



Aortální Stenóza

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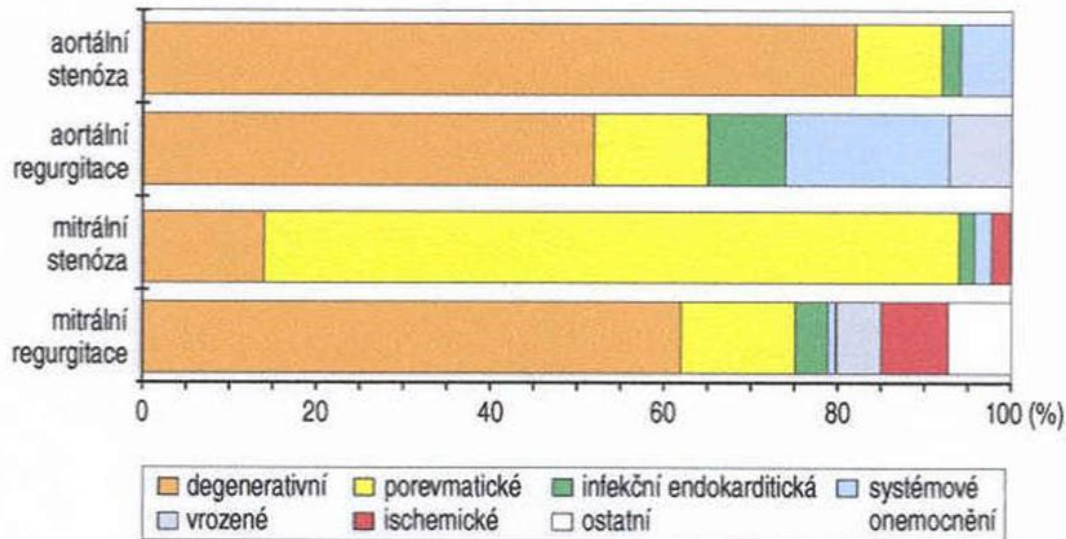


Epidemiologie a etiologie

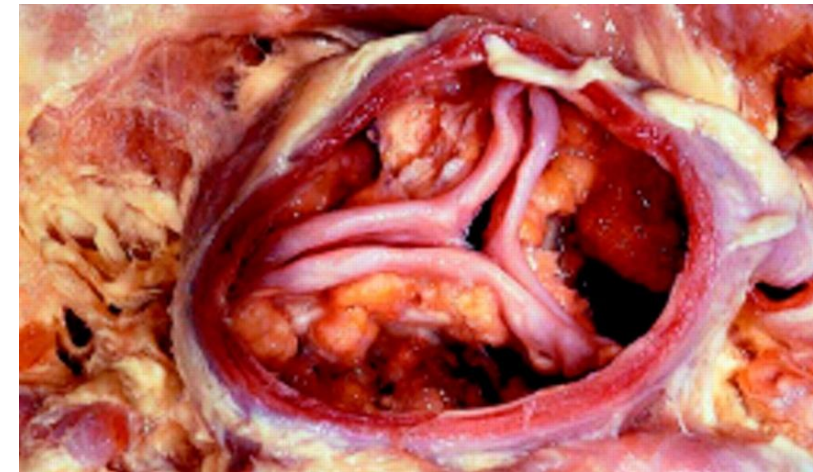
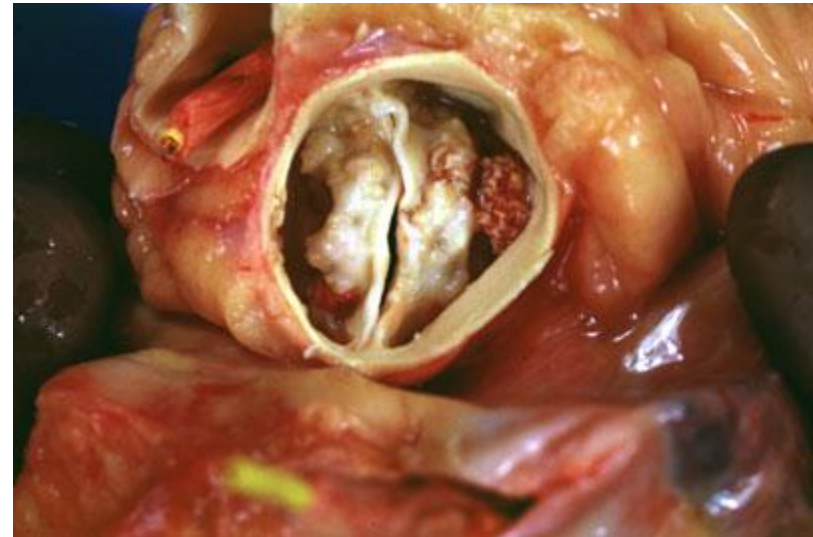
Nejčastější chlopenní vada v dospělosti
(ve vyspělých státech)

