POZDNÍ KARDIOTOXICITA ONKOLOGICKÉ TERAPIE Z POHLEDU AMBULANTNÍHO KARDIOLOGA

Kdy indikovat kardiochirurgický výkon? Kdy ještě čekat?

MUDr. Michaela Rýzlová, kardiologie Praha 9 Černý Most
Prof. MUDR. Petr Toušek, Kardiocentrum Fakulní nemocnice Královské Vinohrady Praha

SERIE KAZUISTIK Z PRAXE…

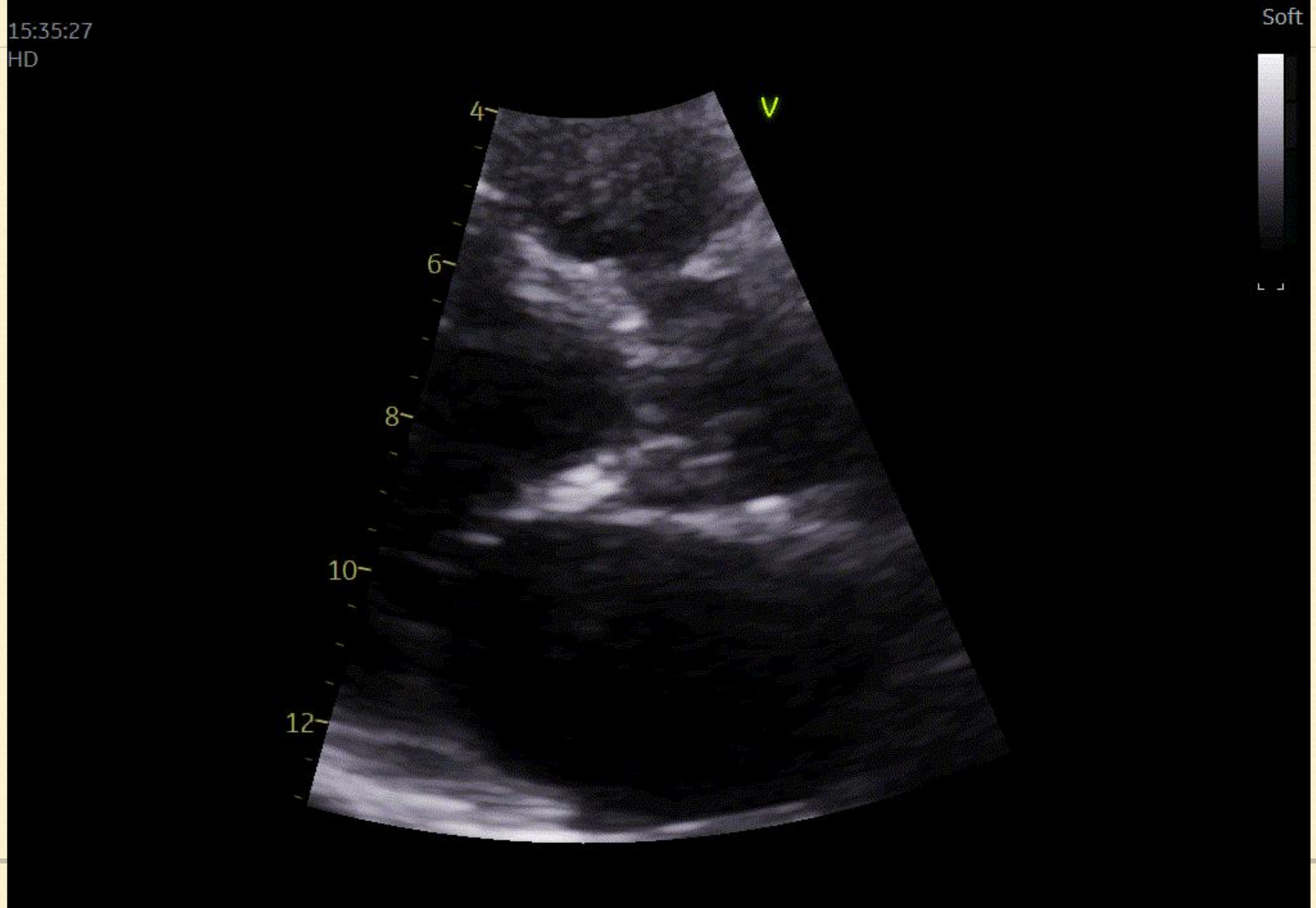
- N.V. 1956, OA **stp. hematolog terapii NHL - 3 cykly CHOP, aktinoterapie mediastina 36Gy, od 1994** kompletní remise dosud
- dusnost a bolesti na hrudi **2018 -nemoc 3 tepen indik 3x CABG** (RIA, ACD, RD)
- komplikované hojení, recidiv fluidothorax, nově těžká pravostranná kardiální insuficience s progresí dušnosti NYHA IV....IKEM..**restriktivní KMP-** zařazen na WL.. **Tx srdce 2/23**
- opět komplikované hojení, bez rejekce štěpu, přechodně HD, těžké srdeční selhání s převahou pravostranné složky..masivně diuretika..tč hraničně stabilní

