

# Devices in heart failure case

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# CASE

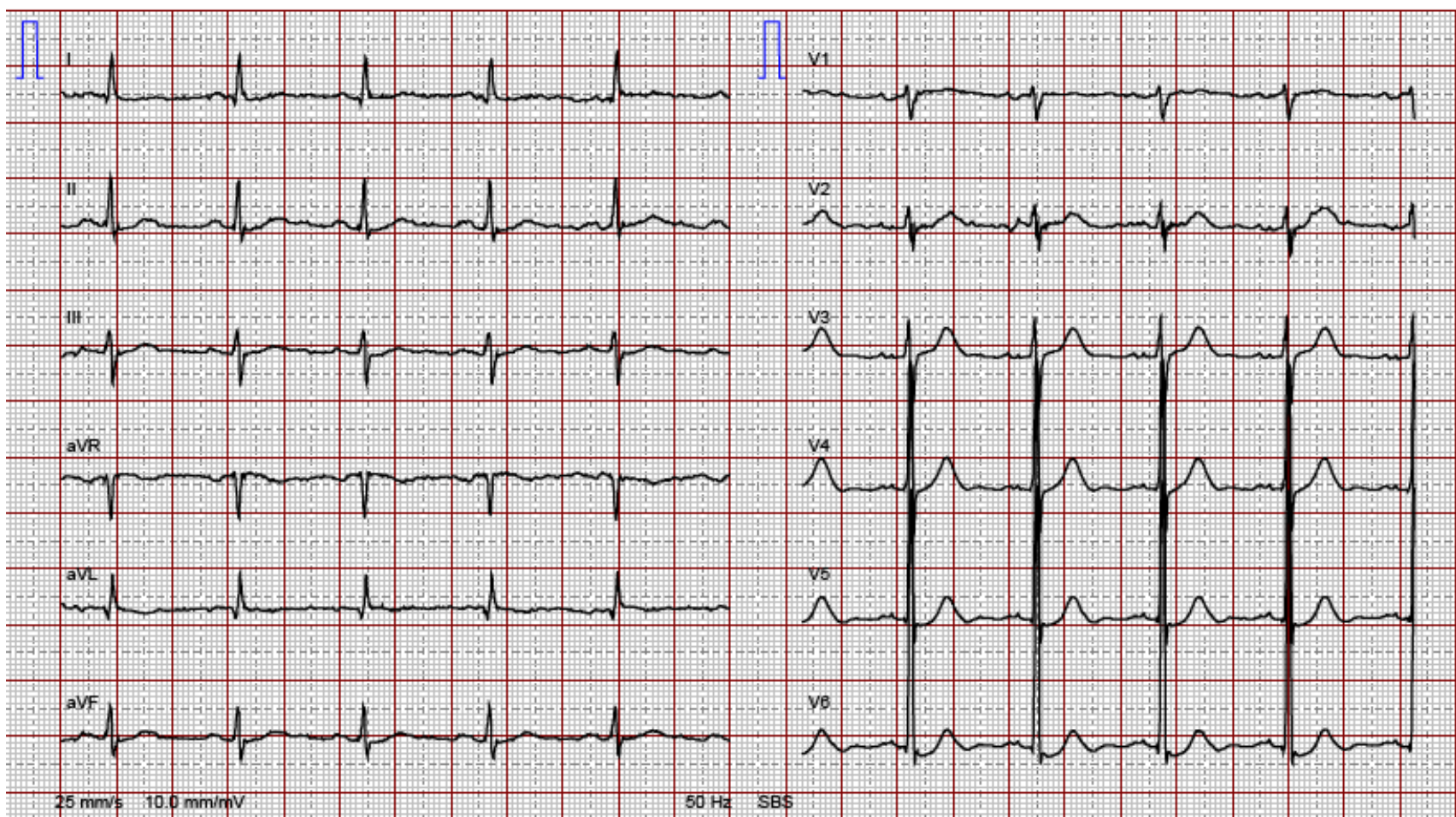
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**76 y/o male with progression of dyspnea (NYHA III) over 3 months**

- **medical history: CAD with CABG 9 years ago, CKD, COPD (GOLD II), NIDDM, art. hypert., AFib**
- **current medications: phenprocoumon, B-Blocker, ACEI, diuretic, statin**
- **last TTE 3 years ago: ICMP (LVEF 35 %), moderate AS (AVA 1.4 cm<sup>2</sup>, mean gradient 17 mmHg), diastolic dysfunction (grade I)**
  - **presents to GP who documents:**
    - **peripheral edema ++**
    - **2/6 systolic murmur**
    - **ECG: no significant ST-changes**
  - **Referral to regional hospital for further evaluation**

