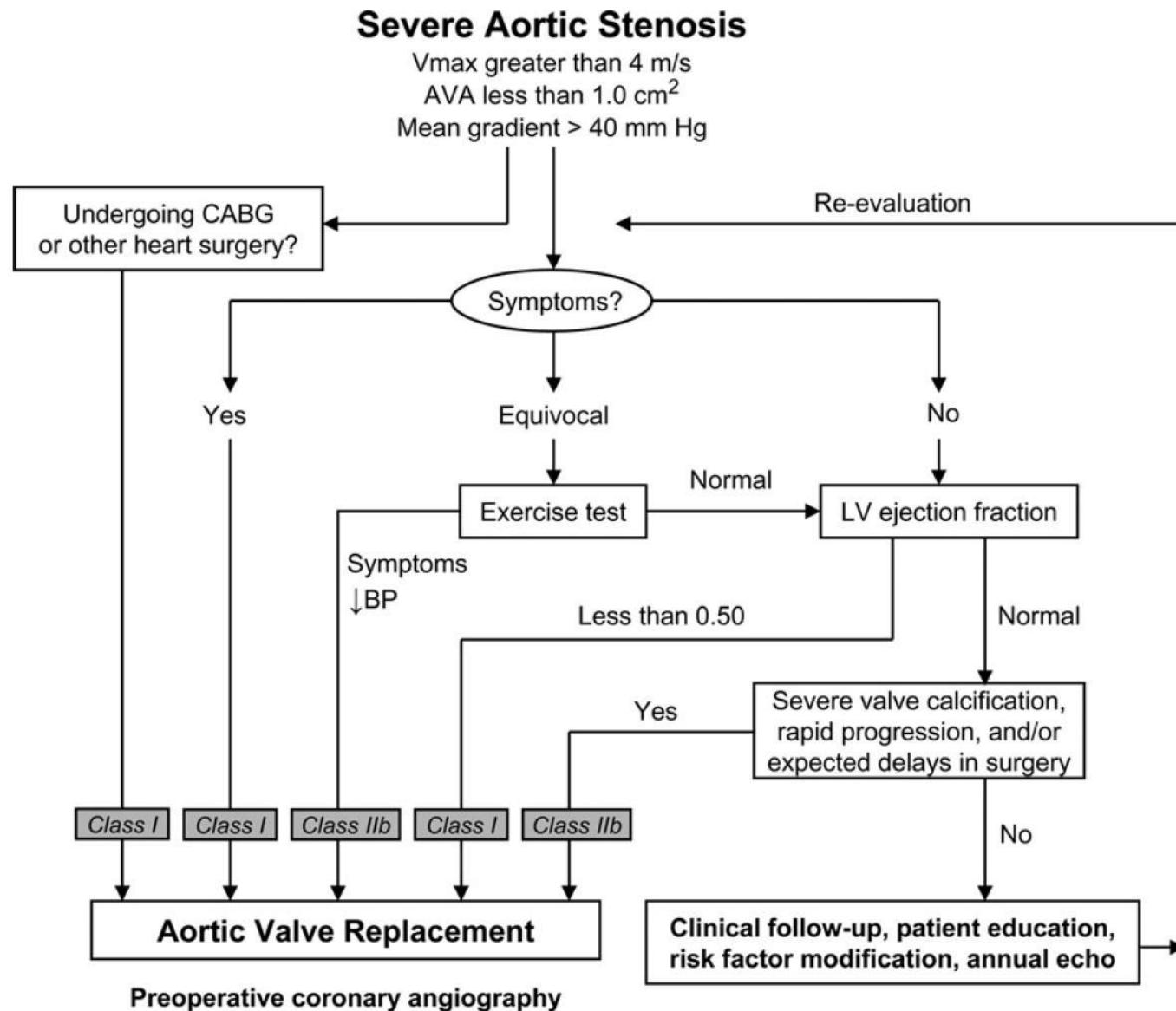


Error bars = ± 1 standard deviation.