KAZUISTIKA II

- muž 1969 - R.H. - **2017** těžká dysfunkce LKS, významná aortální stenosa po léčbě úprava EF LK indikován k AVR
- OA **1988 stp.thymektomii, chemoT + aktinoterapii hrudníku -M.Hodgkin tč. remise**
- **2018** mech protéza On-X 23 - těžký pooperační průběh, postperikardiotom sy..dušnost NYHA IV
- dynamická forma konstrikce perikardu dle NMR fibróza myokardu - **pozdní kardiotoxicita po hematolonkolog T..**těžká dušnost, otoky, NT pro BNP- 150000
- diuret terapie (Furorese 250, Verospiron, HCHT)..bez většího zlepšení..**referován do IKEM -2022 TX??** zařazen na WL..IE 6/23 mech náhrady..progrese ren selhání..KI k Tx ..tč prognosa pacienta závažná (infaustní..)

KAZUISTIKA III- NOVÝ NÁHLED

- Pacient F.Š. 1974
- OA: **2007- Hodgkin lymfom** - chemoT BEACOPP + ABVD + aktinoT mediastina 30Gy **v roce 2014 relaps** (akumulace lymf uzlin v mediastinu, paratrachealně, útlak bronchovaskul struktur) léčen chemoT (DHAP) a radioterapie proton svazkem , jen parciální remise proto další chemoT, + **aktinoterapie proton svazkem 2015**…remise dosud
