6th iHEF iCARD

The 6th Indonesian Symposium on Heart Failure and Cardiometabolic Disease

THE ECHO-DRIVEN DECISION IN HEART FAILURE MANAGEMENT

CASE-BASED DISCUSSION

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11-13 JUNE 2026

Sheraton Grand Jakarta, Gandaria City

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CASE 1

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CASE ILLUSTRATION

Patient	Mr. X · Male, 58 years old
Chief Complaint	Progressive dyspnea over 2 weeks, now at rest
Associated	3-pillow orthopnea · PND · Bilateral leg swelling × 5 days
Denies	Chest pain · Fever · Recent illness
Past History	Hypertension · Type 2 DM

Physical Examination

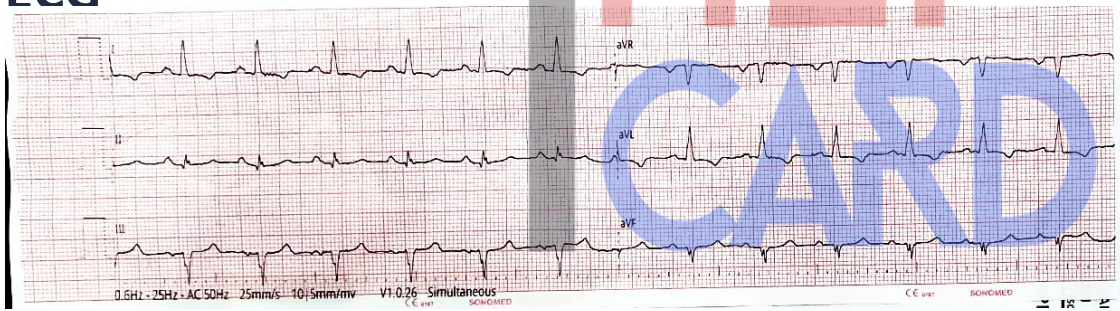
Vital Signs

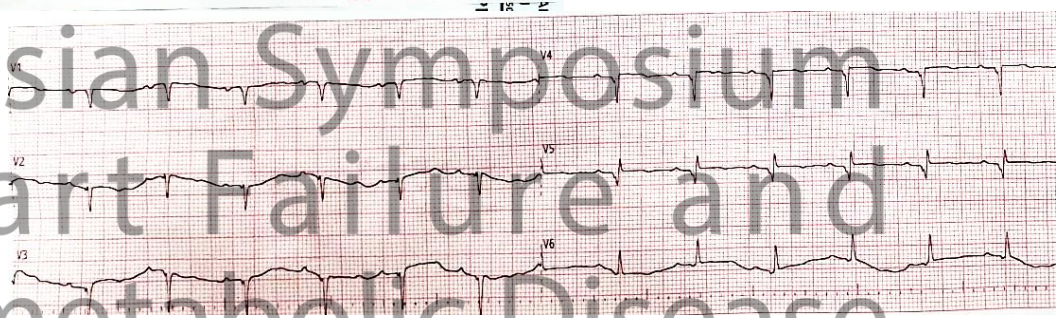
BP	162 / 98 mmHg
HR	114 bpm · Sinus Tachycardia
RR	24 / min
SpO_2	89% on Room Air
Temp	37.2 °C

Clinical Findings

- Raised JVP ~14 cmH_2O
- S3 gallop on auscultation
- Bibasal crackles
- 3+ pitting oedema — to knees
- Diaphoretic, mildly distressed

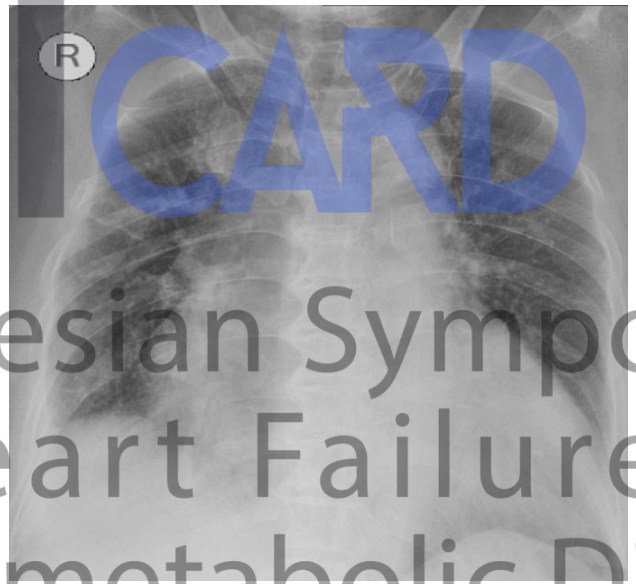
ECG





Sinus tachycardia · Old myocardial infarction at anterior, inferior, and lateral walls

Chest X-Ray



Cardiomegaly with signs of congestion

Lab Results

NT pro BNP	2,140 pg/mL	Na^+	133 mEq/L
Creatinine	1.4 mg/dL	eGFR	54 mL/min
Troponin I	0.08 ng/mL	HbA1c	8.2%

Q1

Clinical profile: "warm and wet" with elevated BP (162/98), SpO_2 89%, crackles, raised JVP, oedema. What is the most appropriate first-line treatment in the ER?

A IV furosemide alone

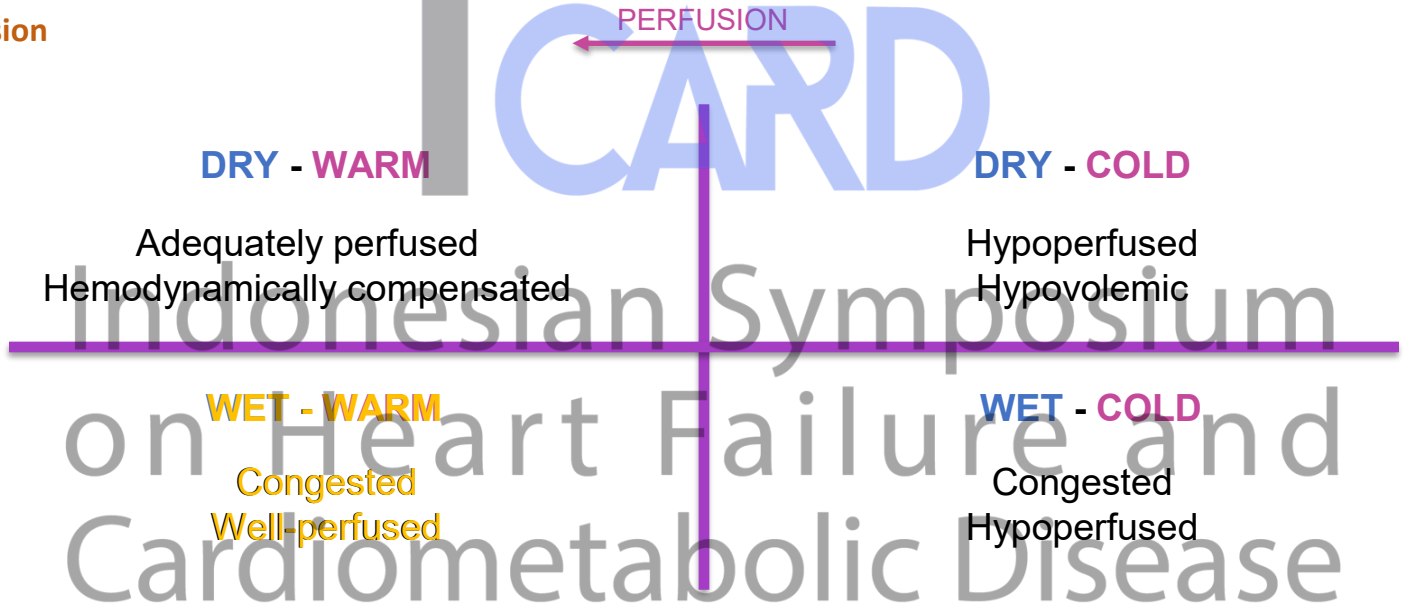
B IV furosemide PLUS IV nitrates

C IV dobutamine

D Oral beta-blocker

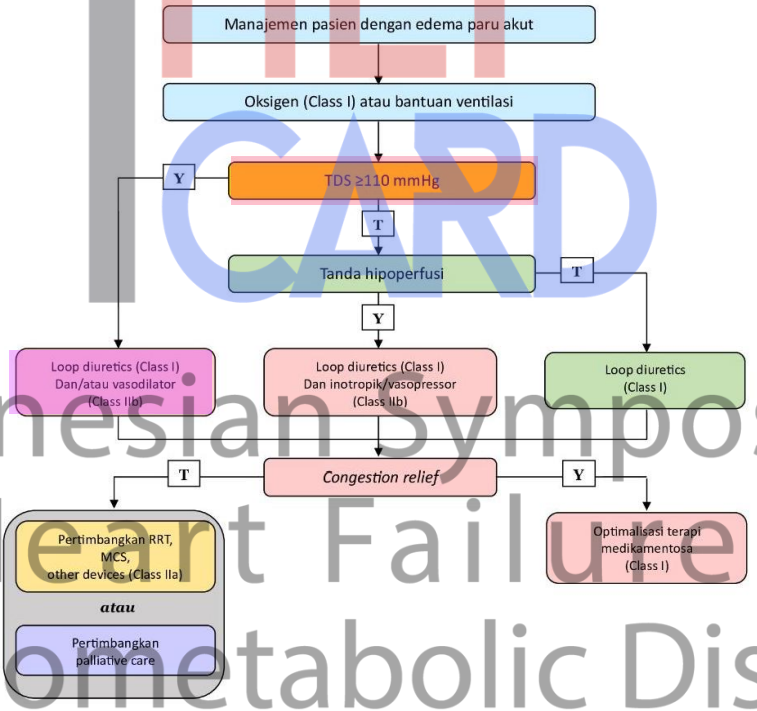
Q1 ✓ Answer B: IV furosemide PLUS IV nitrates

