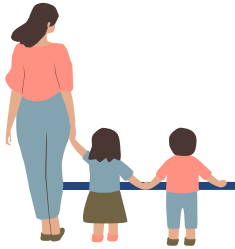

5th iHEF CARD
The 5th Indonesian
Symposium on Heart Failure and
Cardiometabolic Disease
Indonesian Working Group
on Heart Failure
and Cardiometabolic Disease
WHFS
World Heart Failure Society
HEART FAILURE SOCIETY
(SINGAPORE)
PPCM in Indonesia: Tales of Unfortunate Events
Dian Yaniarti Hasanah
June, 12-14 2025
Sheraton Grand Jakarta Gandaria City, Jakarta, Indonesia
0811-1900-8855 | scientific_ihefcard@inahfcarmet.org | @ina.hf | ihefcard.com

Mrs. N, 35 years old

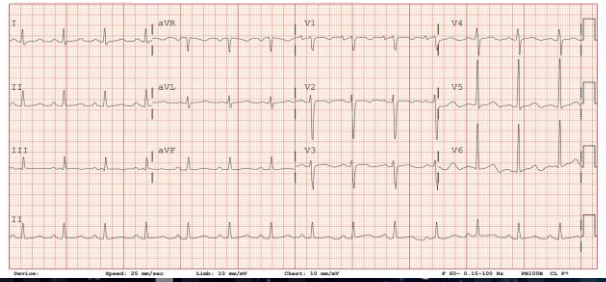
The 5th Indonesian Symposium on Heart Failure and Cardiometabolic Disease

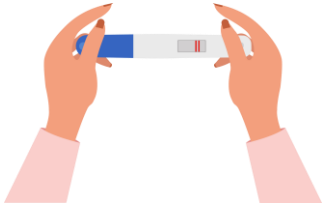
G3P2A0

1st pregnancy - 27 years old
2nd pregnancy - xx years old
3rd pregnancy - 34 years old



Medical History:
No history of hypertension nor pre-eclampsia during previous pregnancies
No other risk factors





April - October 2024
(Trimester 1-2)
Routine antenatal care
No complaints

October 2024
(Trimester 3)
First onset of dyspnea, no further Investigation

Direct post partum : Persisting dyspnea accompanied with cough, occasional bloating, feeling of fullness and nausea

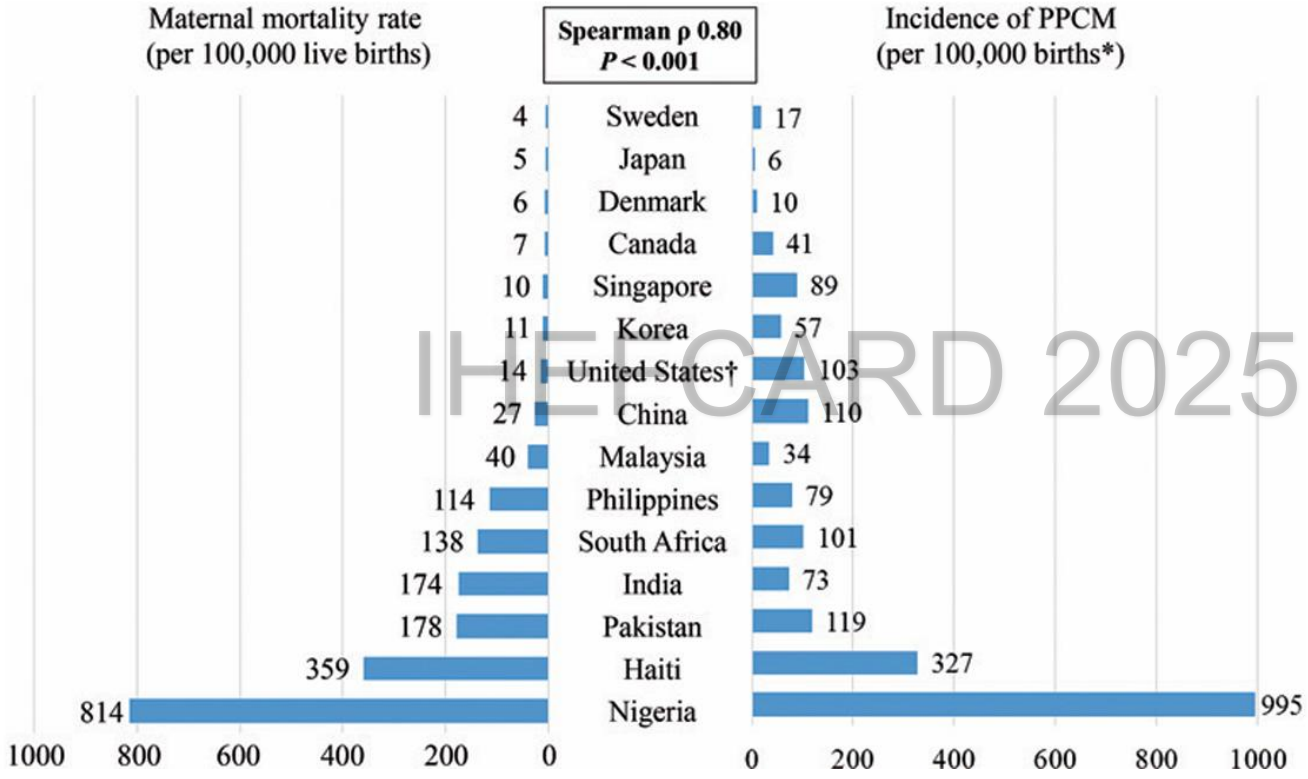
19 January 2025
C-section delivery
No complaints at birth