2-7% populace nad 65 let

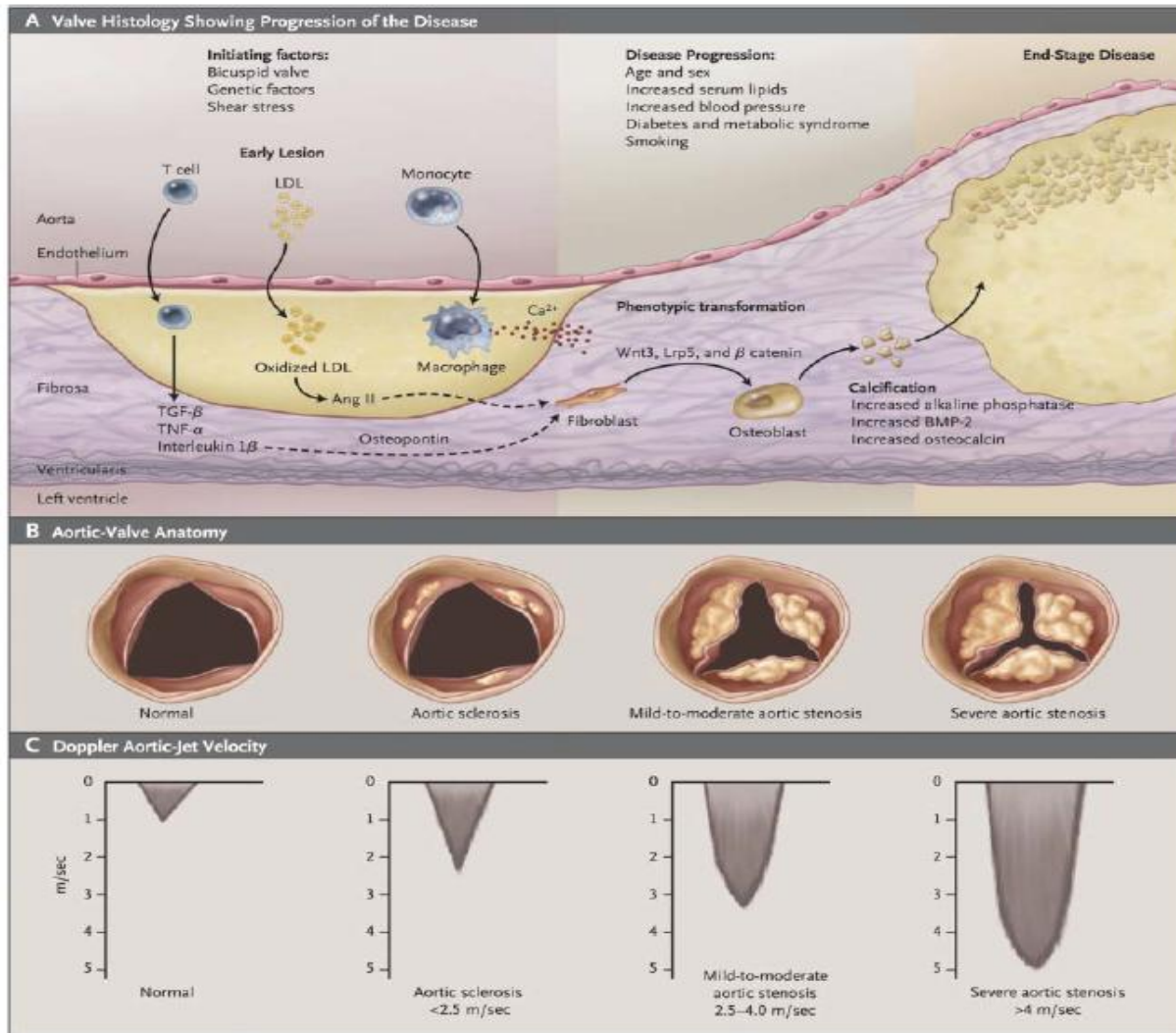
Cca 1600 pacientů ročně podstoupí AVR
v ČR