Discussion



Q1 ✓ Answer B: IV furose

Discussion



Q1 ✓ Answer B: IV furosemide PLUS IV nitrates

Discussion

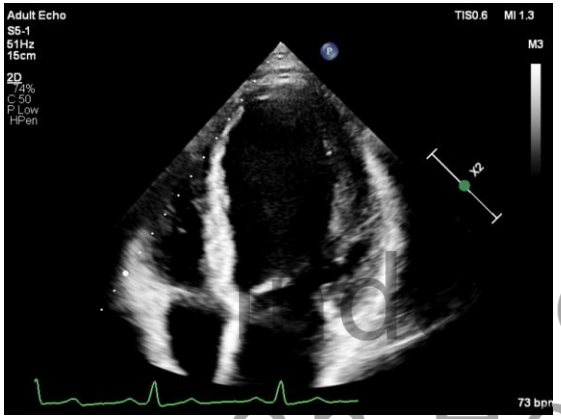
How IV nitrates work in acute heart failure:

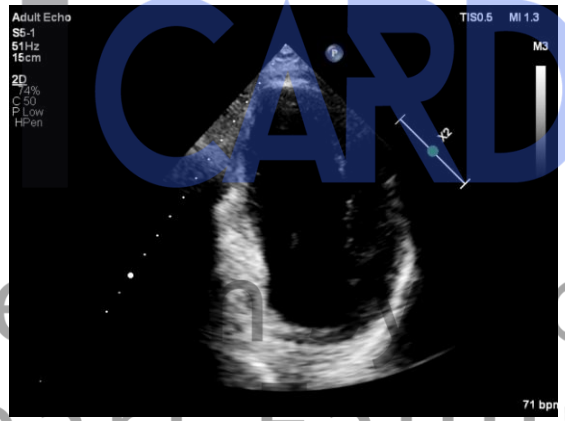
- At lower doses → venodilation → ↓ preload → relieves pulmonary congestion
- At higher doses → arterial dilation → ↓ afterload → reduces work of the failing heart

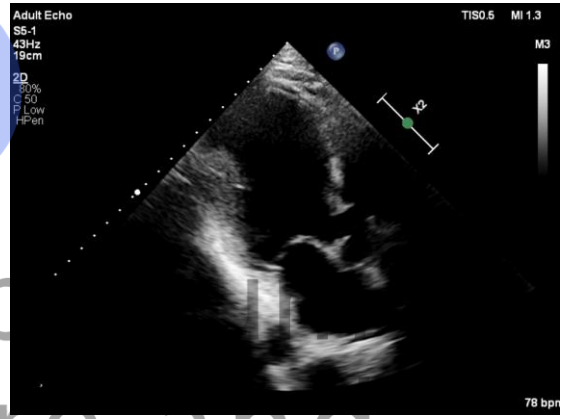
Baseline Echo

- Dilated left atrium and left ventricle
- Reduced LV systolic function, EF 28% (Simpson's Biplane)
- RWMA (+)
- Eccentric LVH with grade II diastolic dysfunction
- Normal RV contractility, TAPSE 1.7 cm
- Moderate functional MR

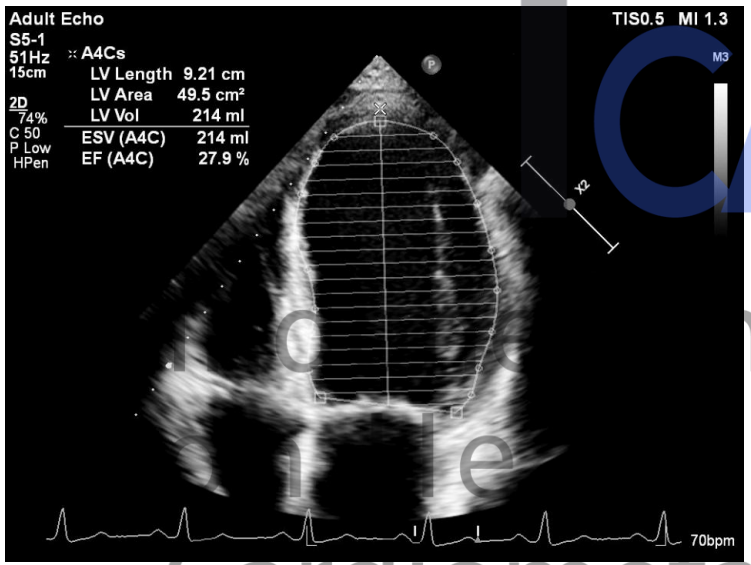
Baseline Echo

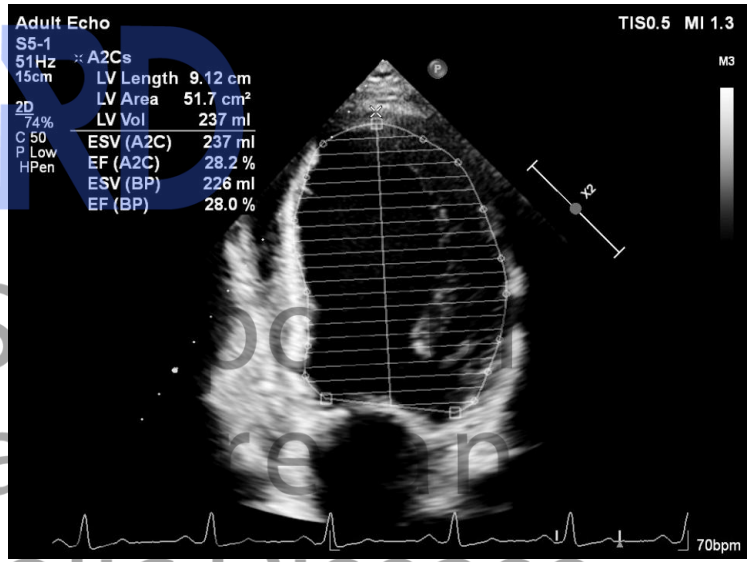




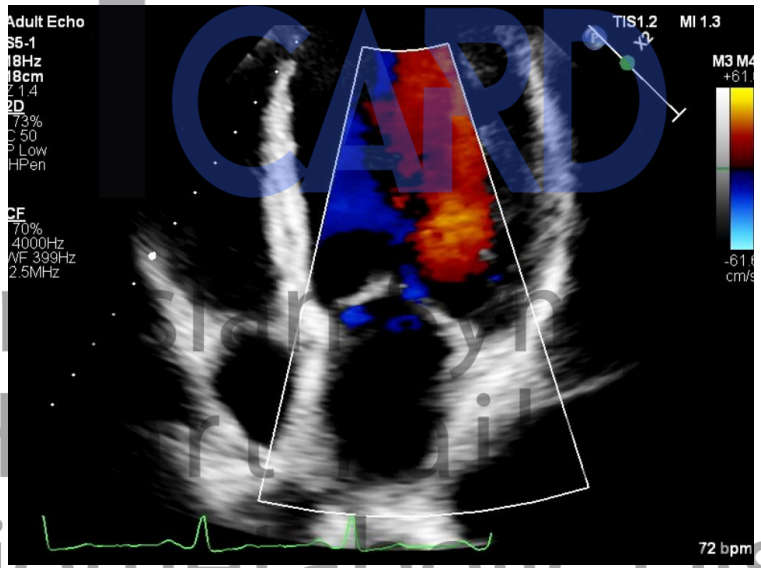


Baseline Echo





Baseline Echo



Q2

Classify the patient based on EF.
After IV nitrates + diuretics, patient improving but still mildly wet.
Which GDMT should you initiate EARLY during admission?

A **HFmrEF** — start only SGLT2 inhibitor for now

B **HFrEF** — wait until fully dry before starting any GDMT

C **HFrEF** — start SGLT2i + ARNI (or ACEi/ARB) + MRA during admission

D **HFpEF** — start a thiazide diuretic

Q2 ✓ Answer C: HFrEF — start SGLT2i + ARNI + MRA during admission

Discussion

HF with reduced EF (HFrEF):

- HF with LVEF ≤40%

HF with mildly reduced EF (HFmrEF):

- HF with LVEF 41–49%

HF with preserved EF (HFpEF):

- HF with LVEF ≥50%

HF with improved EF (HFimpEF):

- HF with a baseline LVEF ≤40%, a ≥10 point increase from baseline LVEF, and a second measurement of LVEF >40%

Bozkurt B, et al. Eur J Heart Fail. 2021 Mar;23(3):352-380.

Q2 ✓ Answer C: HFrEF — start SGLT2i + ARNI + MRA during admission

Discussion

Randomized Controlled Trial. Lancet. 2022 Dec 3;400(10367):1938-1952.