# 12-lead ECG

## ECG

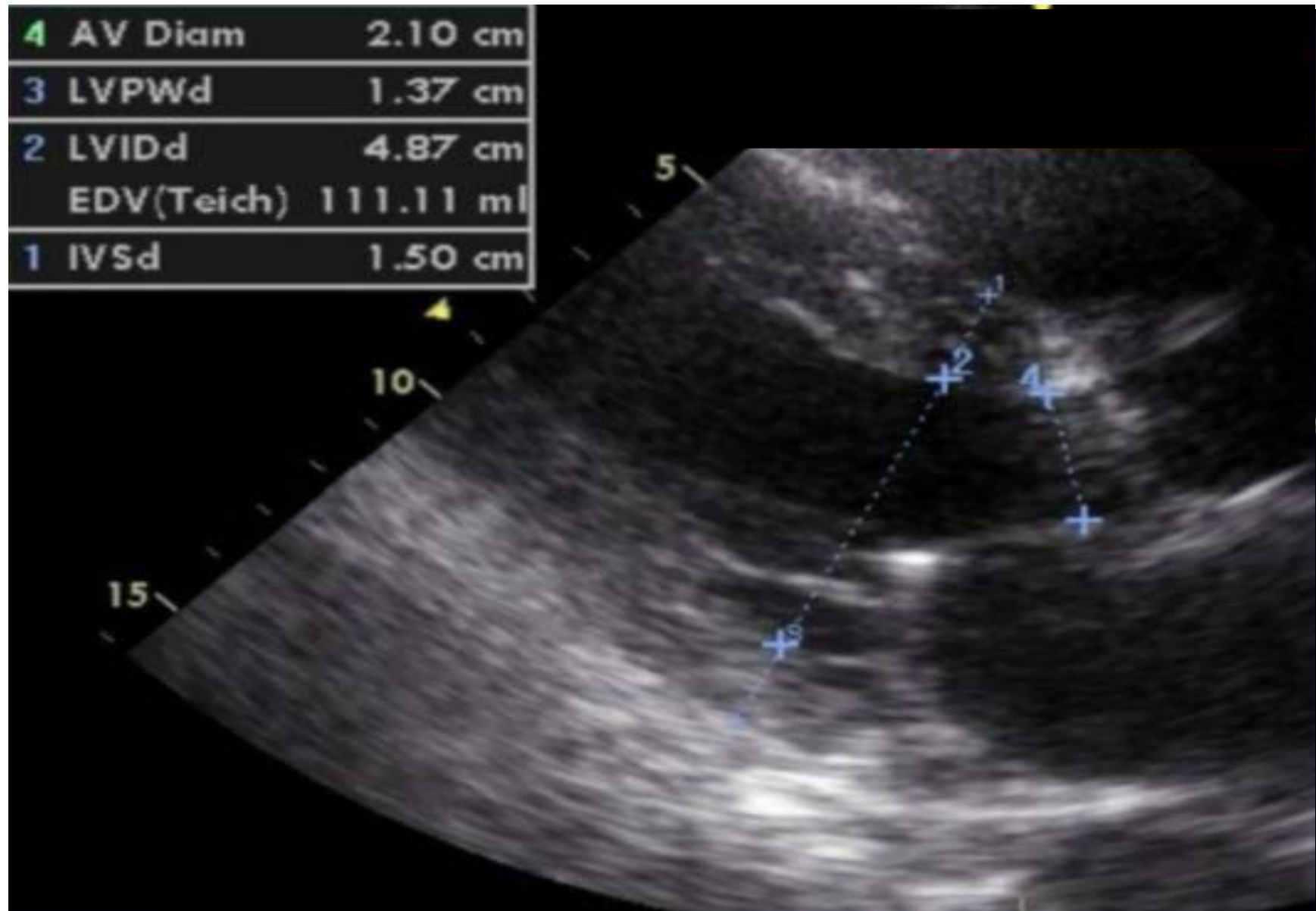


# Lab work

CBC	normal
Hb	0.7 cm2
CRP	4 ng/l (< 5 ng/l)
creatinine	<b>142 umol/l</b> ( 62-106 umol/l)
hsTroponin	<b>0.034 ug/l</b> (< 0.014 ug/l)
NT proBNP	<b>1067 ng/l</b> (< 500 ng/l)
sodium	139 mmol/l (136-145 mmol/l)
potassium	4.2 mmol/l (3.3-4.3 mmol/l)
AST	44 U/l (< 50 U/l)
ALT	36 U/l (< 50 U/l)