- aortální stenosa rychlý nárůst gradientů..tč V max 4.4m/S PG max 79/56mmHg, bez větších klid obtíží, 200W bez poklesu tlaku, SKG lehká nezuž koron ateromatoza, synovi na kole stačí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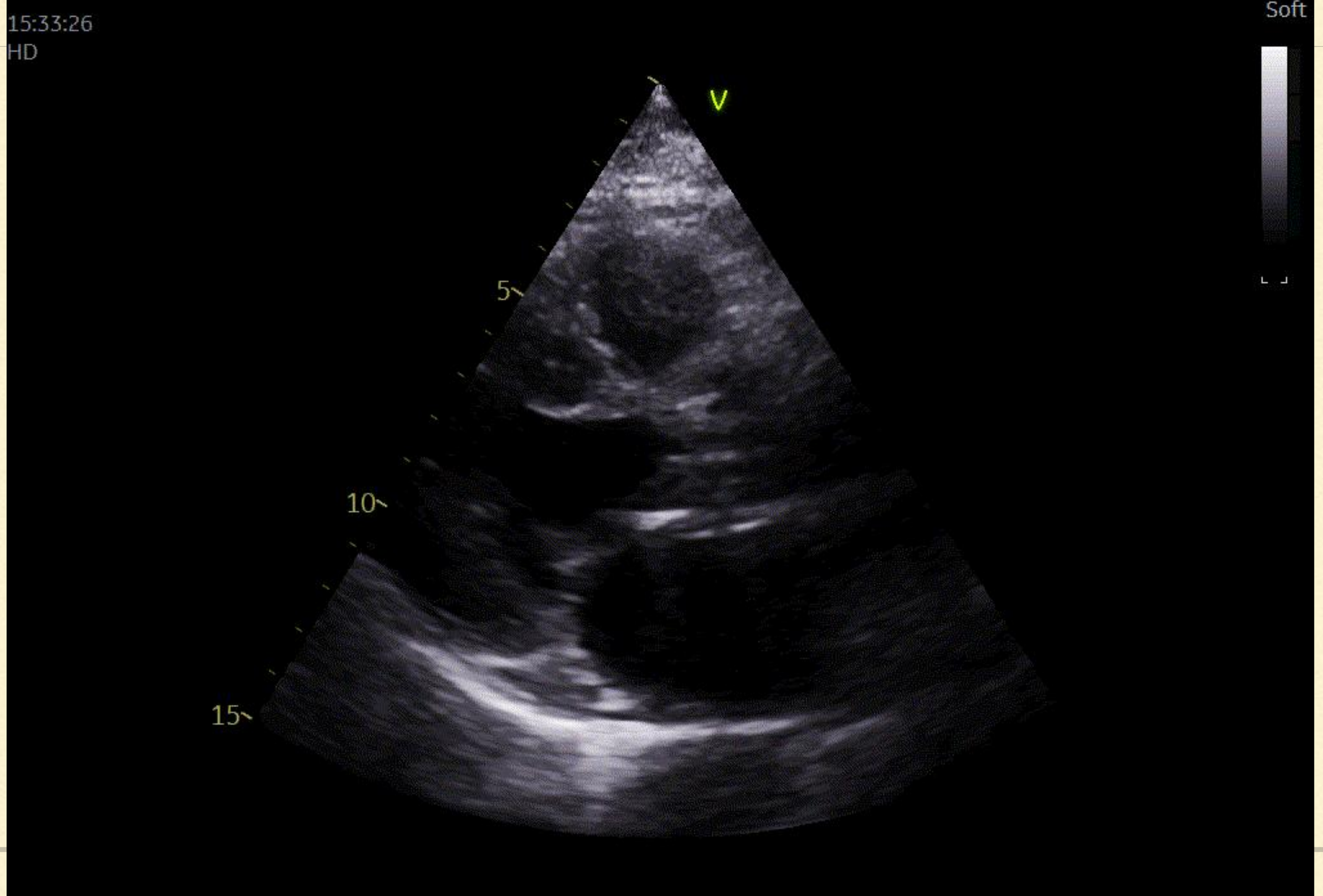
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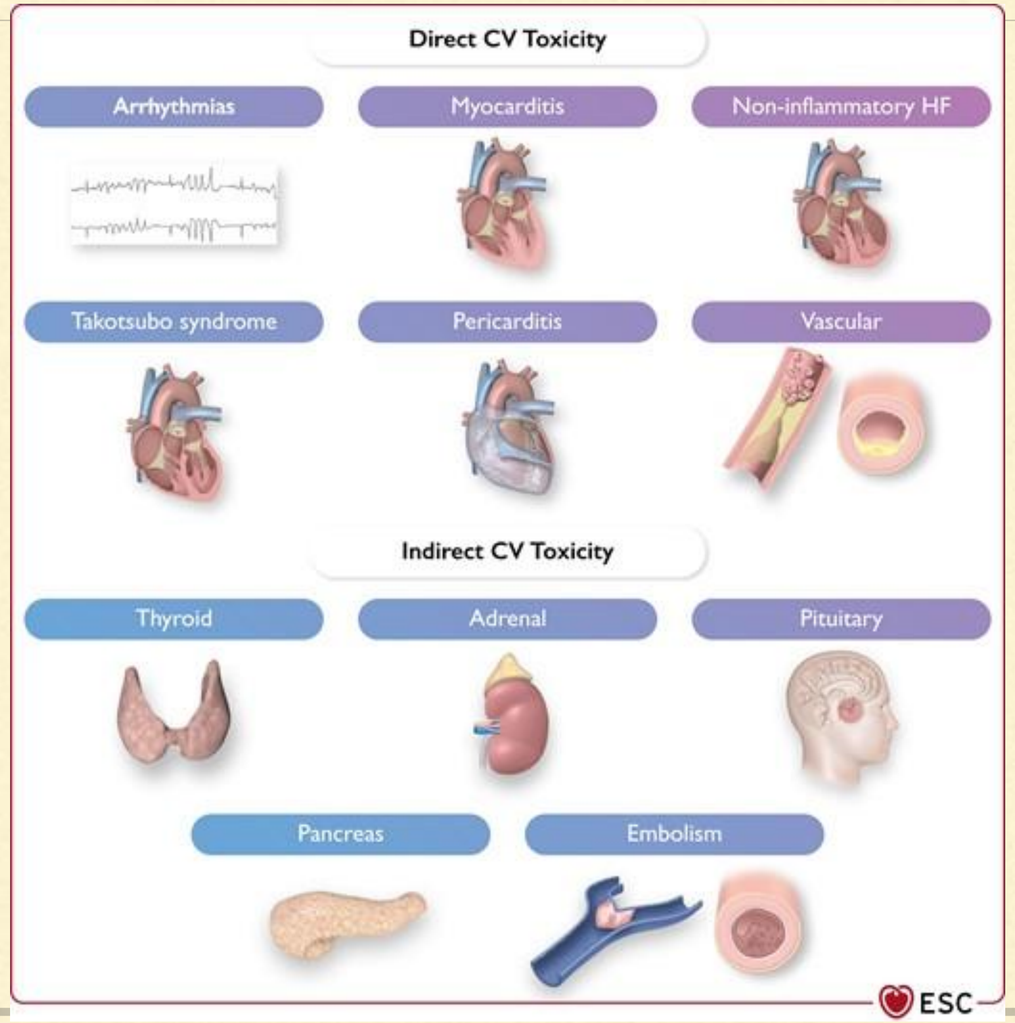
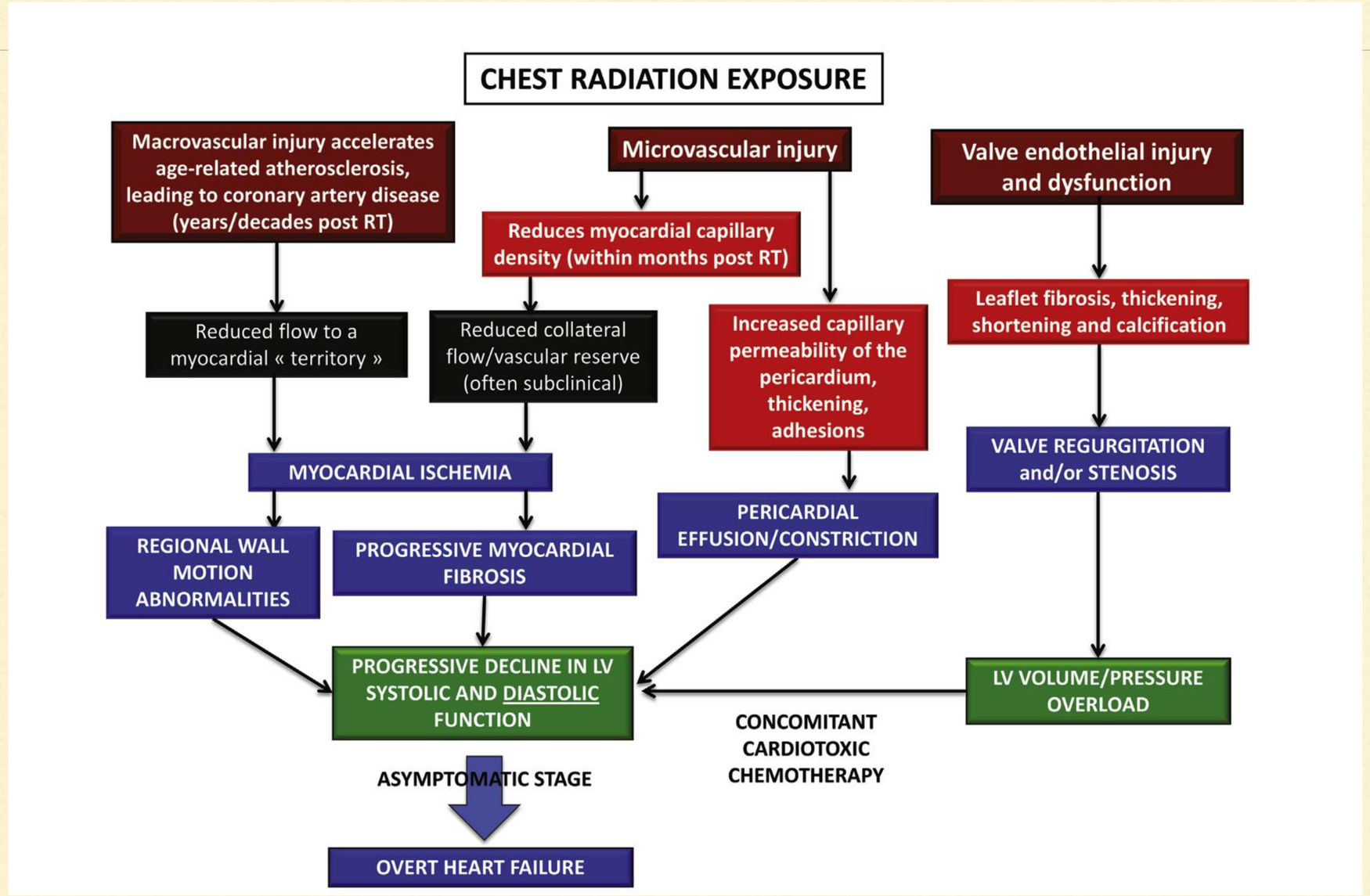
KAZUISTIKA IV - NOVÝ NÁHLED