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Recommendation	Class[a]	Level[b]
An intensive strategy of initiation and rapid up-titration of evidence-based treatment before discharge and during frequent and careful follow-up visits in the first 6 weeks following a HF hospitalization is recommended to reduce the risk of HF rehospitalization or death.[c,d,e] 16	I	B

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Rapid **DMT**
reduc

Hadiza Saidu [13], Etienne Gayat [14], Peter S Pang [15], Jelena Celutkiene [16], Gad Cotter [2]

Q2 ✓ Answer C: HFrEF — start SGLT2i + ARNI + MRA during admission

Discussion

What to monitor while initiating each drug

SGLT2i	ARNI	MRA
- Safest pillar. No BP/HR effect - Check eGFR (use if ≥20); small initial dip 5–10% expected	- PIONEER-HF — safe in hospital - Check SBP ≥100, eGFR, K^+ - 36-hour wash-out after ACEi	- Diuretic + disease-modifying - Check K^+ + Cr at baseline and 1 week

DAY 3 OF ADMISSION

Patient is dry and warm — euvolemic, stable

BP 138/86 · HR 84 (sinus) · SpO_2 97% RA · No crackles · No oedema

Already on: dapagliflozin · sacubitril/valsartan · spironolactone

Q3 **Patient stable: BP 138/86, HR 84, SpO_2 97%. Already on dapagliflozin + sacubitril/valsartan + spironolactone. What medication should you start next?**

A Start **carvedilol** 3.125 mg twice daily

B Add **ivabradine** 5 mg twice daily for heart rate control

C Add **digoxin** for additional rate control

D **Hold** any new medication — wait 1 month before adding anything

Q3 ✓ Answer A: Start carvedilol 3.125 mg twice daily

Discussion

Why a beta-blocker NOW?

COPERNICUS trial — beta-blockade gives mortality benefit even with EF <25%, PROVIDED the patient is stable at initiation.

STRONG-HF supports initiation before discharge.

This patient meets all criteria: euvolemic, no IV diuretics, no resting tachycardia, no symptomatic hypotension.

Start LOW, go SLOW.

Q3 — Why carvedilol may be preferred for THIS patient

Carvedilol is a third-generation BB with non-selective β1/β2 + α1-adrenergic blockade + antioxidant properties.

Three patient-specific reasons:

1 **Persisting elevated BP (138/86) despite optimised ARNI + diuretics**

The α1-adrenergic blockade adds vasodilation — lowers BP more effectively than pure β1-selective agents.
Clinically advantageous in hypertensive HFrEF where additional afterload reduction is desirable.

2 **Type 2 diabetes mellitus**

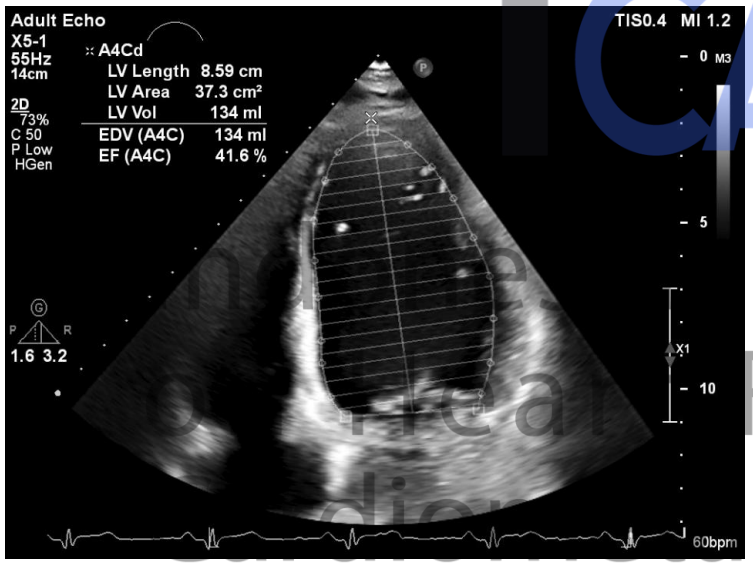
GEMINI trial (Bakris et al., JAMA 2004): carvedilol improved insulin sensitivity compared with metoprolol in hypertensive diabetic patients, with less worsening of glycaemic control.

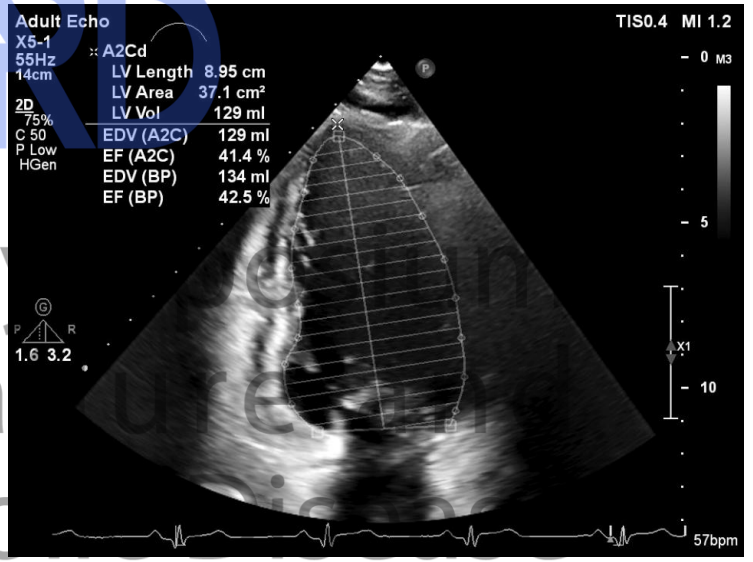
3 **Ischaemic cardiomyopathy (anterior OMI)**

The **CAPRICORN trial**: carvedilol reduced mortality in post-MI LV dysfunction (HR 0.77).
Carvedilol's antioxidant properties and α1-blockade may reduce oxidative stress and afterload — both relevant in post-infarct LV remodelling.

Follow-Up Echo — 6 Months on Optimised GDMT

Carvedilol uptitrated to target · ARNI · MRA · SGLT2i · NYHA Class I





Follow-Up Echo — 6 Months on Optimised GDMT

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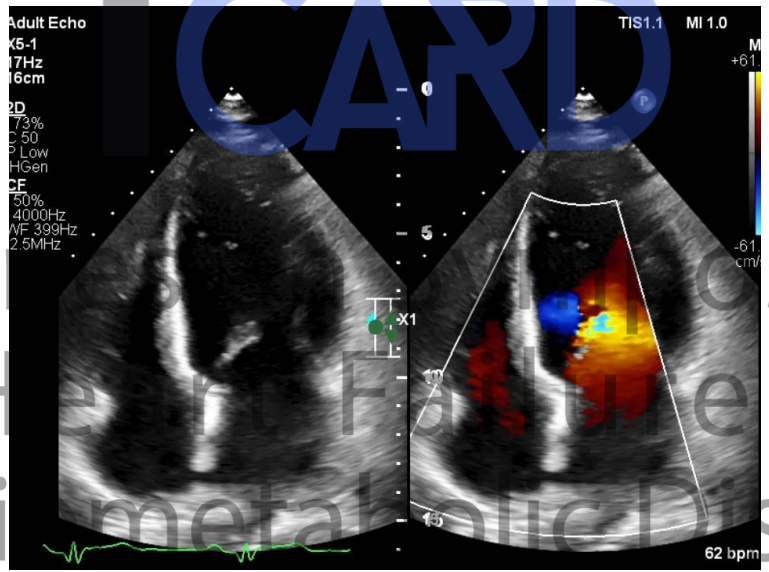

Q4

6 months later: NYHA Class I, feels well. Repeat echo: EF 43% (was 28%). Based on the universal definition of HF, what category does this patient now belong to?

A. **HFpEF** — heart failure with preserved EF

B. **HFmrEF** — heart failure with mildly reduced EF

C. **HFimpEF** — heart failure with improved EF

D. Heart failure **recovered** — no longer classified

Q4 ✓ Answer C: HFimpEF — heart failure with improved EF

Discussion

Definition of HFimpEF (all criterias required):

1. Baseline LVEF ≤40% (i.e. previously HFrEF)
2. ≥10-point absolute increase in LVEF from baseline
3. Second LVEF measurement >40%

This patient meets all three:

- Baseline EF 22% (≤40% ✓)
- Improvement of 24 points (≥10 ✓)
- Current EF 46% (>40% ✓)

Q5

Now that the patient meets criteria for HFimpEF and feels well, what is the most appropriate decision regarding his medications?

A Slowly stop GDMT one drug at a time, starting with the beta-blocker

B Stop everything

C Switch to HFpEF treatment protocol

D Continue all four GDMT pillars indefinitely

Q5 ✓ Answer D: Continue all four GDMT pillars indefinitely

Discussion

HFimpEF is remission, NOT cure.

TRED-HF trial*:

Patients with dilated CMP whose EF had recovered to >50% on GDMT were randomised to continue or progressively withdraw their medications.

Results:

- 40% of those who stopped GDMT relapsed within 6 months
- Patients who continued GDMT did not relapse
- Long-term follow-up: >65% met relapse criteria over 6+ years, even those re-started on low-dose GDMT after the trial

**Halliday et al., Lancet 2019.*

Key Teaching Pearls — Case 1

1. Echo as Diagnostic Anchor

Clinical findings raise the suspicion; echo findings confirm HFrEF and trigger the GDMT pathway.