Cardiovascular Diseases in Europe, European Society of Cardiology, 2002



Patofyziologie



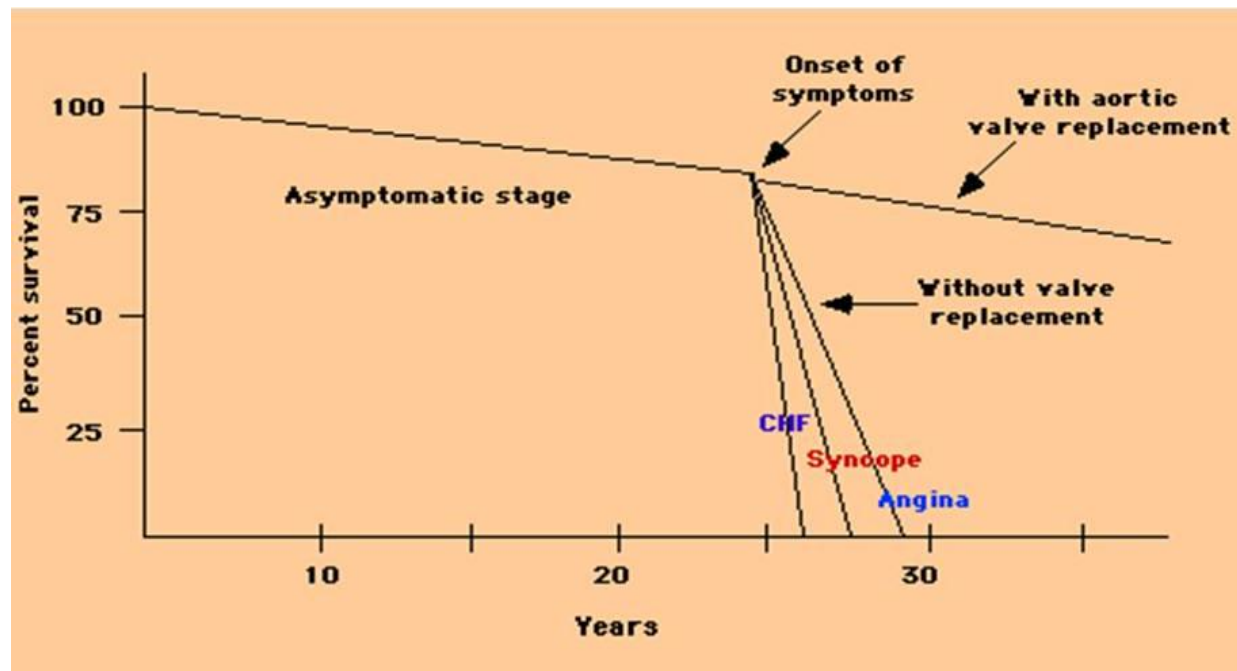
Otto CM, NEJM 2008;359:1395-8

Symptomy

Dlouhá asymptomatická fáze

Námahová:
Dušnost či AP
Synkopa nebo vertigo

Srdeční selhání



Ross, Braunwald, *Circulation* 38;61:1968

Méně typická prezentace: inf. endokarditis, náhodný nález při předOP vyšetření...