25 February 2025
First visit to NCCHK Outpatient Care

BP 107/72 mmHg, N 83 bpm, RR 24 bpm
SpO2 96% room air
Slight icteric
Elevated JVP, minimal bilateral rales
HJR (+)
Pitting edema extremities

Plan:
TTE : dilatation all chambers, EF 26%, TAPSE 13 mm
NT-pro BNP level 3K
Furosemide 80 mg IV extra
Sacubitril-Valsartan 50 mg bd
Spironolactone 25 mg od
Bisoprolol 1.25 mg od
Empaglifozin 10 mg od
Furosemide 40 mg od

Incidence of PPCM

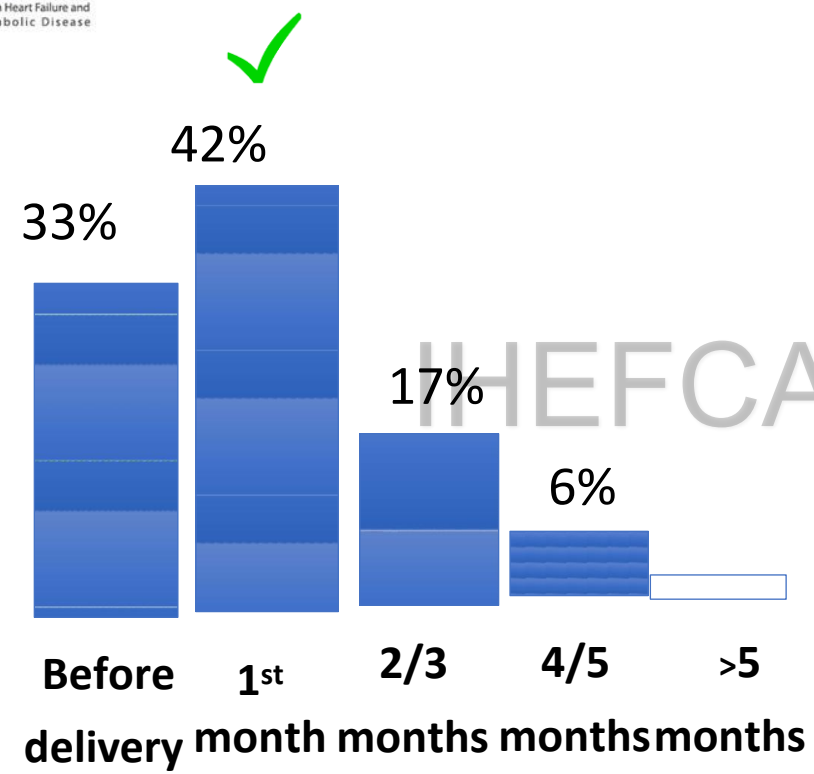


Isogai et al. Int Heart Journal. 2019 May 30;60(3):503-511.