# CASE 1

4 AV Diam	2.10 cm
3 LVPWd	1.37 cm
2 LVIDd	4.87 cm
EDV(Teich)	111.11 ml
1 IVSd	1.50 cm



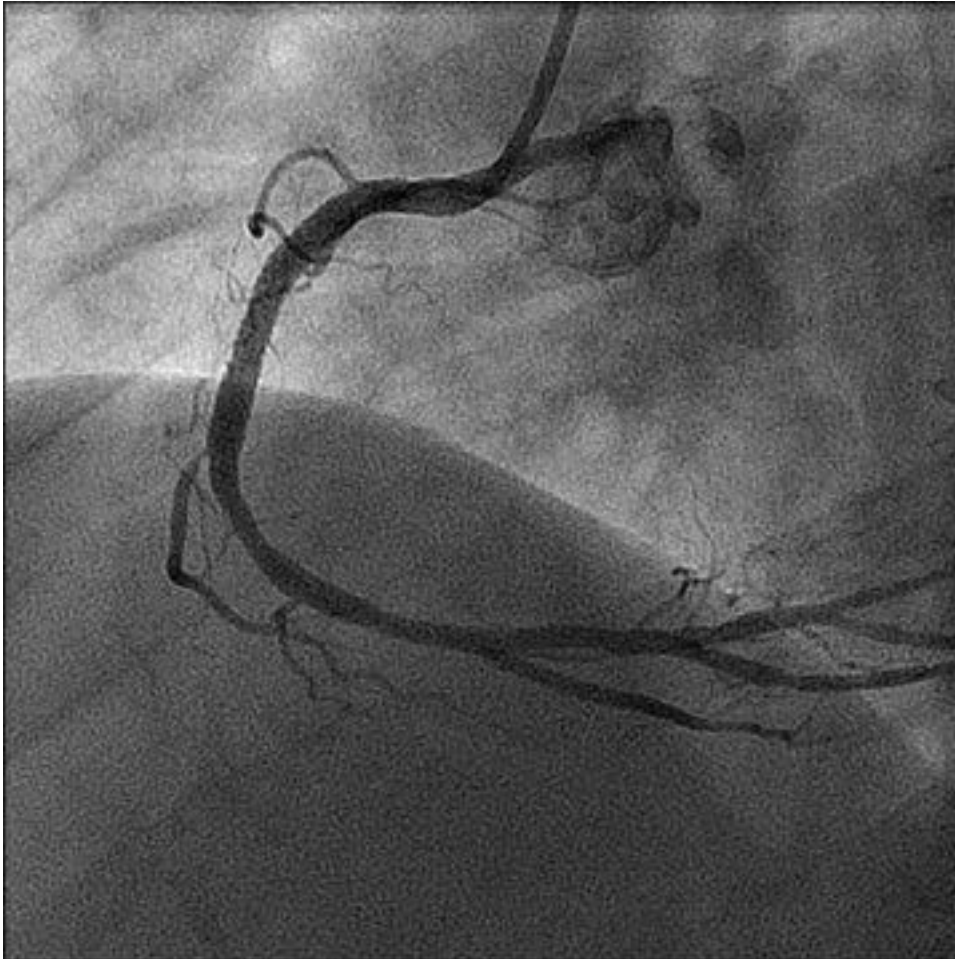
# TTE results

<b>LVEF</b>	<b>27 %</b>
AVA	0.7 cm <sup>2</sup>
AVA index	0.37 cm <sup>2</sup> /m <sup>2</sup>
mean gradient	26 mmHg
Peak velocity	3.17 m/s
Aortic valve calcification	severe
Aortic regurgitation	mild
Mitral regurgitation	mild
Tricuspidal regurgitation	none
Anulus diameter	23 mm