Fyzikální nález



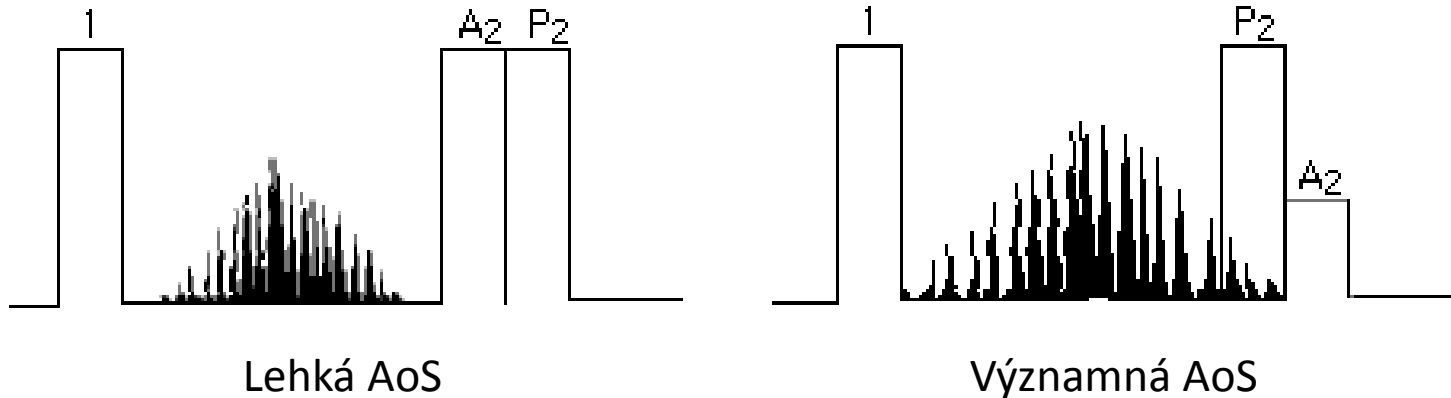
Pulsus parvus et tardus

Systolický ejekční šelest s maximem nad aortou a s propagací do karotid

Vír při pohmatu vsedě v předklonu

Hemodynamicky významná vada – vír +, dlouhý šelest, neslyšná druhá ozva

Hlasitost šelestu koreluje s průtokem, méně s významností vady



Vyšetřovací metody

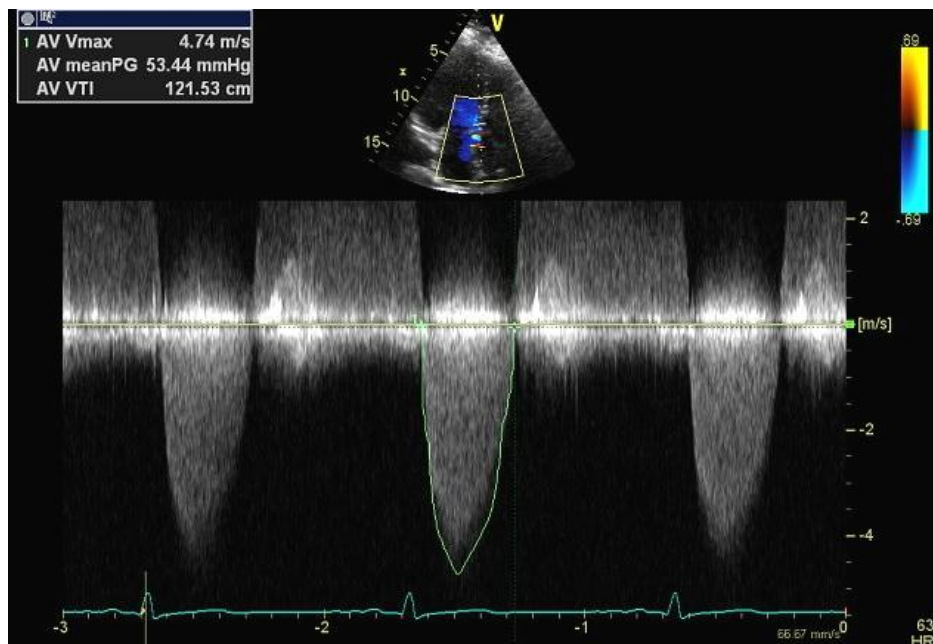
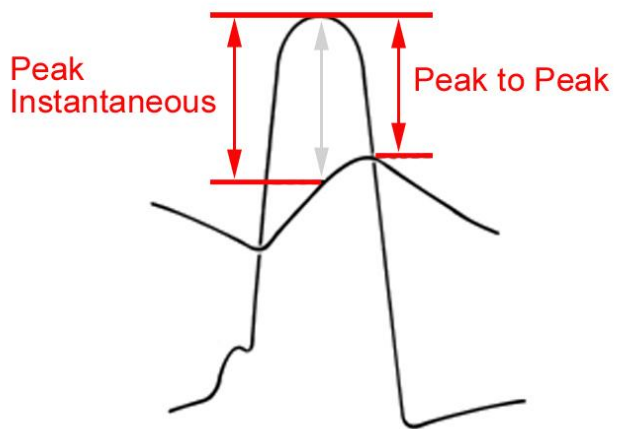
EKG – hypertrofie LK; extenze kalcifikací do převodního systému – AV bloky

Echokardiografie: klíčová metoda

Přítomnost aortální stenózy, kalcifikace, funkce LK, hypertrofie stěn, další patologie