2. Echo Tracks Therapy Response

LV size, EF, and functional MR included, all change with effective GDMT. Serial echo measures whether your therapy is working — and how to continue optimisation.

3. Echo Defines HFimpEF

The 6-month echo follow-up meets the Universal Definition criteria for HFimpEF → your evidence to continue all four pillars indefinitely (TRED-HF).

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CASE 2

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CASE ILLUSTRATION

Patient	Mrs. Y · Female, 67 years old · BMI 33 (obese)
Chief Complaint	Progressive exertional dyspnea over 3 months — NYHA III
Associated	Fatigue · Lower-limb swelling · Orthopnea (mild, 2 pillows)
Denies	Chest pain · Syncope · Recent illness
Past History	Hypertension (on amlodipin and candesartan) · Type 2 DM

Physical Examination

Vital Signs

BP	158 / 92 mmHg
HR	92 bpm · regular
RR	20 / min
SpO_2	94% on Room Air

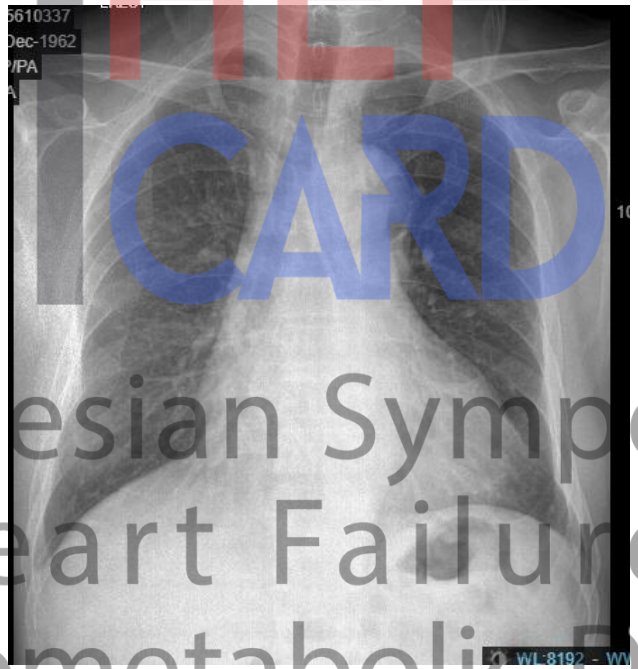
Clinical Findings

- Mildly raised JVP
- Bibasal fine crackles
- Trace pitting oedema (ankles)

ECG

SR · LVH by voltage criteria · No acute ischaemic changes

Chest X-Ray



Mild cardiomegaly with aortic elongation

Lab Results

NT pro BNP	100 pg/mL	**Na^+**	139 mEq/L
Creatinine	1.1 mg/dL	**eGFR**	**58 mL/min**
Troponin I	<0.03 ng/mL	**HbA1c**	**7.8%**

Q1 **Seeing her demographic profile (older woman, obese, hypertensive, diabetic), before sending her for echo, you apply the H2FPEF score (clinical-only pre-test probability for HFpEF). What is her score and what does it mean?**

A Score 0–1 — low probability, HFpEF excluded

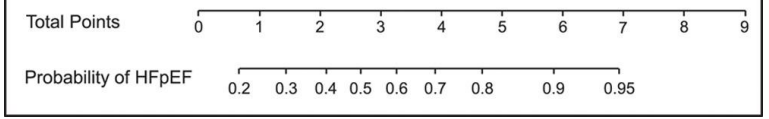
B Score 2–5 — intermediate, echo + further testing needed

C Score 6 — high probability, HFpEF very likely

D Score cannot be calculated without invasive haemodynamics

Discussion

	Clinical Variable	Values	Points
H_2	Heavy	Body mass index > 30 kg/m²	2
	Hypertensive	2 or more antihypertensive medicines	1
F	Atrial Fibrillation	Paroxysmal or Persistent	3
		Doppler Echocardiographic estimated	
F	Filling Pressure	Doppler Echocardiographic E/e' > 9	1
H_2FPEF score			Sum (0-9)



Q1 ✓ Answer B: H2FPEF score 2–5 — intermediate, echo + further testing needed

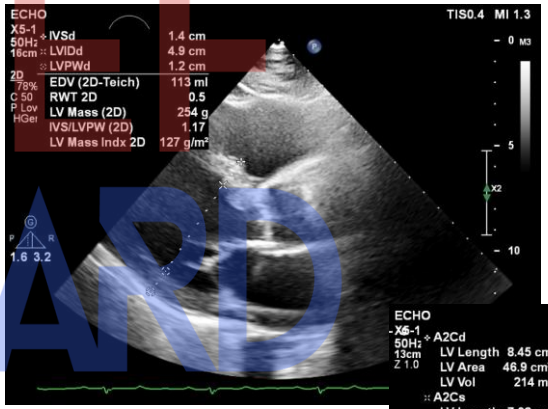
Score range 0–9:

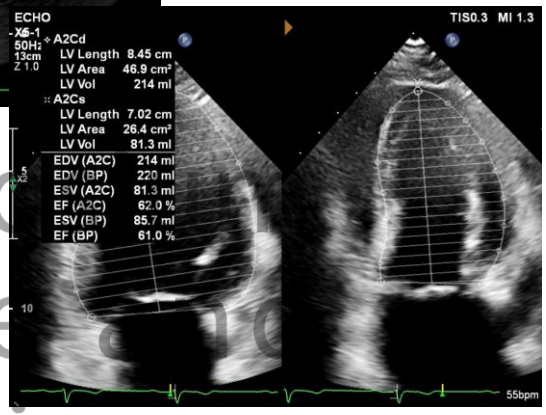
- Low: 0–1
- needed)
- High: 6–9 (HFpEF very likely)

Resting Echo

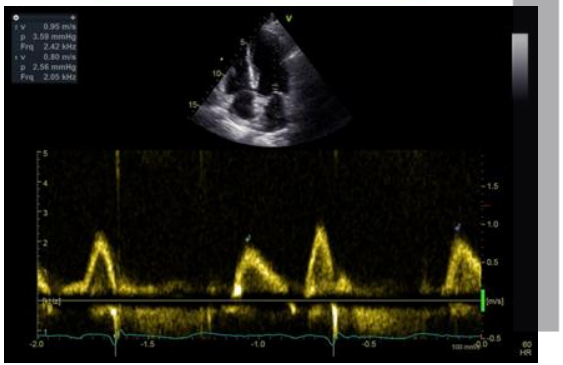
- Dilated LA (LAVI 42 ml/m2)
- Concentric LVH (LVMI 127 gr/m2, RWT 0.5)
- Good LV systolic function, EF 61%

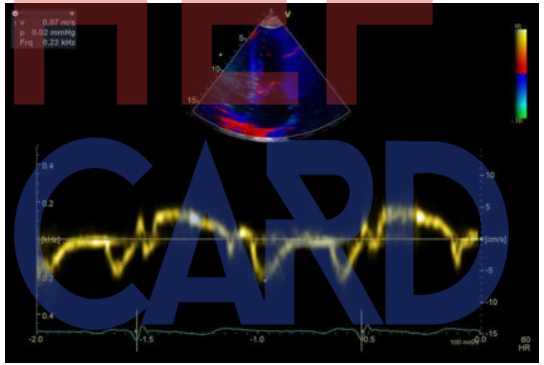
  (Simpson's Biplane)
- Global normokinetic
- Normal RV contractility, TAPSE 1.7 cm

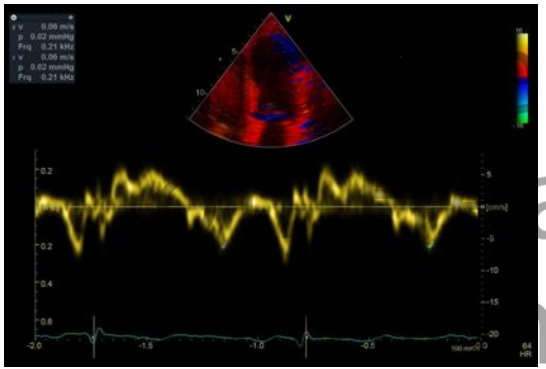


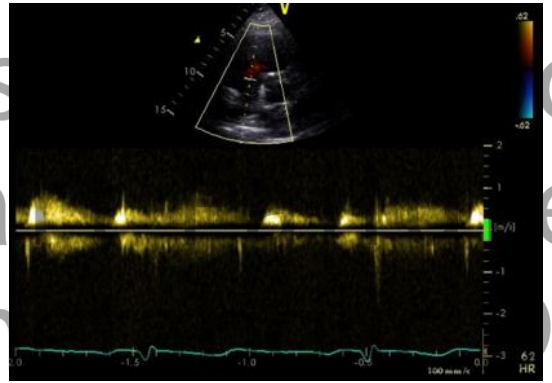


How about the diastolic function?