Competitive Landscape

COMPANY	 Edwards	 COREVALVE	 St. JUDE MEDICAL	 DIRECT FLOW MEDICAL INC.	 Sadra MEDICAL	 JenaValve Designed with the patient	 Ventor TECHNOLOGIES LTD	MDT Internal Program	HEART LEAFLET TECH (HLT)
PRODUCT NAME	Edwards SAPIEN™ THV	CoreValve ReValving™	TBD	Direct Flow™	Sadra Lotus™ Valve System	JenaValve JenaClip™	Ventor Embracer™	TBD	Heart Leaflet
VALVE PHOTO									
TISSUE	Bovine Pericardium	Porcine Pericardium	Bovine Pericardium	Bovine Pericardium	Bovine Pericardium	Porcine	Bovine Pericardium	Porcine Pericardium	Porcine Pericardium
STENT	Stainless steel	Nitinol	Nitinol & Stainless Steel	Polyester fabric	Nitinol	Nitinol	Nitinol	Nitinol	Nitinol
RETRIEVABLE	—	—	TBD	X	X	X	—	X	X
REPOSITIONABLE	—	—	Nitinol	X	X	X	X	X	X
ACCESS & FRENCH SIZE	TA → 26F TF → 22F	— TF → 18F	TBD	—	—	TA → 25F TF → 21F	TA → 24F TF → 21F	—	—
# OF IMPLANTS	All = 2000+	All = 2000+	Preclinical	FIM = 8 Paraguay FIM = 31 Germany	FIM = 3 Feasibility = 8	Temporary implants = 7 of 15 planned	TA FIM = 18	Preclinical	Temporary implants = 4

Treatment: ACC / AHA Guidelines





EUROPEAN
SOCIETY OF
CARDIOLOGY®

Guidelines on the management of valvular heart disease (version 2012)



Table 9 Indications for aortic valve replacement in aortic stenosis

	Class ^a	Level ^b	Ref ^c
AVR is indicated in patients with severe AS and any symptoms related to AS.	I	B	12, 89, 94
AVR is indicated in patients with severe AS undergoing CABG, surgery of the ascending aorta or another valve.	I	C	
AVR is indicated in asymptomatic patients with severe AS and systolic LV dysfunction (LVEF <50%) not due to another cause.	I	C	
AVR is indicated in asymptomatic patients with severe AS and abnormal exercise test showing symptoms on exercise clearly related to AS.	I	C	
AVR should be considered in high risk patients with severe symptomatic AS who are suitable for TAVI, but in whom surgery is favoured by a 'heart team' based on the individual risk profile and anatomic suitability.	IIa	B	97
AVR should be considered in asymptomatic patients with severe AS and abnormal exercise test showing fall in blood pressure below baseline.	IIa	C	
AVR should be considered in patients with moderate AS ^d undergoing CABG, surgery of the ascending aorta or another valve.	IIa	C	
AVR should be considered in symptomatic patients with low flow, low gradient (<40 mmHg) AS with normal EF only after careful confirmation of severe AS. ^e	IIa	C	
AVR should be considered in symptomatic patients with severe AS, low flow, low gradient with reduced EF, and evidence of flow reserve. ^f	IIa	C	
AVR should be considered in asymptomatic patients, with normal EF and none of the above mentioned exercise test abnormalities, if the surgical risk is low, and one or more of the following findings is present: • Very severe AS defined by a peak transvalvular velocity >5.5 m/s or; • Severe valve calcification and a rate of peak transvalvular velocity progression ≥0.3 m/s per year.	IIa	C	
AVR may be considered in symptomatic patients with severe AS low flow, low gradient, and LV dysfunction without flow reserve. ^f	IIb	C	
AVR may be considered in asymptomatic patients with severe AS, normal EF and none of the above mentioned exercise test abnormalities, if surgical risk is low, and one or more of the following findings is present: • Markedly elevated natriuretic peptide levels confirmed by repeated measurements and without other explanations • Increase of mean pressure gradient with exercise by >20 mmHg • Excessive LV hypertrophy in the absence of hypertension.	IIb	C	