Dopplerovské vyšetření – kvantifikace stenózy

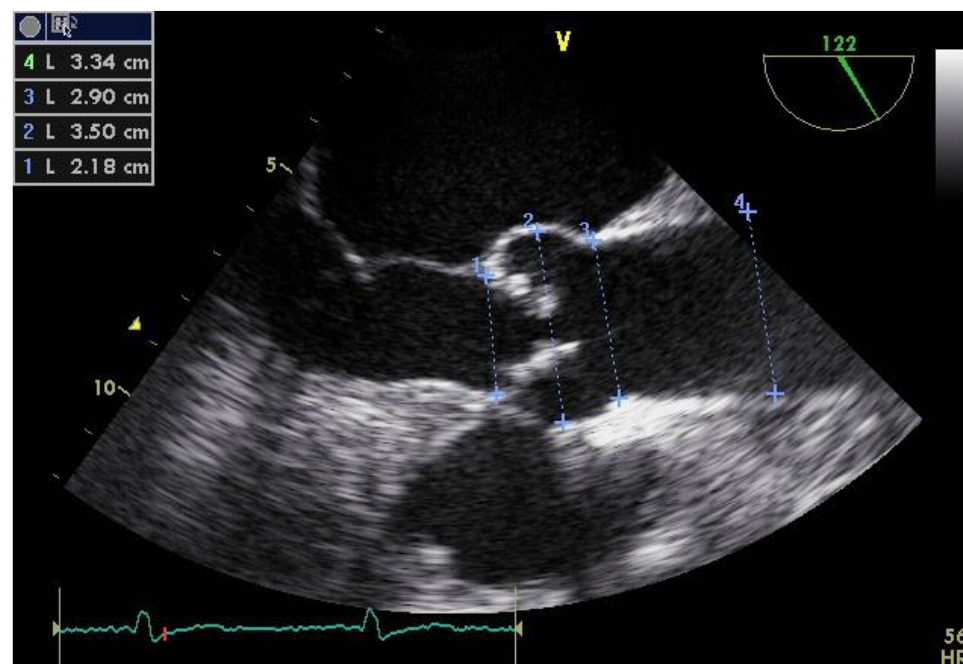
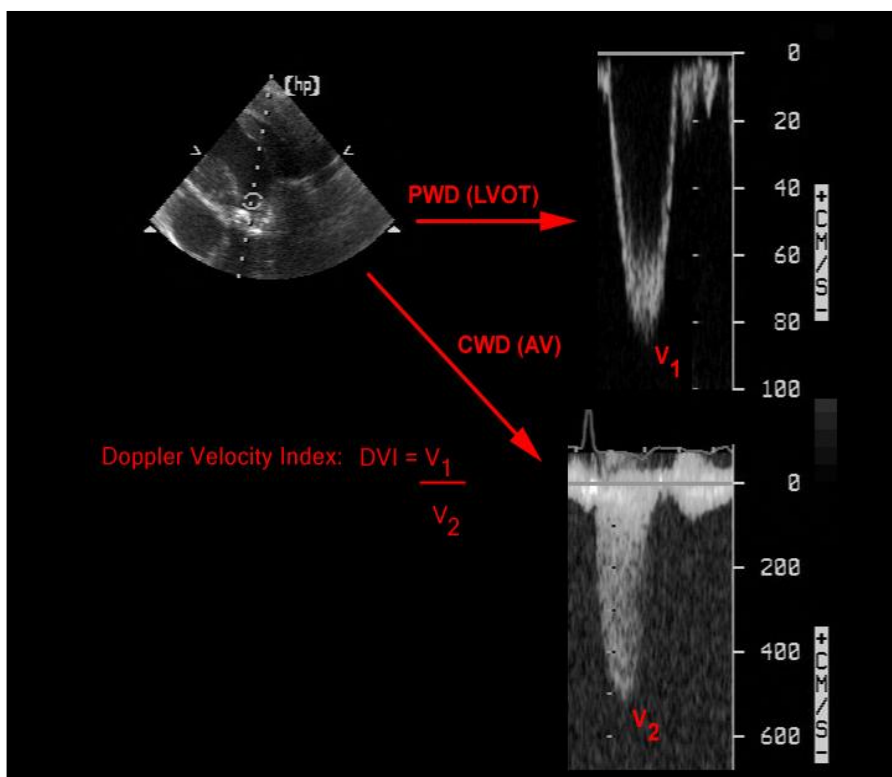
Aortální gradient – dobře se měří, ale je závislý na průtoku



Kalkulace plochy aortálního ústí

Rovnice kontinuity

Přesnost měření, zkušenost vyšetřujícího
LVOT lze podhodnotit (oválná struktura)



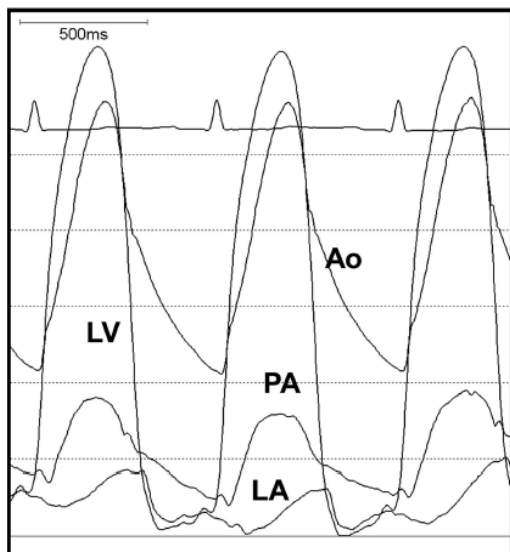
$$AVA = LVOT_{\text{area}} \times LVOT_{\text{TVI}} / AV_{\text{TVI}}$$