Resting Diastolic Findings

E wave: 91 cm/s

e' med: 7 cm/s

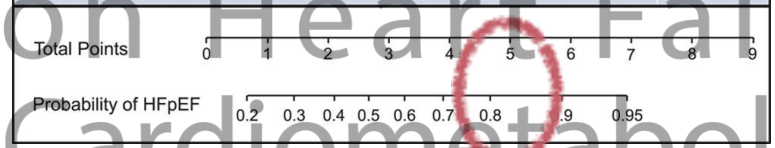
e' lat: 6 cm/s

E/e' avg: 13.5

TR Vmax: undetected

H2FPEF SCORE

	Clinical Variable	Values	Points
H_2	Heavy	Body mass index > 30 kg/m²	2
	Hypertensive	2 or more antihypertensive medicines	1
F	Atrial Fibrillation	Paroxysmal or Persistent	3
P	Pulmonary Hypertension	Doppler Echocardiographic estimated Pulmonary Artery Systolic Pressure > 35 mmHg	1
E	Elder	Age > 60 years	1
F	Filling Pressure	Doppler Echocardiographic E/e' > 9	1
	H_2FPEF score		Sum (0-9)



Score range 0–9:

- Low: 0–1
- Intermediate: 2–5 (further testing needed)
- High: 6–9 (HFpEF very likely)

Q2

Apply the HFA-PEFF score (the echo + biomarker-based diagnostic algorithm). Based on the echo findings and her NT pro BNP of 100 pg/mL, what is her HFA-PEFF score, and what is the conclusion?

A Score 0–1 — HFpEF unlikely

B Score 2–4 — intermediate, consider further testing

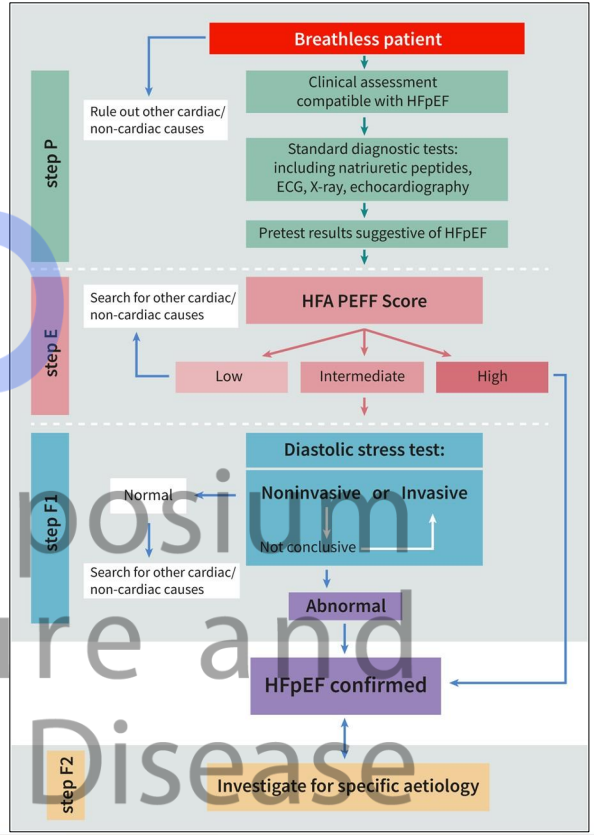
C Score 5–6 — HFpEF confirmed

D HFA-PEFF cannot be used in this scenario

HFA-PEFF Diagnostic Algorithm

The HFA-PEFF Algorithm for the Diagnosis of HFpEF

P	Initial Workup (Step 1 (P) : Pretest Assessment)	• Symptoms and/or Signs of HF • Comorbidities / Risk factors • ECG • Standard Echocardiography • Natriuretic Peptides • Ergometry / 6 min walking test or Cardiopulmonary Exercise Testing
E	Diagnostic Workup (Step 2 (E) : Echocardiographic and Natriuretic Peptide Score)	• Comprehensive Echocardiography • Natriuretic Peptides, if not measured in Step 1
F1	Advanced Workup (Step 3 (F_1) : Functional testing in Case of Uncertainty)	• Diastolic Stress Test: Exercise Stress Echocardiography • Invasive Haemodynamic Measurements
F2	Aetiological Workup (Step 4 (F_2) : Final Aetiology)	• Cardiovascular Magnetic Resonance • Cardiac or Non-Cardiac Biopsies • Scintigraphy / CT / PET • Genetic testing • Specific Laboratory Tests



HFA-PEFF Diagnostic Algorithm: Step 2 (E)

	Functional	Morphological	Biomarker (SR)	Biomarker (AF)
Major	septal e' < 7 cm/s or lateral e' < 10 cm/s or Average E/e' ≥ 15 or TR velocity > 2.8 m/s (PASP > 35 mmHg)	LAVI > 34 ml/m² or LVMI ≥ 149/122 g/m² (m/w) and RWT > 0,42 #	NT-proBNP > 220 pg/ml or BNP > 80 pg/ml	NT-proBNP > 660 pg/ml or BNP > 240 pg/ml
Minor	Average E/e' 9 -14 or GLS < 16 %	LAVI 29-34 ml/m² or LVMI > 115/95 g/m² (m/w) or RWT > 0,42 or LV wall thickness ≥ 12 mm	NT-proBNP 125-220 pg/ml or BNP 35-80 pg/ml	NT-proBNP 365-660 pg/ml or BNP 105-240 pg/ml

Major Criteria: 2 points

Minor Criteria: 1 point

≥ 5 points: HFpEF

2-4 points: Diastolic Stress Test or Invasive Haemodynamic Measurements

Echo parameters:

- Septal and lateral e'
- Average E/e'
- TR Velocity (PASP)
- LAVi
- LVMI and RWT
- GLS
- LV wall thickness

How the HFA-PEFF score works (max 6 points — score ≥5 confirms HFpEF)

F — Functional	M — Morphological	B — Biomarker
Major (+2) e' septal <7 OR lateral <10 E/e' avg ≥15 TRV >2.8 m/s	**Major (+2)** LAVi >34 (SR) or >40 (AF) LVMI ≥149/122 (M/F) or RWT >0.42	**Major (+2)** NT-proBNP >220 (SR) / >660 (AF) or BNP >80 (SR) / >240 (AF)
Minor (+1) E/e' avg 9–14 GLS <16% (less negative)	**Minor (+1)** LAVi 29–34 LVMI 115–149/95–122	**Minor (+1)** NT-proBNP 125–220 (SR) / 365–660 (AF) or BNP 35–80 / 105–240
Major (+2): e' lateral 6 → +2 points	**Major (+2): LAVi 42 (SR) → +2 points**	**None → 0 points**

Total HFA-PEFF score: 2 + 2 + 0 = 4 → HFpEF not yet CONFIRMED

Q2 ✓ Answer B: Score 2–4 — Intermediate

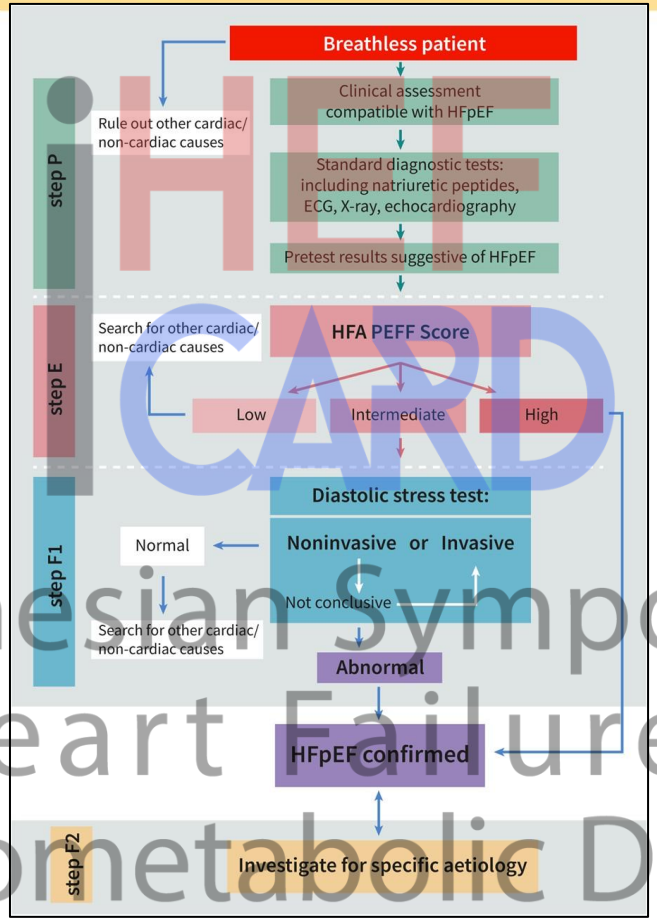
Q3 What is the NEXT BEST step to confirm or exclude HFpEF?