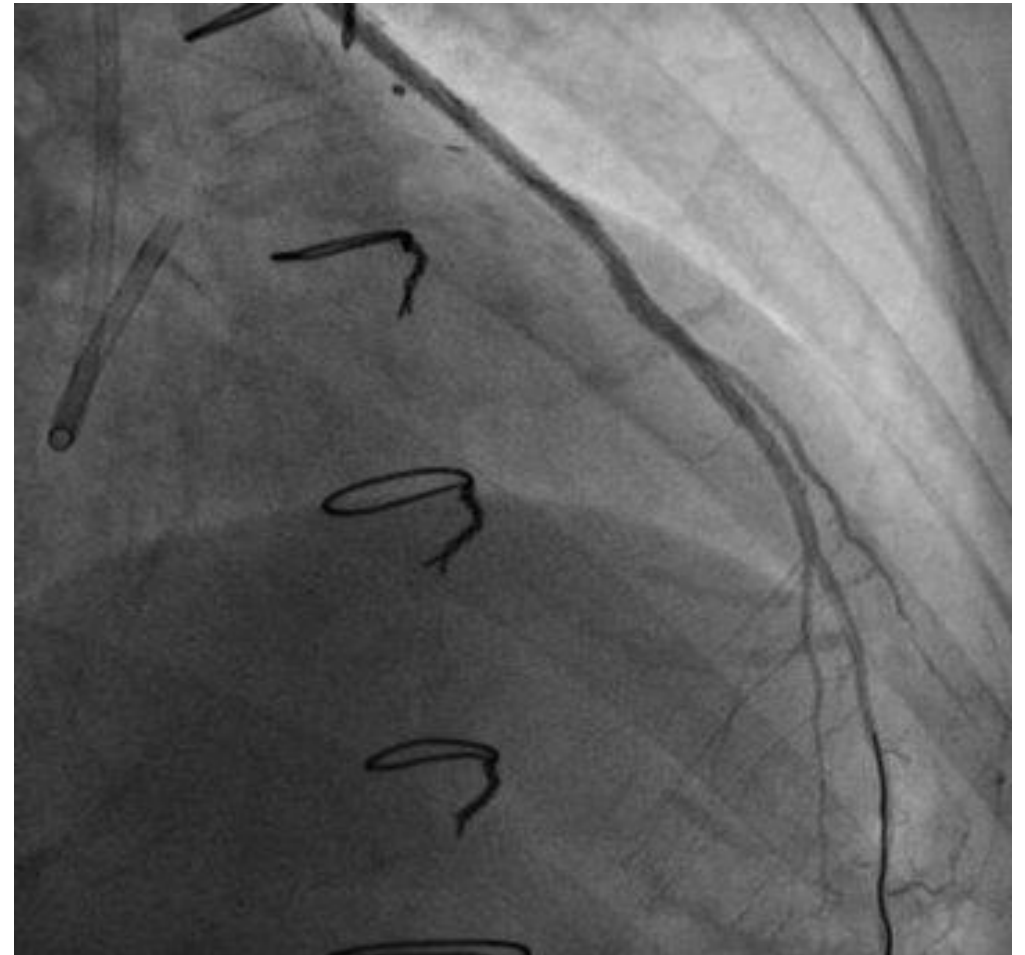
# CASE 1

## Coronary angiogram

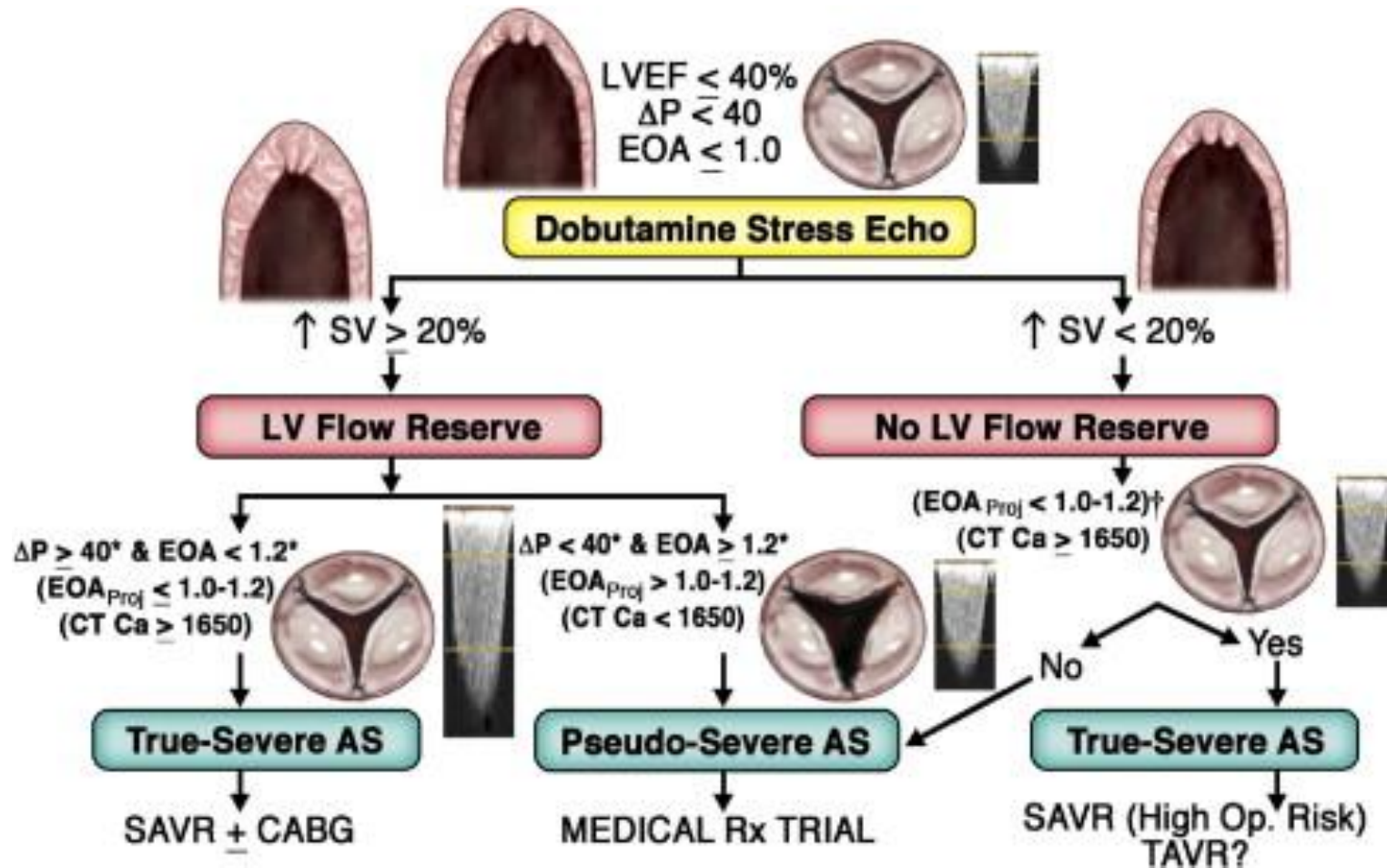
RCA



LIMA ad LAD