Indonesia?

Single center experience :
The prevalence of PPCM in RSHS is 26.23%, with the majority (86.3%) was NYHA functional class

Prameswari HS, Purnomowati A, Aprami TM. Prevalence, Characteristics, andRisk Factor of Patient with Peripartum Cardiomyopathyin Hasan Sadikin Hospital Bandung. Indonesian Journal of Cardiology. 2015:38-44.



European Journal of Heart Failure (2017) 19, 1131–11

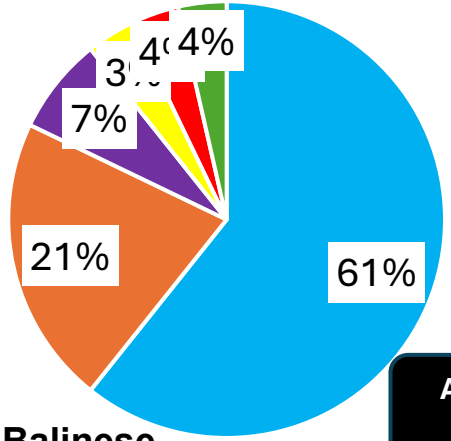
Time of PPCM diagnosis, n (%)	138	
Prepartum		73 (52.9)
< 1 month post-partum		18 (13)
1 month post-partum		25 (18.1)
2–3 months post-partum		17 (12.3)
4–6 months post-partum		3 (2.2)
>6 months post-partum		2 (1.5)

Prameswari HS, Dewi TI, Hasan M, Martanto E, Astuti A, Saboe A, Cool CJ. Clinical Presentation and 6-Month Outcomes of Patients with Peripartum Cardiomyopathy in Indonesia. International Journal of General Medicine. 2024 Dec 31:1073-83.

Baseline Characteristics (NCCHK) (n = 40)

Ethnicity

- Javanese
- Sundanese
- Chinese
- Padang
- East Nusa Tenggara
- Batak



Our case : 34 yo, Balinese

Age (First Diagnosed with PPCM):
30 (±5) years

Jurnal
Kardiologi Indonesia
J Kardiol Indones. 2015;36:138-44
ISSN 0126/3773

Clinical Research

Prevalence, Characteristics, andRisk Factor of Patient with *Peripartum Cardiomyopathyin* Hasan Sadikin Hospital Bandung

Hawani Sasmaya Prameswari, Augustine Purnomowati, Toni M.Aprami

Tabel 1. Data Karakteristik Umum Penderita PPCM di RSHS 1 Januari 2011- 31 Desember 2013

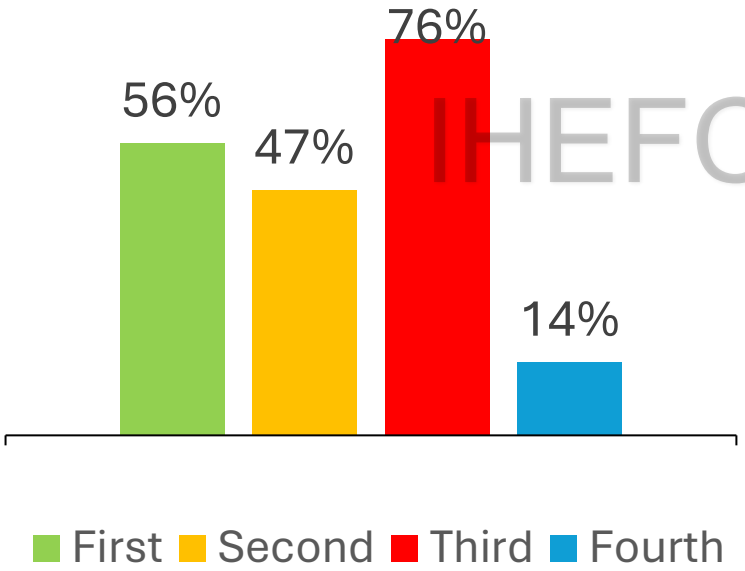
Karakteristik	Nilai Statistik	p Value
Usia		0.000
< 20 thn	6 (7.5%)	
20-30 thn	6 (45%)	
>30 thn	38 (47.5%)	
X (SB)	30,3 (7,9)	

Prameswari HS, Purnomowati A, Aprami TM. Prevalence, Characteristics, andRisk Factor of Patient with Peripartum Cardiomyopathyin Hasan Sadikin Hospital Bandung. Indonesian Journal of Cardiology. 2015:38-44.