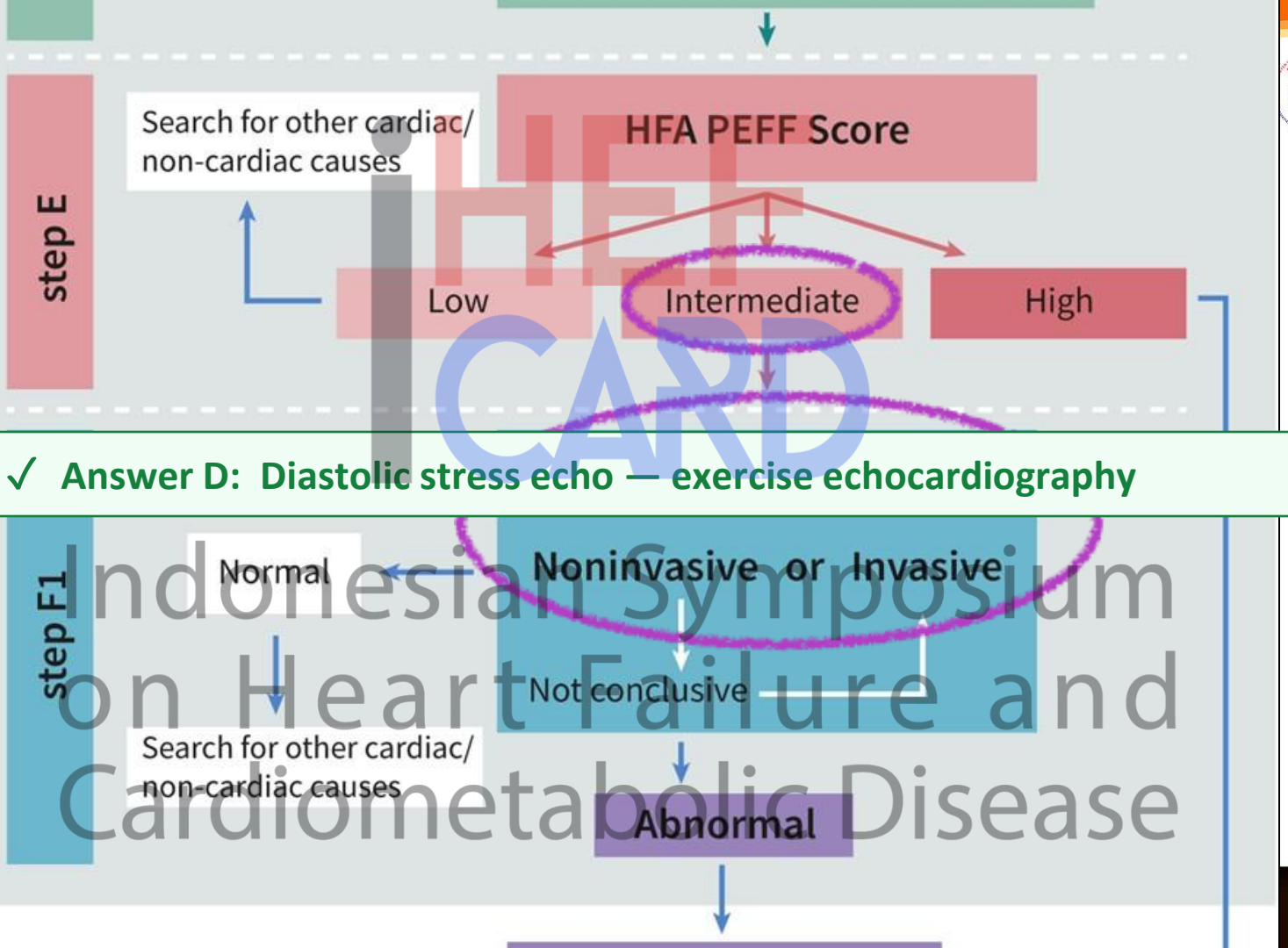
A Empirical HF treatment without further testing

B Repeat resting echo in 6 months

C Cardiac MRI for tissue characterisation

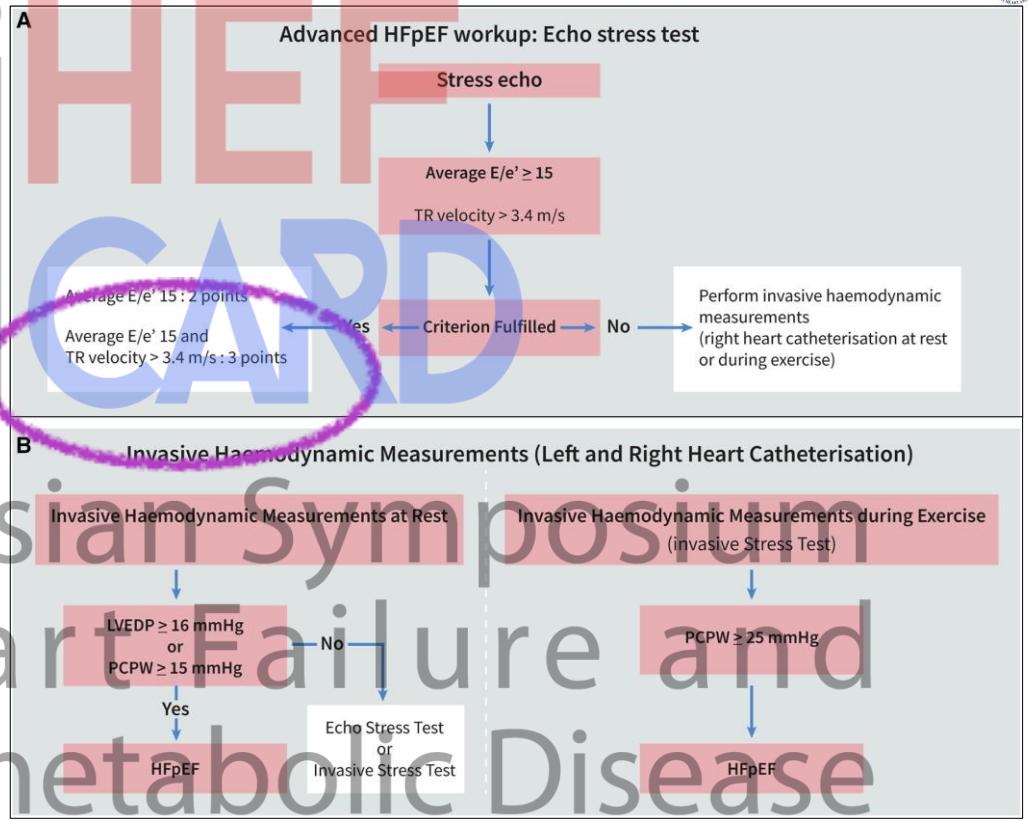
D Diastolic stress echo (exercise echo with E/e' + TRV assessment)



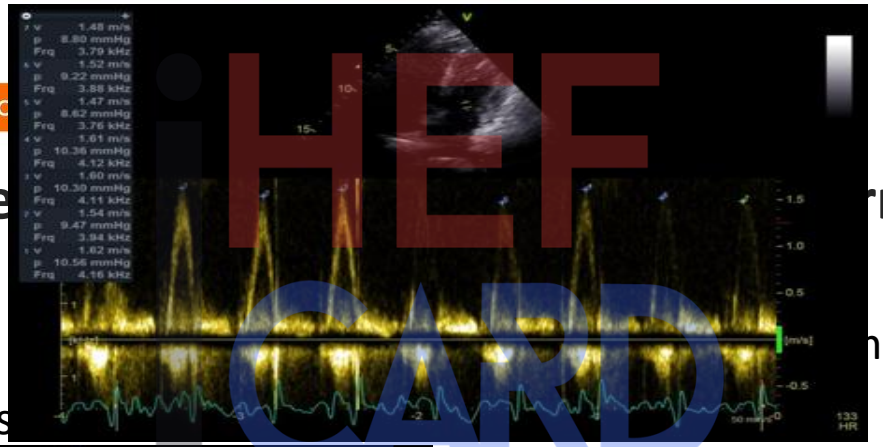


Q4 ✓ Answer D: Diastolic stress echo — exercise echocardiography

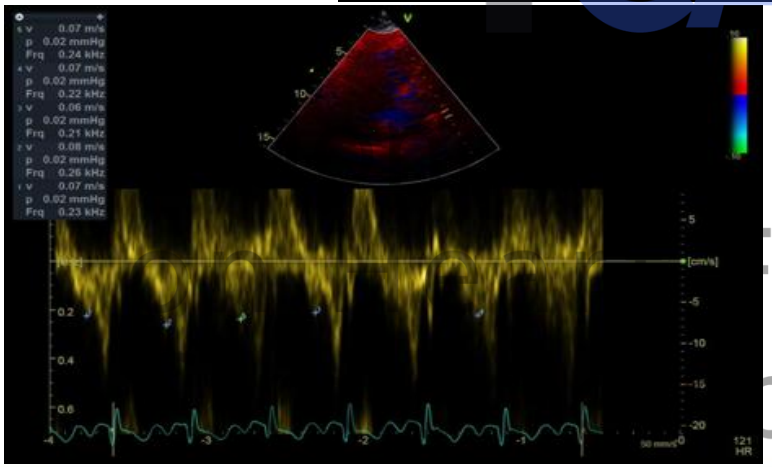
HFA-PEFF Diagnostic Algorithm: Diastolic Stress Test

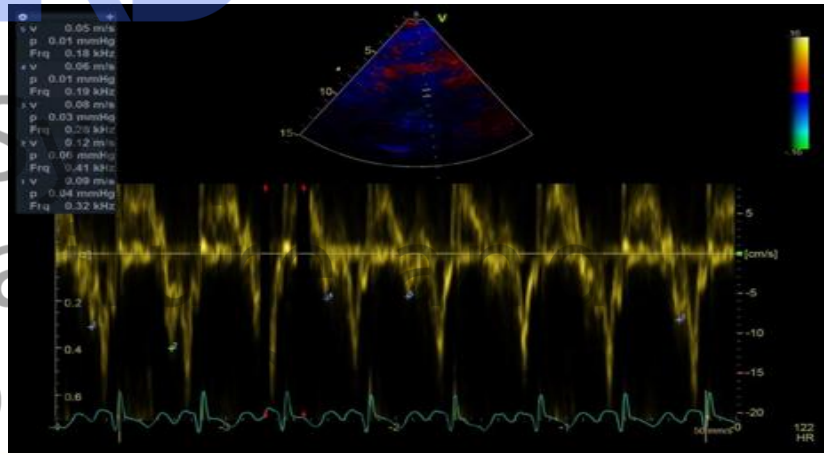


Diastolic stre…rmed



- Peak exercise: …mHg
- Ended due to s…





How the HFA-PEFF score works (max 6 points — score ≥5 confirms HFpEF)