- referován na Kardiocentra k zvážení dalšího postupu
- **KCH tým za účasti pacienta -** pacient nepreferuje KCH výkon!!
- katetrizační náhrada výběr protézy Edwards Sapien 3 26mm s možností **TAVI in TAVI** v budoucnu, termín zákroku tč odsunut- oligosymptomat pacient, norm NTproBNP, při V max 5.5m/s bude ev vyzván k výkonu

KARDIOTOXICITA ONKOLOG. TERAPIE

- **kombinace** chemoT (atracyklinů) + aktinoterapie
- **akutní** (perikarditida, arytmie, myokarditida)
- **pozdní**..po desítkách let..velmi závislá na dávce ozáření + použité technice , na kumulativní dávce podané chemoT





EACVI/ASE EXPERT CONSENSUS STATEMENT

Expert Consensus for Multi-Modality Imaging Evaluation of Cardiovascular Complications of Radiotherapy in Adults: A Report from the European Association

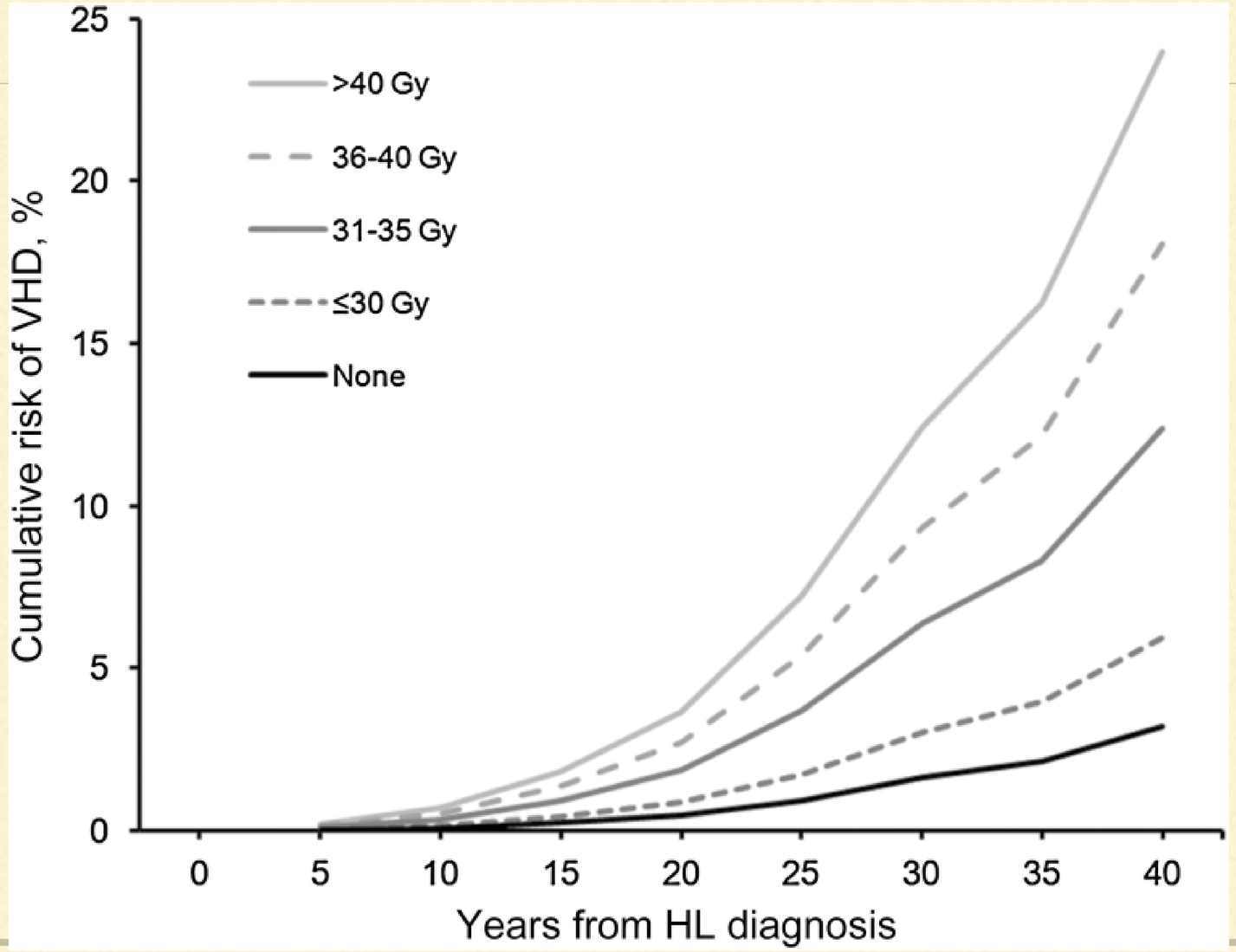
POZDNÍ KOMPLIKACE AKTINOT.