AVR versus TAVI

Jeune

60 ans

Vieux

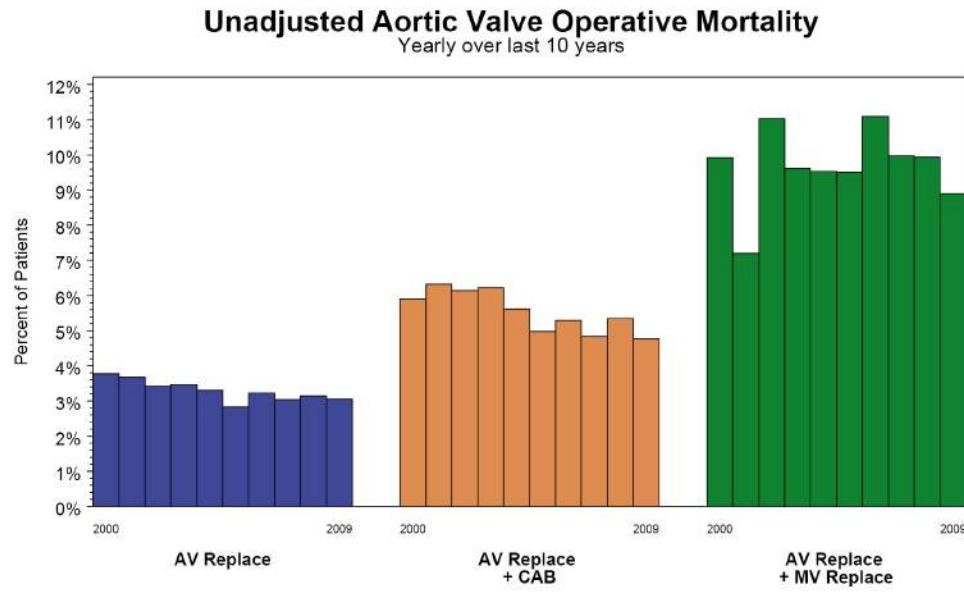
85 ans

Haut Risque



Treatment: Surgical

- Surgical treatment of AS has operative mortalities of less than 5%



STS National Executive Summary 2009

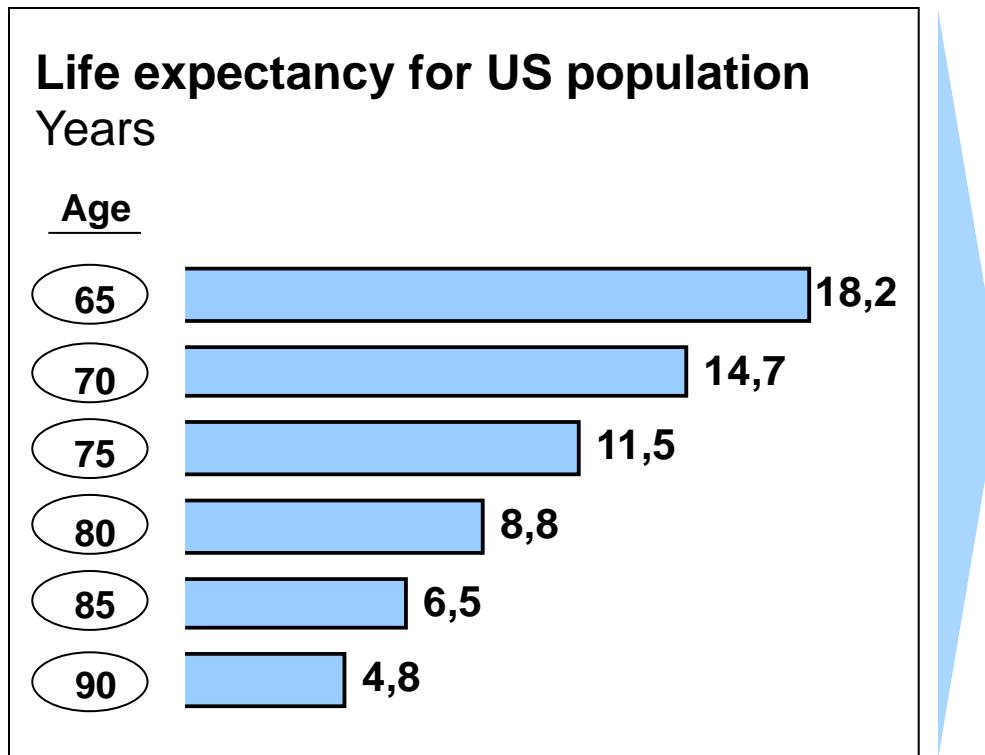
Table 2. Operative Procedures and Outcomes