F — Functional	M — Morphological	B — Biomarker
Major (+2) e' septal <7 OR lateral <10 E/e' avg ≥15 TRV >2.8 m/s	**Major (+2)** LAVi >34 (SR) or >40 (AF) LVMI ≥149/122 (M/F) or RWT >0.42	**Major (+2)** NT-proBNP >220 (SR) / >660 (AF) or BNP >80 (SR) / >240 (AF)
Minor (+1) E/e' avg 9–14 GLS <16% (less negative)	**Minor (+1)** LAVi 29–34 LVMI 115–149/95–122	**Minor (+1)** NT-proBNP 125–220 (SR) / 365–660 (AF) or BNP 35–80 / 105–240
Major (+2): e' lateral 6 → +2 points	**Major (+2): LAVi 42 (SR) → +2 points**	**None → 0 points**

Diastolic stress test	Average E/e' ≥ 15 → +2 points

Total HFA-PEFF score: 2 + 2 + 0 + 2 = 6 → HFpEF CONFIRMED

Q4 **HFpEF is now confirmed. Aside from optimising her comorbidities (BP, weight, diabetes), which medication has Class I evidence for reducing HF hospitalisation in HFpEF and should be started?**

A **ARNI (sacubitril/valsartan)** — Class I in HFpEF

B **Beta-blocker** — Class I in HFpEF for mortality

C **SGLT2 inhibitor** (dapagliflozin or empagliflozin)

D **Loop diuretic only** — no disease-modifying therapy exists for HFpEF

Recommendation	Class[a]	Level[b]
An SGLT2 inhibitor (dapagliflozin or empagliflozin) is recommended in patients with HFpEF to reduce the risk of HF hospitalization or CV death.[c] [6,8]	I	A

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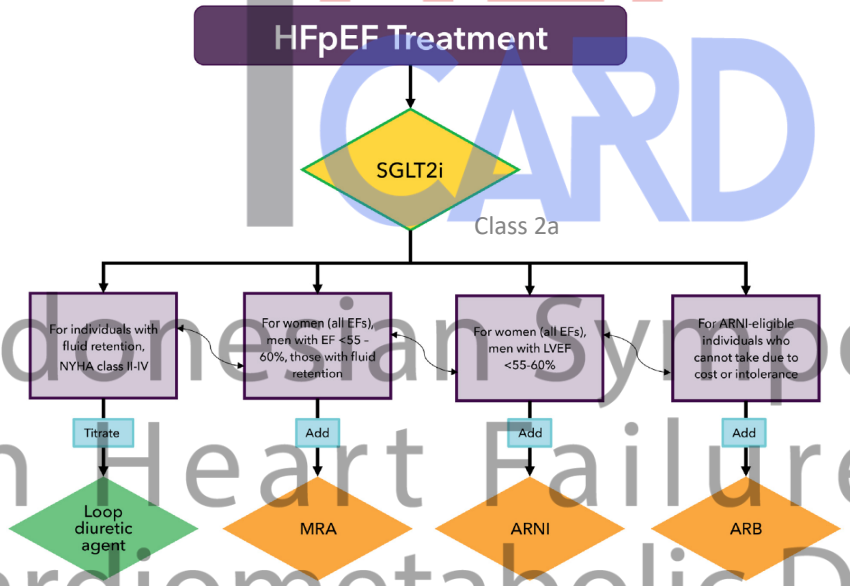
Q4 ✓ Answer: SGLT2 inhibitor. Start dapagliflozin or empagliflozin

Discussion

- **EMPEROR-Prese** … hospitalisation by 21% (HR 0.79) in HFpEF.
- **DELIVER** — dapa … 18% (HR 0.82) in HFmrEF/HFpEF, in



ACC/AHA 2022

Anker et al., NEJM 2021
Solomon et al., NEJM 2022

Key Teaching Pearls — Case 2

1. Echo Defines HFpEF — But Clinical Suspicion Comes First

H2FPEF is the clinical pre-test probability. HFA-PEFF is the echo + biomarker confirmation.
Use BOTH — high concordance = highest diagnostic certainty.

2. Echo Diastolic Parameters Are the Diagnostic Currency of HFpEF

E/e' avg ≥15, LAVi >34 (or >40 in AF), TRV >2.8 m/s, ↓ e'.
These cannot be assessed at the bedside — echo is irreplaceable for HFpEF diagnosis.

3. Resting Echo Equivocal? Stress Echo Unmasks HFpEF

Intermediate HFA-PEFF (2–4)? Exercise echo with E/e' ≥15 OR TRV >3.4 at peak confirms HFpEF.
Invasive exercise haemodynamics is the gold standard.

The 6th Indonesian
Symposium on Heart Failure and
Cardiometabolic Disease

CASE 3

Indonesian Symposium on Heart Failure and Cardiometabolic Disease

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11-13 JUNE 2026

Sheraton Grand Jakarta, Gandaria City

Clinical Vignette

Patient	Mrs. Z · Female, 64 years old
Diagnosis	HFrEF (EF 30%) with normal RV function, diagnosed 8 months ago · started on full GDMT
Past Follow-up	Last clinic visit 5 months ago — lost to follow-up since
Current Complaint	Worsening fatigue, exertional dyspnea (NYHA III), abdominal distension × 2 months
Patient Reports	Still taking medications regularly

Physical Examination

Vital Signs

BP	124 / 78 mmHg
HR	118 bpm · Irregularly Irregular
RR	20 / min
SpO_2	96% on Room Air
Weight	Up 6 kg from last visit

Clinical Findings (Right-Sided Predominant)

- Raised JVP ~12 cmH_2O
- Hepatomegaly + positive hepatojugular reflux
- Mild ascites + early satiety
- 3+ pitting oedema to thighs
- Lungs relatively clear

ECG

Atrial fibrillation · LVH · No acute ischaemic changes

Q1

Patient is now in newly-detected AF with right-sided congestion despite reportedly adherent GDMT. What is the MOST APPROPRIATE next diagnostic step before adjusting therapy?

A Increase loop diuretic dose empirically — she is congested

B Repeat echo with a COMPLETE RV assessment (not just TAPSE)

C Refer urgently for LV assist device evaluation

D Order CT pulmonary angiogram to rule out PE

Q1 ✓ Answer B: Repeat echo with a COMPLETE RV assessment — not just TAPSE

Discussion

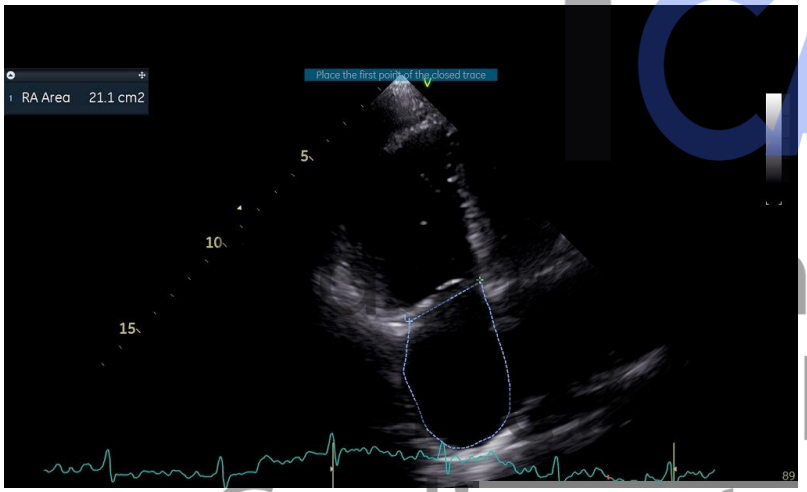
Right-sided congestion, AF, abdominal distension, but clear lungs → clinical picture of RIGHT heart failure, even though the LV was the original problem.