# Stress echo





# Heart team decision

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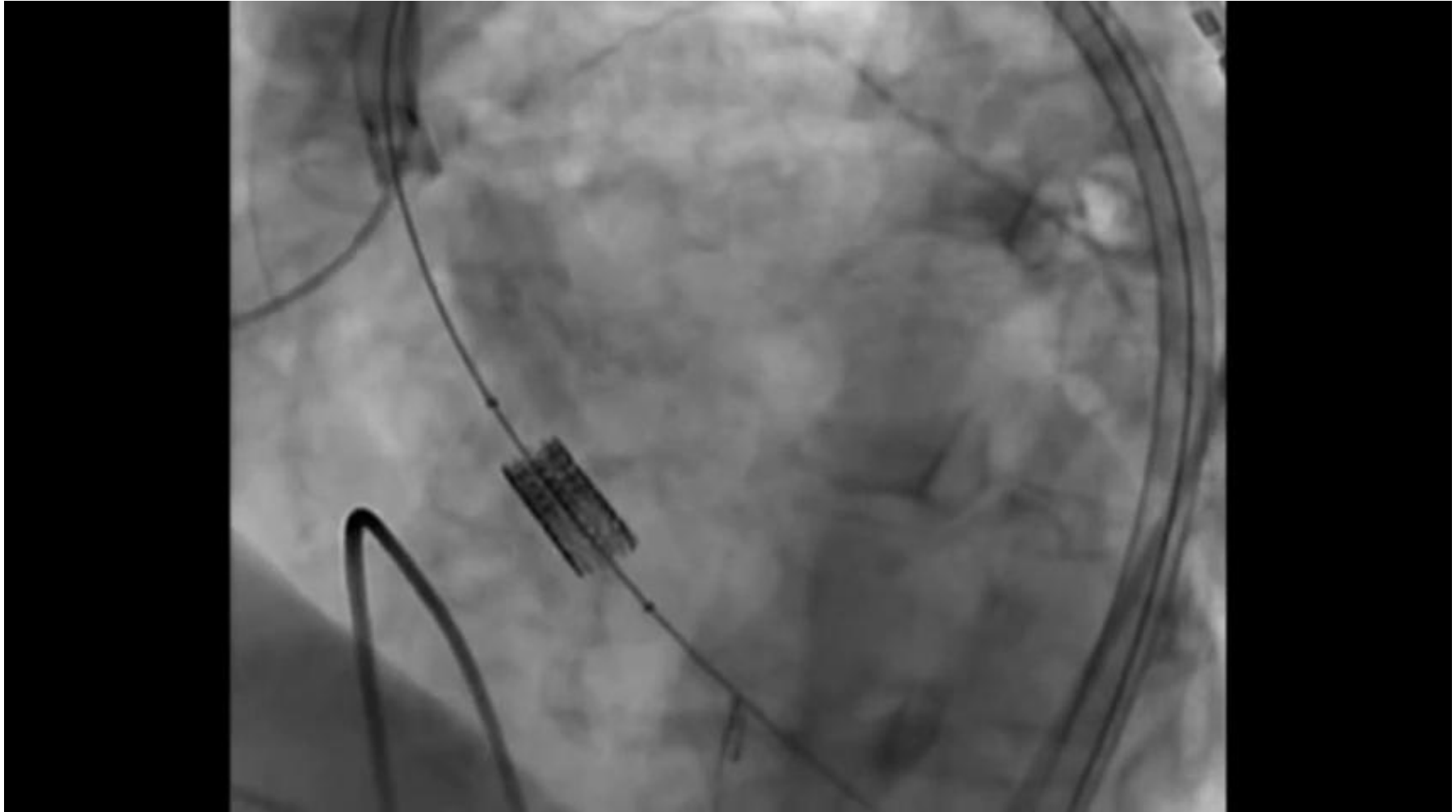
## High perioperative risk profile:

- Euro Score II 18.6%
- STS 8%

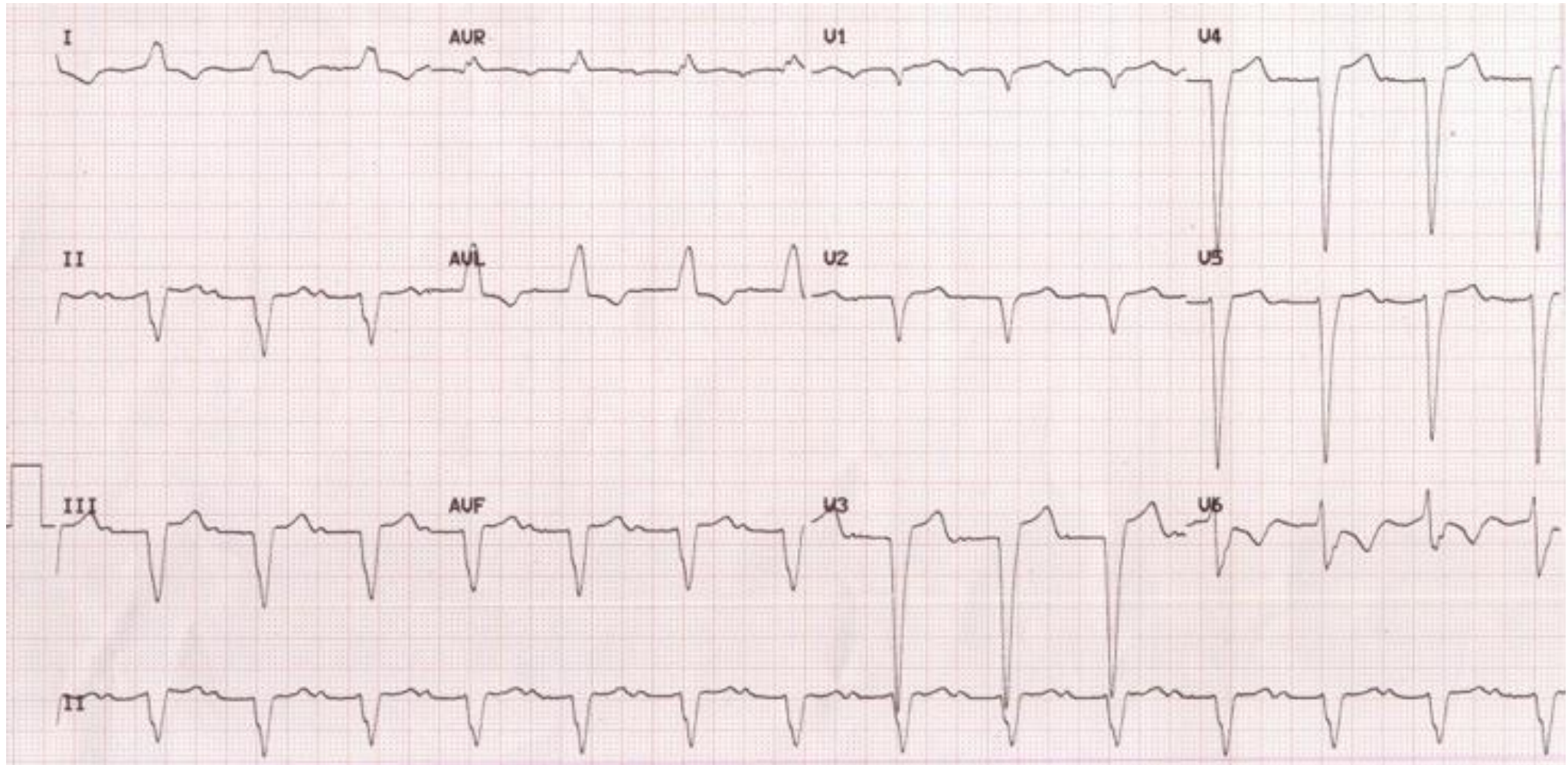
**TAVI EDWARDS SAPIEN XT, 26 mm**

# TAVI

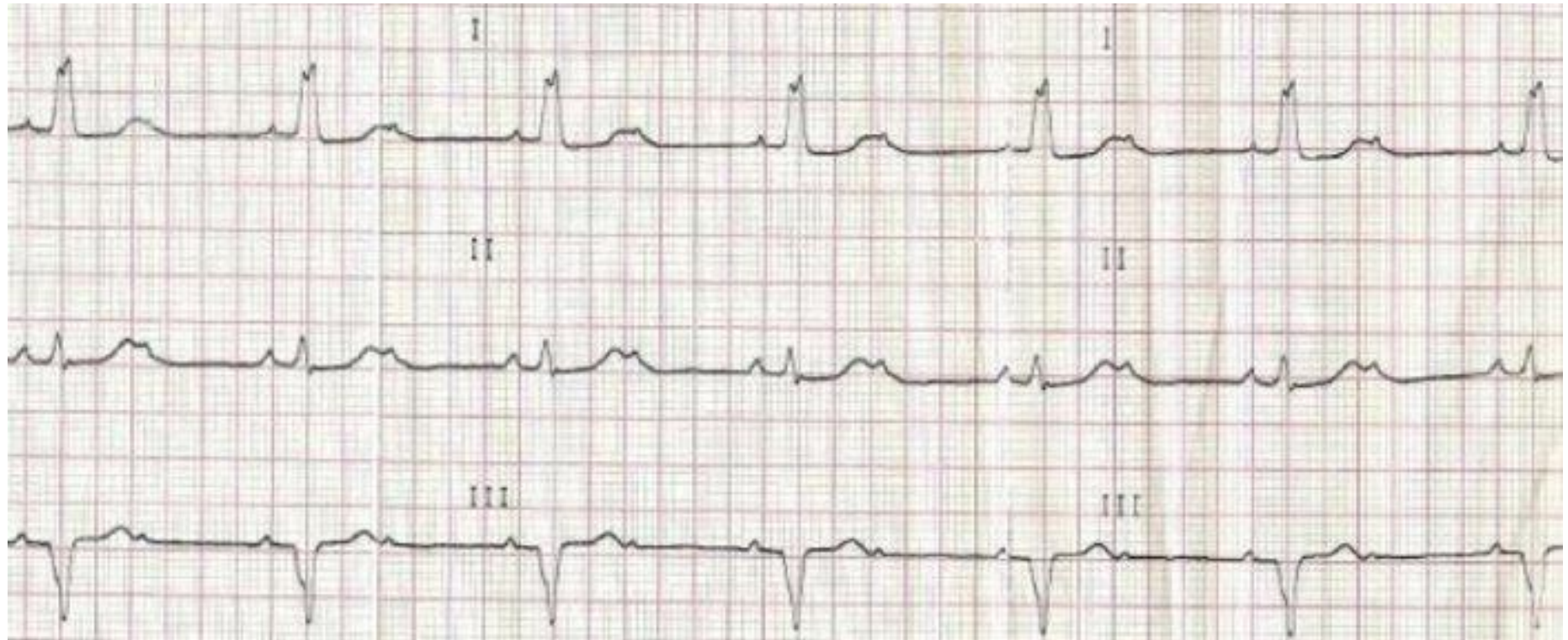
fluoroscopy



# Postprocedural ECG



# ECG strip IMC ward



# Which device to choose ?

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**Single  
chamber PM**

**Single  
chamber  
ICD**

**Dual  
chamber  
PM**

**Dual  
chamber  
ICD**

**CRT-P**

**CRT-D**

# Guidelines

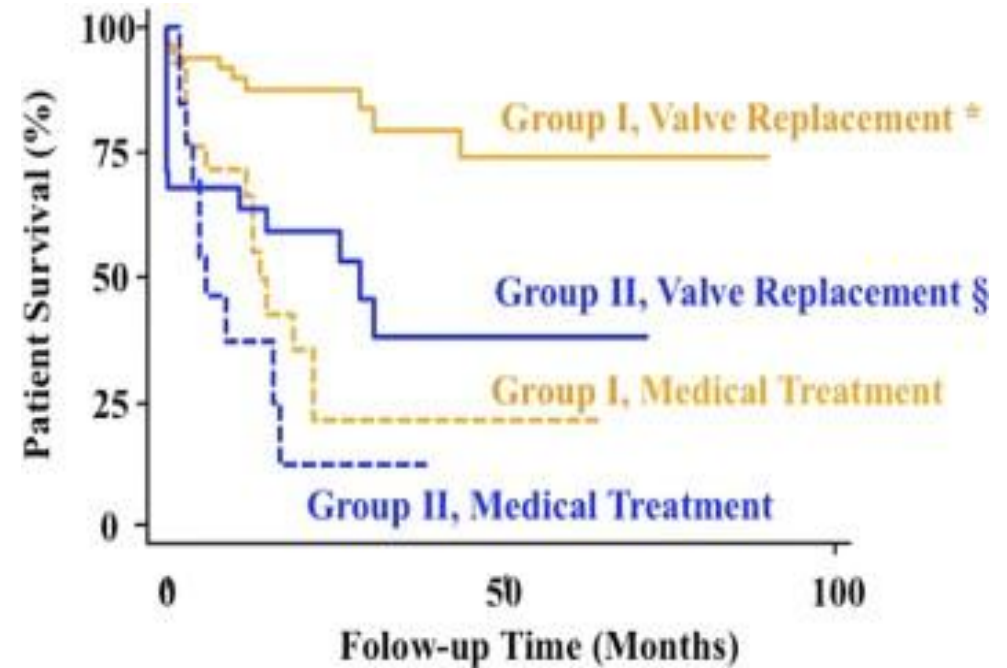