Table 4 Echocardiographic criteria for the definition of severe valve stenosis: an integrative approach

	Aortic stenosis	Mitral stenosis	Tricuspid stenosis
Valve area (cm ²)	<1.0	<1.0	–
Indexed valve area (cm ² /m ² BSA)	<0.6	–	–
Mean gradient (mmHg)	>40 ^a	>10 ^b	≥5
Maximum jet velocity (m/s)	>4.0 ^a	–	–
Velocity ratio	<0.25	–	–

Srdeční katetrizace

- Koronarografie při potřebě evaluace koronární nemoci (M>45, Ž>50 let)
- **rutinní** hemodynamické vyšetření **NE** (cave embolizace, 23% dle MRI !!)
- měření gradientu, srdečního výdeje a AVA u **hraničních a nejasných nálezů ANO**
- simultánní tlaky !!; simultánní měření srdečního výdeje a gradientu
- aortografie k vyloučení porcelánové aorty

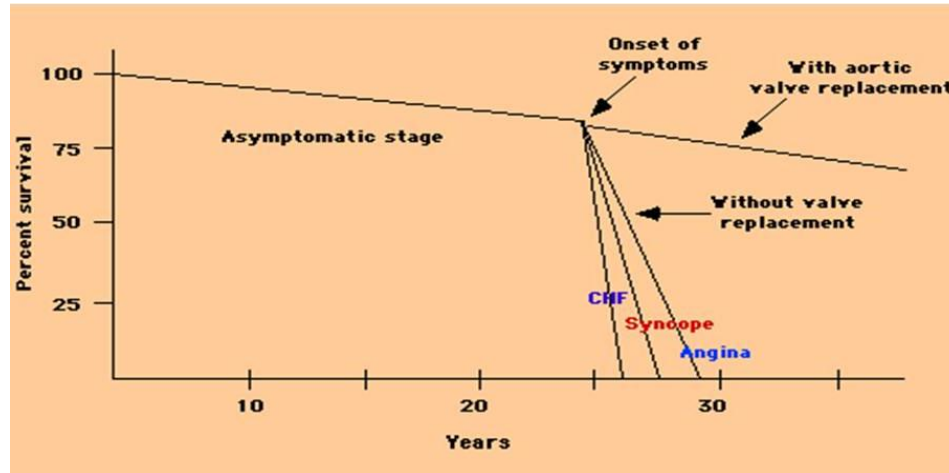


Gradient 32 mm Hg
AVA 0.9 cm²



Terapie

- Symptomatická a hemodynamicky významná aortální stenosa má při konservativní terapii mortalitu kolem 50% za první rok.



- Farmakoterapie je bez efektu – statiny nemají vliv na progresi aortální stenosis (Astronomer, SEAS, Saltire)

Operační mortalita

Table 7 Operative mortality after surgery for valvular heart disease

	EACTS (2010)	STS (2010)	UK (2004–2008)	Germany (2009)
Aortic valve replacement, no CABG (%)	2.9 (40 662)	3.7 (25 515)	2.8 (17 636)	2.9 (11 981)
Aortic valve replacement + CABG (%)	5.5 (24 890)	4.5 (18 227)	5.3 (12 491)	6.1 (9113)



AVR je zavedenou metodou s 40-letou historií a velmi dobrými dlouhodobými výsledky

Nutnost antikoagulace, riziko infekční endokarditidy kolem 1% ročně.

Indications for aortic valve replacement in symptomatic aortic stenosis

	Class	Level
AVR is indicated in patients with severe AS and any symptoms related to AS.	I	B
AVR is indicated in patients with severe AS undergoing CABG, surgery of the ascending aorta or another valve.	I	C
AVR should be considered in patients with moderate AS undergoing CABG, surgery of the ascending aorta or another valve.	IIa	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
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.	IIa	C
AVR should be considered in symptomatic patients with severe AS, low flow, low gradient with reduced EF, and evidence of flow reserve.	IIa	C
AVR may be considered in symptomatic patients with severe AS low flow, low gradient, and LV dysfunction without flow reserve.	IIb	C