- **akcelerace ICHS** - za 5-10let po ozáření
- **2013** Sarah Darby N Engl J Medicine case control study 2168 žen po aktinoterapii 1958-2001 nárůst major coronary events (IM, úmrtí, revaskul) **roste o 7.4% na každý 1 Gy**
- studie u pacientů s m.Hodgkin 2617 pacientů 1965-1995 van Nimwegen FA **2016** J Clin Oncology stejný nález -**lineární růst rizika ICHS v závislosti na dávce 20Gy** 2.5x vyšší ICHS

POZDNÍ KOMPLIKACE AKTINOT.

- **Srdeční selhání**
- **2017** van Nimwegen Blood case control study 2617 pac.m.Hodgkin po aktinoterapii mediastina **riziko SS** do dávky 20Gy RR je 1.43, do 30Gy 2.78, **nad 30Gy 4.16**
- **Onemocnění chlopní**
- u pacientů s m Hodgkin po ozáření v 60-80.letech (2 práce) do 20Gy bez vyššího rizika, nad **30Gy** chlopenní vada u **16%** pacientů, **v dávce 40 Gy dokonce 42% pacientů**

- **Kumulativní riziko vzniku chlopenní vady po radioterapii**



- Cutter DJ, Risk for Valvular heart Disease After treatment for Hodgkin Lymphoma, J Natl Cancer Inst 4,2015

Radiation-induced heart disease (RIHD) risk factors

Anterior or left chest irradiation location

High cumulative dose of radiation (>30 Gy)

Younger patients (<50 years)

High dose of radiation fractions (>2 Gy/day)