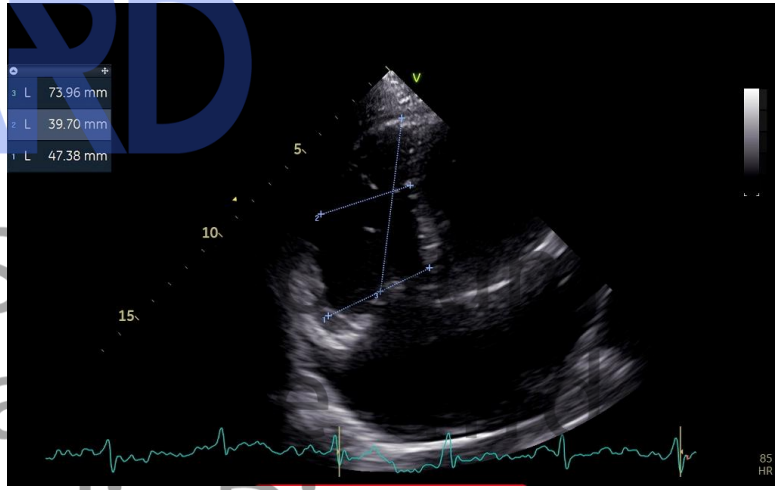
Clinical Reasoning

Echo is the diagnostic anchor that distinguishes:

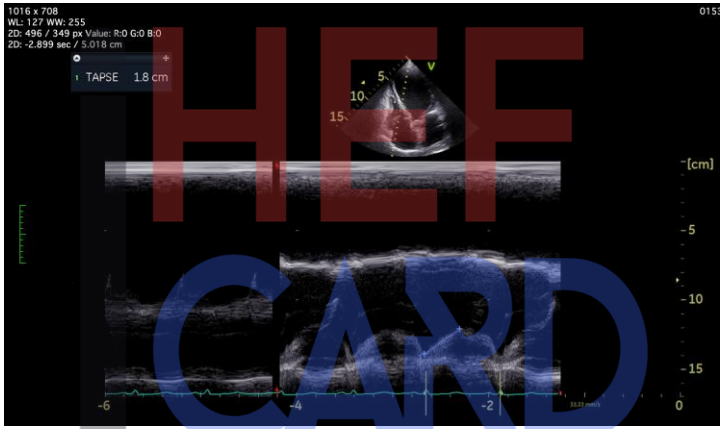
- Left-sided recurrence (suggest non-adherence or LV deterioration)
- Right-sided dominant problem (suspected here)
- Other specific culprits (AF, PH, RV ischaemia, TR progression)

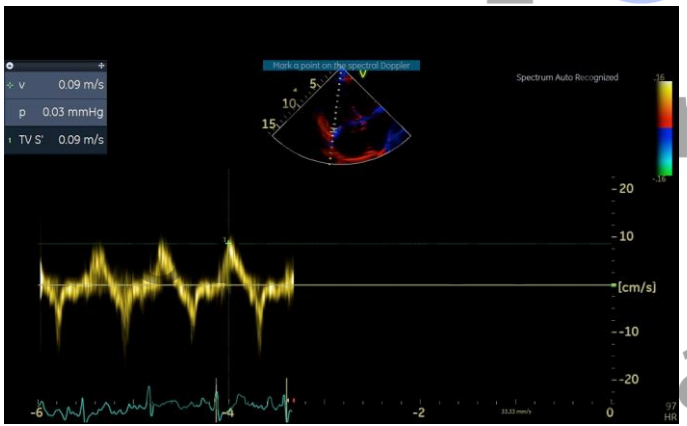
Echo Findings

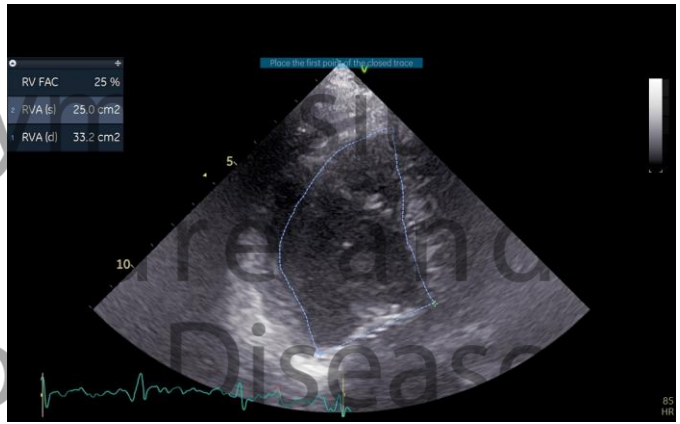




Echo Findings







Echo Findings Summary

LVEF	38% (improved from 30%)	TAPSE	18 mm (>17 = "normal")
RV FAC	25% (<35% abnormal)	RV FWLS	Not performed
RV basal diameter	47 mm (>41 dilated)	RA area	21 mL/m² (>18 abnormal)
TR severity	Severe (VC 7.5 mm, EROA 0.45)	TRV / PASP	3.6 m/s · PASP 60 mmHg
TAPSE / PASP	18 / 60 = 0.30	IVC	24 mm, <50% collapse

Q2

Patient has raised JVP, hepatic congestion, ascites, peripheral oedema, IVC 24 mm. BP 124/78. What is the SAFEST fluid management approach?

A IV furosemide 80 mg bolus immediately — she is congested

B Start dobutamine to support cardiac output before any diuresis

C Withhold diuresis — she may need fluid resuscitation given the RV dysfunction

D Cautious IV diuresis with close monitoring of BP, urine output, and RV preload markers

Q2 ✓ Answer D: Cautious IV diuresis with close monitoring of BP, urine output, and RV preload markers

Discussion

Why NOT aggressive diuresis:

- The dysfunctional RV is highly PRELOAD-DEPENDENT — it relies on **higher filling pressure** to generate adequate forward output
- Over-diuresis → RV **preload collapses** → RV **stroke volume drops** → systemic hypotension

Why NOT under-diuresis:

- **Persistent venous congestion** drives hepatic dysfunction, gut oedema, diuretic resistance, and worsens TR via RV stretch
- Congestion itself is a **poor prognostic marker**

Q3

TAPSE/PASP ratio is 0.30 (severely uncoupled — <0.36). She is in uncontrolled AF at HR 118. What should be the THERAPEUTIC PRIORITY for improving RV-PA coupling?

A. Add sildenafil to reduce pulmonary vascular resistance

B. Restore AF rate control — and consider rhythm control if persistent

C. Increase ARNI dose to further reduce LV filling pressures

D. Add ivabradine for heart rate reduction

Q3 ✓ Answer B: Restore AF rate control — and consider rhythm control if persistent

Discussion

RV-PA uncoupling (TAPSE/PASP <0.36) → the RV cannot generate enough force to overcome its afterload.

AF and RV-PA uncoupling:

- Tachycardia (HR 118) → shortens diastolic filling → raises LV diastolic + LA pressure → raises PASP
- Loss of atrial kick → reduced RV filling → reduced forward output
- Atrial functional TR (from RA dilation) → RV volume overload → progressive dilation
- Tachycardia-mediated cardiomyopathy can directly impair RV contractility

Q3 ✓ Answer B: Restore AF rate control — and consider rhythm control if persistent

Discussion

Rate control:

- Restart beta-blocker carefully, OR digoxin
- Avoid non-DHP CCBs (verapamil, diltiazem) — **contraindicated** in HFrEF
- Target HR ≤110 at rest initially

Rhythm control:

- **CASTLE-AF**: ablation reduced death/HF admission by 38% in AF + HFrEF
- **CASTLE-HTx**: ablation reduced death/LVAD/transplant by 76% in advanced HF + AF
- Strong consideration for ablation referral once stabilised

Q4

You decide on rate control. Patient is on dapagliflozin, sacubitril/valsartan, spironolactone, and carvedilol (per chart — but she has been off for ~5 months). BP 124/78, HR 118 (AF). Which is the SAFEST initial step?

A Restart carvedilol at 3.125 mg BID (lower than her previous dose)

B Add diltiazem 120 mg daily for rapid rate control

C Load IV amiodarone 150 mg then 1 mg/min infusion

D Add digoxin 0.125 mg daily and reassess

Q4 ✓ Answer A: Restart carvedilol at 3.125 mg BID (lower than previous dose)

Discussion

Restarting beta-blockers requires the same caution as initiating from scratch →

“Start low, go slow"

Why beta-blocker is the right choice:

- Beta-blocker = Class I for HFrEF (mortality benefit) **AND** first-line for AF rate control in HFrEF
- Carvedilol is appropriate (her original drug) — antioxidant + α1 effects useful given likely persistent BP issues + diabetes

Q5

Patient successfully undergoes AF ablation, is in sinus rhythm, and clinically improved. What is the most appropriate echo follow-up strategy?

A Single echo at 12 months — TAPSE only

B Serial echoes with FULL RV protocol — track FAC, FWLS, TAPSE/PASP, TR, RA size

C No further echo needed since she is now in sinus rhythm

D Echo only if symptoms recur

Q5 ✓ Answer B: Serial echoes with FULL RV protocol — track FAC, FWLS, TAPSE/PASP, TR, RA size

Discussion

Why **full RV protocol** and not just TAPSE:

- TAPSE **recovers earlier** than other parameters → can be misleadingly reassuring
- **True RV functional recovery** requires improvement in FAC, FWLS, RV size, RA size, and TR severity
- TAPSE/PASP (RV-PA coupling) is the **most prognostically important** parameter to track

Key Teaching Pearls — Case 3

1. Don't Forget the Right Side — and Don't Trust TAPSE Alone

Single-parameter assessment is the #1 RV blind spot.
Always combine TAPSE + S' + FAC + FWLS + RV size + TAPSE/PASP.

2. AF + Tachycardia is a Top Cause of RV Decompensation in Optimised HFrEF

AF reduces RV filling (lost atrial kick + tachycardia + atrial functional TR), worsens PH, and drives RV-PA uncoupling.
Rate/rhythm control before reaching for pulmonary vasodilators.

3. TAPSE/PASP <0.36 is the Actionable Echo Parameter for Management

Defines RV-PA uncoupling — both prognostic and therapeutically targetable.
Reduce afterload (treat cause of high PASP) rather than push RV harder.

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