Indications for aortic valve replacement in asymptomatic aortic stenosis

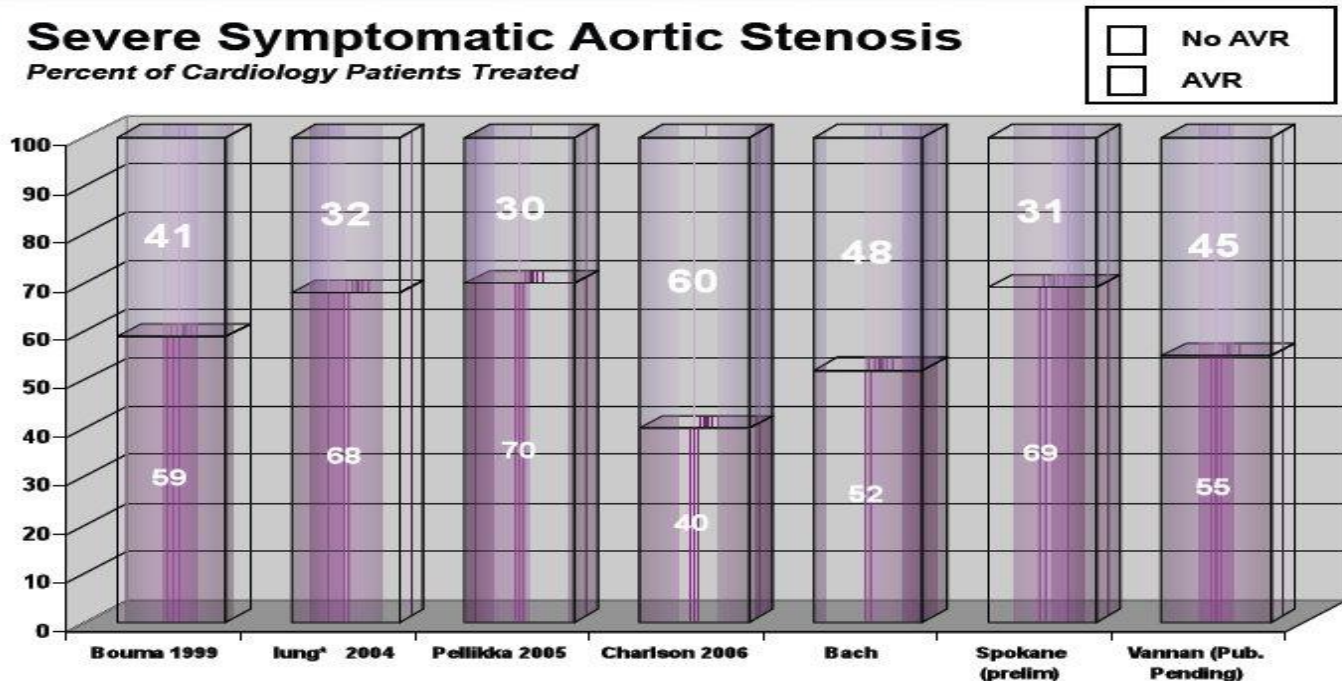
	Class	Level
AVR is indicated in asymptomatic patients with severe AS and systolic LV dysfunction (LVEF < 50%) not due to another cause.	I	C
AVR is indicated in asymptomatic patients with severe AS and abnormal exercise test showing symptoms on exercise clearly related to AS.	I	C
AVR should be considered in 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: <ul style="list-style-type: none"> • very severe AS defined by a peak transvalvular velocity > 5.5 m/s, • severe valve calcification and a rate of peak of transvalvular velocity progression ≥ 0.3 m/s per year. 	IIa	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: <ul style="list-style-type: none"> • markedly elevated natriuretic peptide levels confirmed by repeated measurements without other explanations, • increase of mean pressure gradient with exercise by > 20 mmHg, • excessive LV hypertrophy in the absence of hypertension. 	IIb	C