Presence and extent of tumour in or next to the heart

Lack of shielding

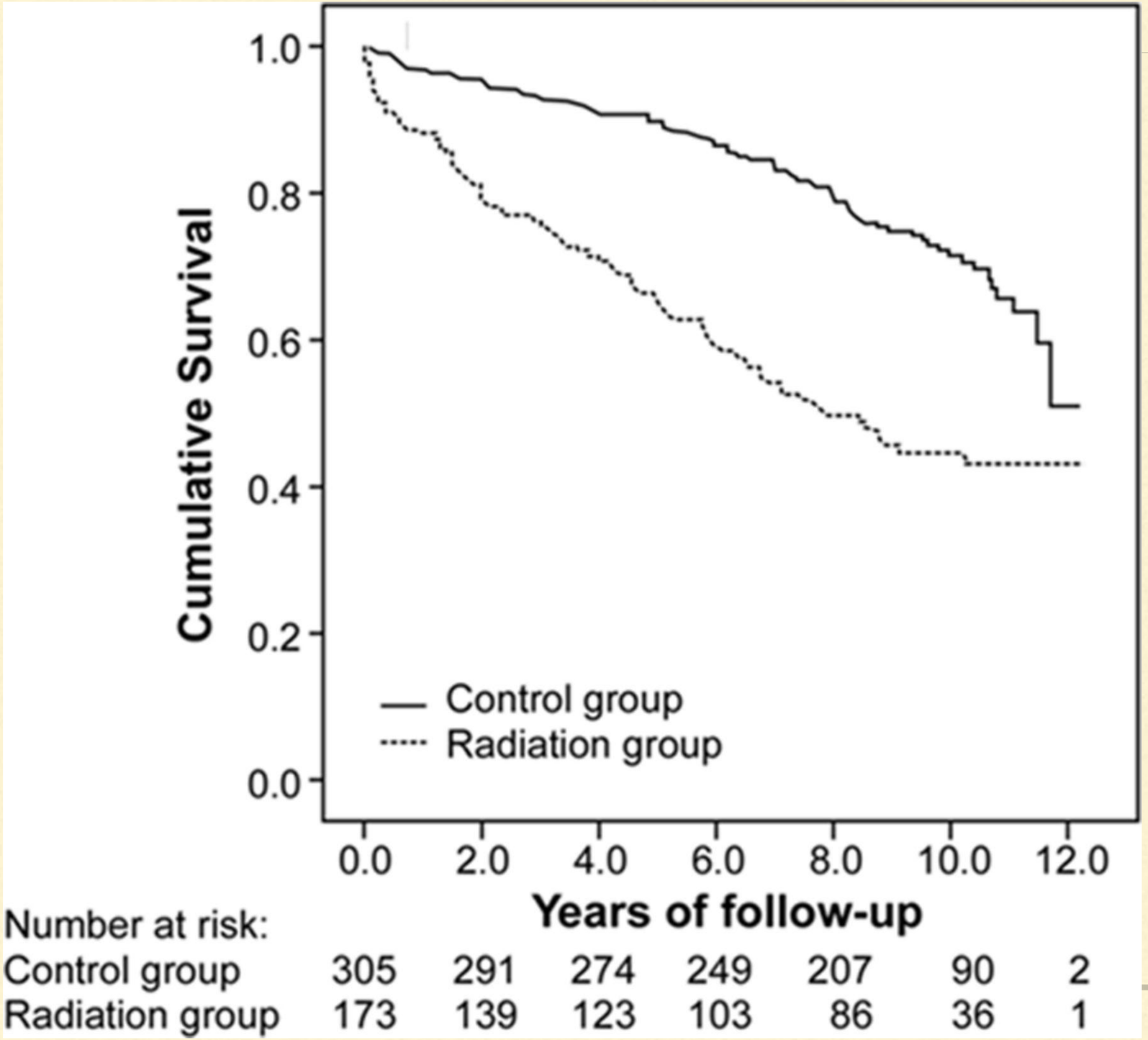
Concomitant chemotherapy (anthracyklines)

Cardiovascular risk factors (i.e. diabetes mellitus, smoking, overweight, moderate hypertension, hypercholesterolaemia)

Pre-existing cardiovascular disease

EACVI/ASE EXPERT CONSENSUS STATEMENT

Expert Consensus for Multi-Modality Imaging Evaluation of Cardiovascular Complications of Radiotherapy in Adults: A Report from the European Association of Cardiovascular Imaging and the American Society of Echocardiography -J Am Soc Echocardiog 2013



Long-Term Survival of Patients With Radiation Heart Disease Undergoing Cardiac Surgery
A Cohort Study

Willis Wu, Ahmad Masri, Zoran B. Popovic, Nicholas G. Smedira, Bruce W. Lytle, Thomas H. Marwick, Brian P. Griffin and Milind Y. Desai