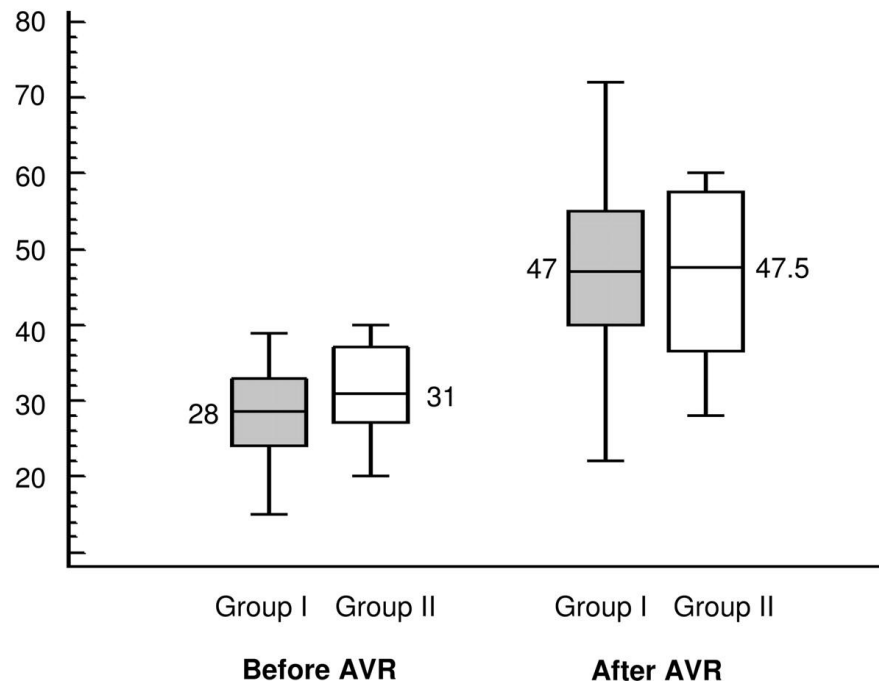
Recommendations	Class	Level
<p><b>1) High degree or complete AV block after cardiac surgery and TAVI.</b> A period of clinical observation up to 7 days is indicated in order to assess whether the rhythm disturbance is transient and resolves. However, in case of complete AV block with low rate of escape rhythm this observation period can be shortened since resolution is unlikely.</p>	I	C