Potřeba TAVI



Many Patients with Severe AS Are Not Surgically Treated

Severe Symptomatic Aortic Stenosis
Percent of Cardiology Patients Treated



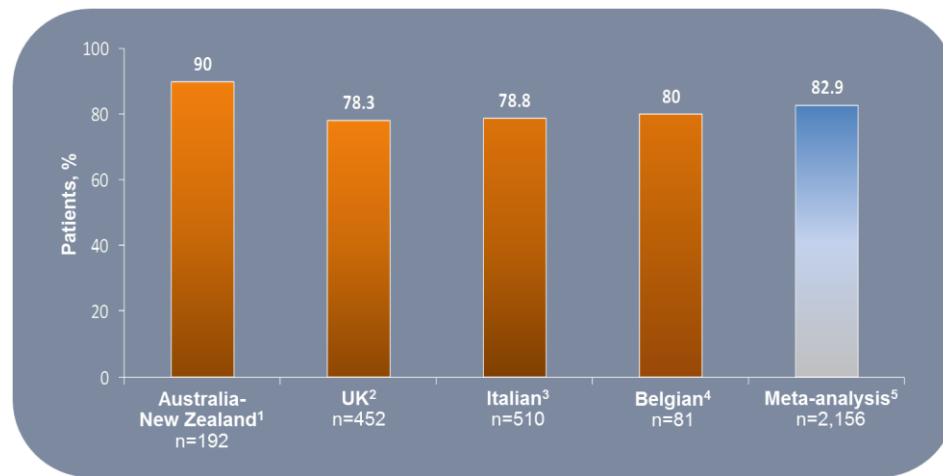
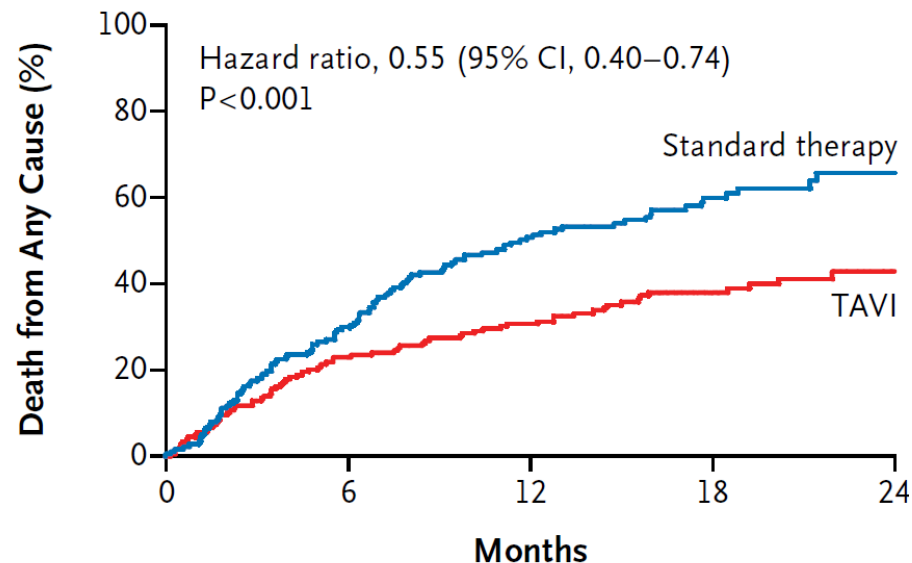
1. Bouma B J et al. To operate or not on elderly patients with aortic stenosis: the decision and its consequences. *Heart* 1999;82:143-148
2. Iung B et al. A prospective survey of patients with valvular heart disease in Europe: The Euro Heart Survey on Valvular Heart Disease. *European Heart Journal* 2003;24:1231-1243 (*includes both Aortic Stenosis and Mitral Regurgitation patients)
3. Pellikka, Sarano et al. Outcome of 622 Adults with Asymptomatic, Hemodynamically Significant Aortic Stenosis During Prolonged Follow-Up. *Circulation* 2005
4. Charlson E et al. Decision-making and outcomes in severe symptomatic aortic stenosis. *J Heart Valve Dis* 2006;15:312-321



TAVI = Zavedená metoda !!



- 100 000 pacientů do 6/2012. Úspěšnost 98%, riziko komplikací nad 10%



Partner B trial – inoperable patients



Registry CoreValve – přežívání v 1 roce

1. Meredith I.T. 12 Month Results from ANZ CoreValve TAV Study. Presented at: TCT 2011. 2. Moat N.E., et al. JACC. 2011;58. 3. Petronio AS. Italian Registry. Presented at: EuroPCR 2010. 4. Bosmans J. Belgian TAVI Registry. Presented at: London Valves 2011. 5. Ruiz C.E. Weighted meta-analysis of CoreValve® Outcomes. Presented at: EuroPCR 2011 (analysis sponsored by Medtronic, Inc.).

FNKV – 4/2009 – dosud 75 pacientů, sedace 84%, mortalita 30 den 3%, 1 rok 11%

Indications for transcatheter aortic valve implantation

	Class	Level
TAVI should only be undertaken with a multidisciplinary “heart team” including cardiologists and cardiac surgeons and other specialists if necessary.	I	C
TAVI should only be performed in hospitals with cardiac surgery on-site.	I	C
TAVI is indicated in patients with severe symptomatic AS who are not suitable for AVR as assessed by a “heart team” and who are likely to gain improvement in their quality of life and to have a life expectancy of more than 1 year after consideration of their comorbidities.	I	B
TAVI should be considered in high risk patients with severe symptomatic AS who may still be suitable for surgery, but in whom TAVI is favoured by a “heart team” based on the individual risk profile and anatomic suitability.	Ia	B

Děkuji za pozornost