Originally published9 Apr 2013https://doi.org/10.1161/CIRCULATIONAHA.113.001435Circulation. 2013;127:1476–1484

Pacienti s RADH 2.47x vyšší mortalita

Klinické, anatomické a procedurální faktory, které ovlivňují volbu způsobu léčby u jednotlivého pacienta

TAVI x AVR

ESC guidelines 2021 pro léčbu chlopenních vad

New or Revised	Recommendations in 2017 version	Class	Recommendations in 2021 version	Class
Revised	SAVR should be considered in asymptomatic patients with normal ejection fraction and none of the above-mentioned exercise test abnormalities if the surgical risk is low and one of the following findings is present: • Very severe aortic stenosis defined by a V_{max} >5.5 m/s. • Severe valve calcification and a rate of V_{max} progression ≥0.3 m/s/year. • Markedly elevated BNP levels (>3x age- and sex-corrected normal range) confirmed by repeated measurements without other explanations. • Severe pulmonary hypertension (systolic pulmonary artery pressure at rest >60 mmHg confirmed by invasive measurement) without other explanation.	IIa	Intervention should be considered in asymptomatic patients with LVEF >55% and a normal exercise test if the procedural risk is low and one of the following parameters is present: • Very severe aortic stenosis (mean gradient ≥60 mmHg or V_{max} ≥5 m/s). • Severe valve calcification (ideally assessed by CCT) and V_{max} progression ≥0.3 m/s/year. • Markedly elevated BNP levels (>3× age- and sex-corrected normal range) confirmed by repeated measurements and without other explanation.	IIa
Section 5. Recommended mode of intervention in patients with aortic stenosis				
Revised	The choice for intervention must be based on careful individual evaluation of technical suitability and weighing of risks and benefits of each modality. In addition, the local expertise and outcomes data for the given intervention must be taken into account.	I	The choice between surgical and transcatheter intervention must be based upon careful evaluation of clinical, anatomical and procedural factors by the Heart Team, weighing the risks and benefits of each approach for an individual patient. The Heart Team recommendation should be discussed with the patient who can then make an informed treatment choice.	I
Revised	SAVR is recommended in patients at low surgical risk (STS or EuroSCORE II <4% or logistic EuroSCORE I <10%, and no other risk factors not included in these scores, such as frailty, porcelain aorta, sequelae of chest radiation).	I	SAVR is recommended in younger patients who are low risk for surgery (<75 years and STS-PROM/ EuroSCORE II <4%) or in patients who are operable and unsuitable for transfemoral TAVI.	I
Revised	TAVI is recommended in patients who are not suitable for SAVR as assessed by the Heart Team.	I	TAVI is recommended in older patients (≥75 years), or in those who are high-risk (STS-PROM/ EuroSCORE II >8%) or unsuitable for surgery.	I
Revised	In patients who are at increased surgical risk (STS or EuroSCORE II ≥4% or logistic EuroSCORE I ≥10%, or other risk factors not included in these scores such as frailty, porcelain aorta, sequelae of chest radiation), the decision between SAVR and TAVI should be made by the Heart Team according to the individual patient characteristics, with TAVI being favoured in elderly patients suitable for transfemoral access.	I	SAVR or TAVI are recommended for remaining patients according to individual clinical, anatomical and procedural characteristics.	I
New			Non-transfemoral TAVI may be considered in patients who are inoperable for SAVR and unsuitable for transfemoral TAVI.	IIb
Section 6. Indications for intervention in severe primary mitral regurgitation				
Revised	Surgery is indicated in asymptomatic patients with LV dysfunction (LVESD≥45 mm and/or LVEF≤60%).	I	Surgery is recommended in asymptomatic patients with LV dysfunction (LVESD ≥40 mm and/or LVEF ≤60%).	I

ZÁVĚR

- Pacienti s pozdní kardiotoxicitou po onkolog T mají vysoké riziko postižení srdce - kombinace **fibrózy myokardu** (restriktivní KMP), **akcelerace ICHS**, postižení **perikardu**, a kombinované postižení **chlopenního aparátu**
- Velmi špatný průběh i hojení **po KCH zákroku, 2.5x vyšší mortalita** po KCH zákroku
- Zvažovat **vždy alternativní (ne KCH) cestu**

Děkuji za pozornost