Age			P-Value
	<80 (n = 1,077)	≥80 (n = 231, 82.4%)	
Operative procedures, n (%)			
Isolated AVR (n = 444)	362 (33.6)	82 (35.5)	.57
AVR + CABG (n = 376)	266 (24.7)	110 (47.6)	.02
Aortic root replacement (n = 488)	449 (41.7)	39 (16.9)	.001
Cardiopulmonary bypass time, minutes, mean ± SD	198 ± 77	177 ± 60	.001
Aortic cross-clamp time, minutes, mean ± SD	143 ± 43	136 ± 46	.07
Hospital mortality, n (%)			
Overall	48 (4.5)	12 (5.2)	.37
Isolated AVR	16 (4.4)	5 (6.1)	.34
AVR + CABG	12 (4.5)	3 (2.7)	.32
Aortic root replacement	20 (4.4)	4 (10.3)	.12

Filsoufi F et al, J Am Geriatr Soc 2008, 56: 255-261.

Treatment: Surgical

- Surgical treatment of AS is underutilized
 - Patients are believed to be too old?



- Those expecting to live for more than 5 years are likely to derive significant benefit from AVR
- For those who survive 6 months after their operation, life expectancy matches that of age-matched controls

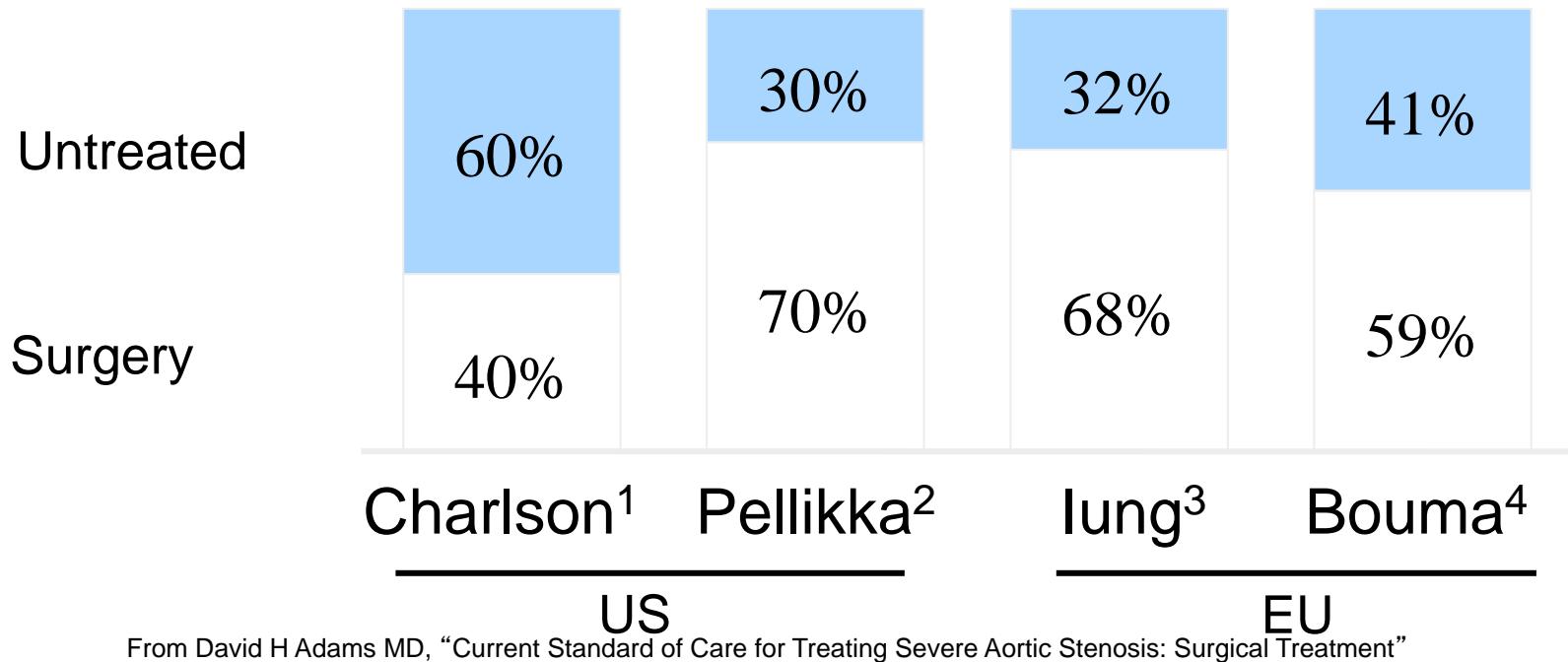
Hornick et al. Clin Geriatr Med 2006; 22: 499-513.