## Upgrade or de novo CRT in patients with PM Indication

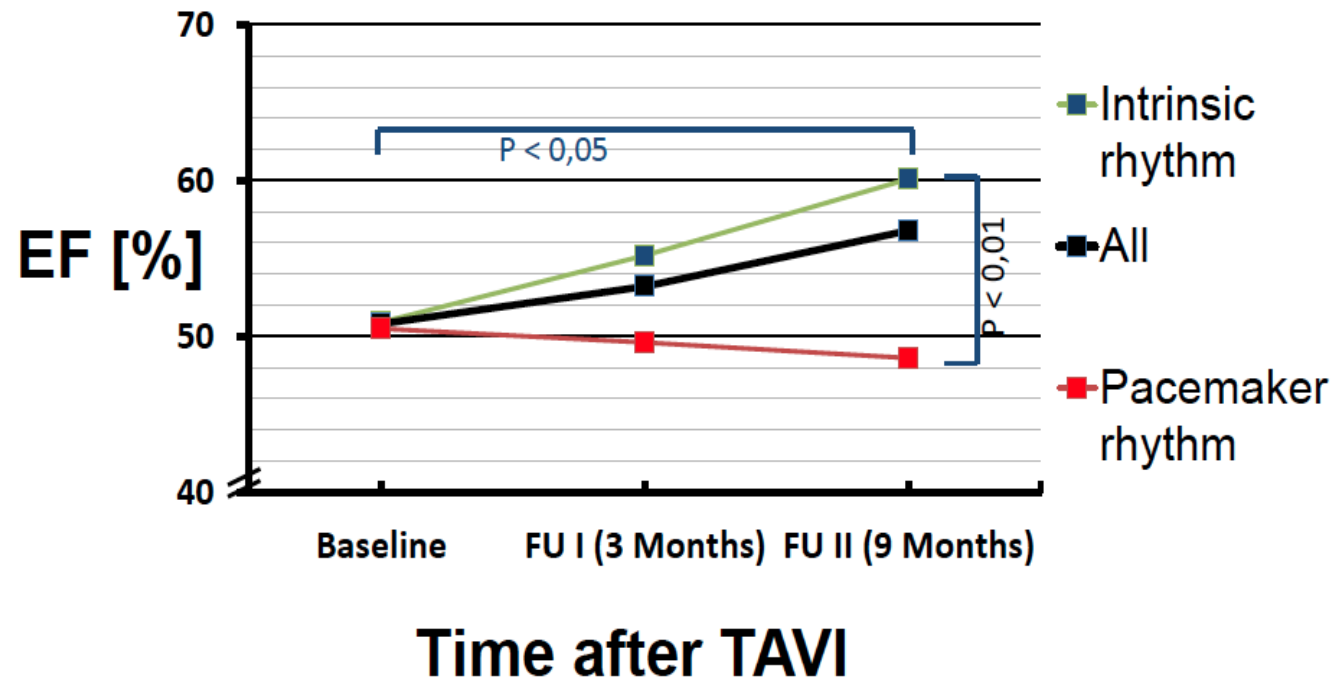
Recommendations	Class	Level
<p><b>1) Upgrade from conventional PM or ICD</b> is indicated in HF patients with LVEF &lt;35% and high percentage of ventricular pacing who remain in NYHA class and ambulatory IV despite adequate medical treatment.</p>	I	B
<p><b>2) "De novo" implantation</b> should be considered in HF patients, reduced EF and expected high percentage of ventricular pacing in order to decrease the risk of worsening HF.</p>	IIa	B

# AVR improves outcome in LF-LG AS with rEF and without flow reserve

LVEF (%)

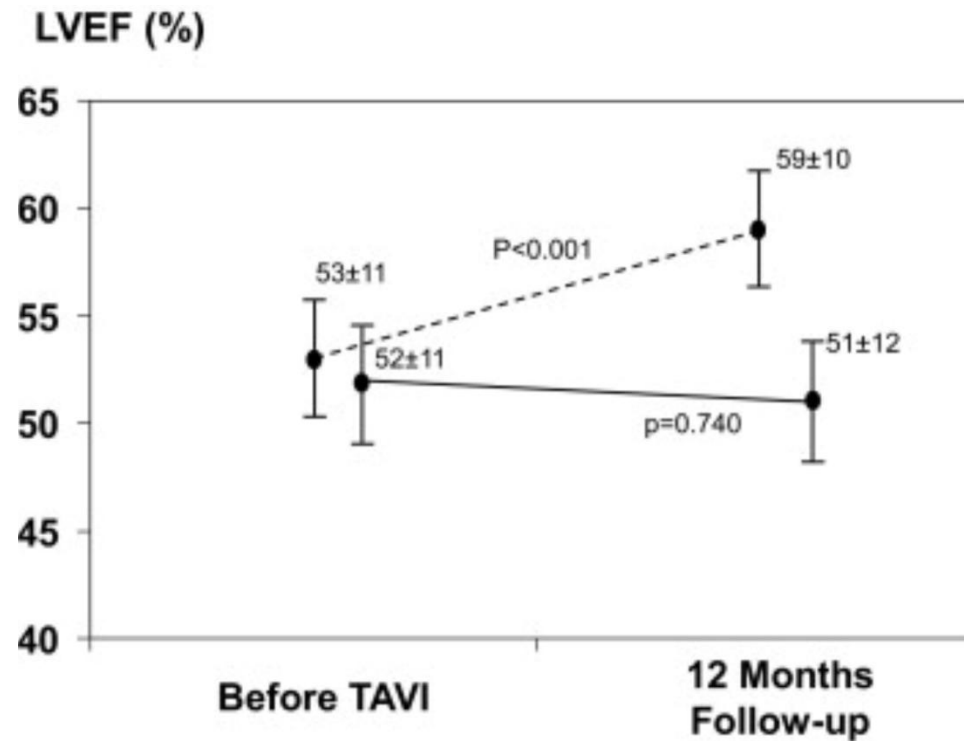


# Adverse effect of RV pacing on LV remodelling after TAVI





# New LBBB abolishes improvement of LVEF after TAVI



# CASE

## CRT-P Implantation