From David H Adams MD, "Current Standard of Care for Treating Severe Aortic Stenosis: Surgical Treatment"

Treatment : Surgical

- **Multiple studies quantify the extent of undertreatment**

Severe Symptomatic AS: Percent of patients treated



¹Charlson E, Legedza AT, Hamel MB. J Heart Valve Dis 2006;15: 312-321.

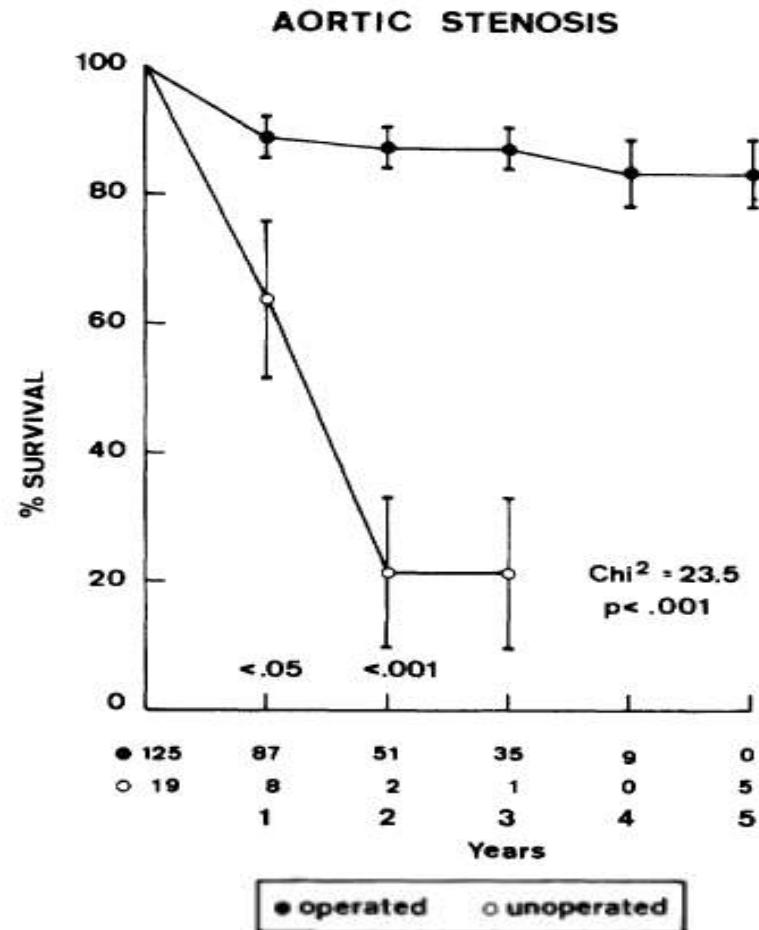
²Pellika PA, Sarano ME, et al. Circulation 2005; 111: 3290-95.

³Iung B, Baron G, Butchart E, et al. Eur Heart J 2003; 24: 1231-1243.

⁴Bouma BJ, van den Brink, et al. Heart 1999; 82: 143-48.

Treatment: Surgical

- Mortality difference for people with symptomatic AS treated with Aortic Valve Replacement (AVR) versus those not undergoing this procedure is **one of the most striking in medicine¹**
 - AVR can be withheld in such patients only when compelling contraindications exist



¹Schwartz F, Bauman P, et al. Circulation 1982; 66: 1105-10.