Baseline Characteristics (NCCHK = 40)

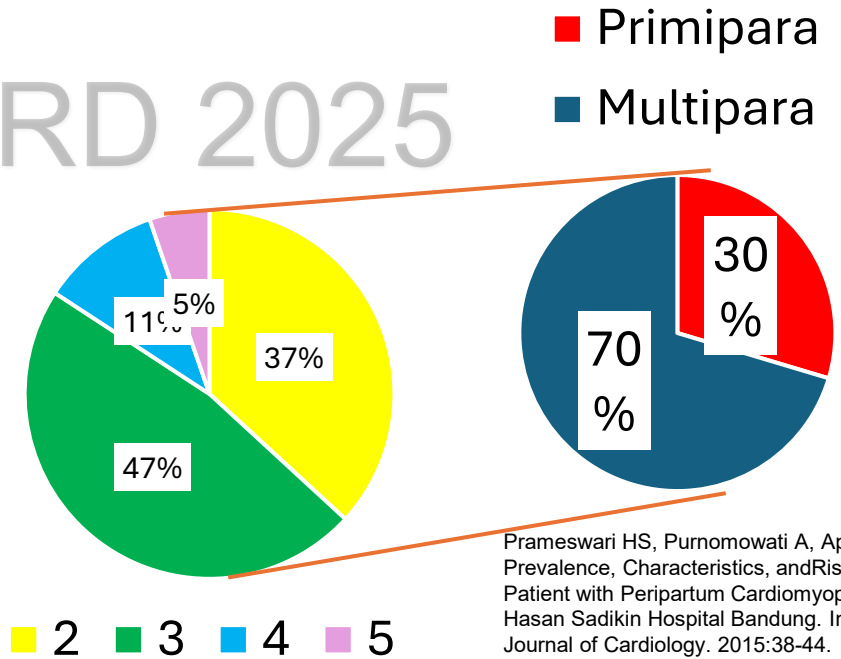
Significant risk factors of PPCM were **age over 30 years, multiparous, low socioeconomic, and preeclampsia.**

Pregnancy at PPCM diagnosis



Our case : multipara, 3rd pregnancy, no PEB

Parity



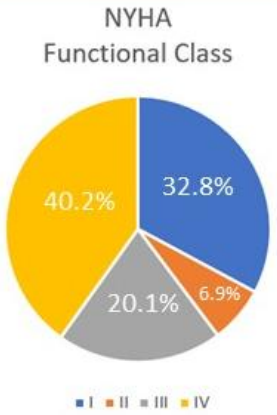
Prameswari HS, Purnomowati A, Aprami TM. Prevalence, Characteristics, andRisk Factor of Patient with Peripartum Cardiomyopathyin Hasan Sadikin Hospital Bandung. Indonesian Journal of Cardiology. 2015:38-44.

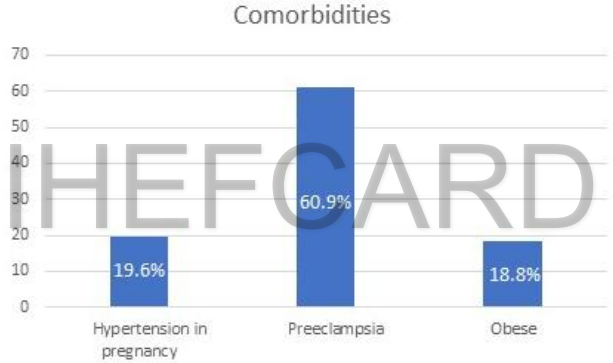
Single centre (Indonesia)

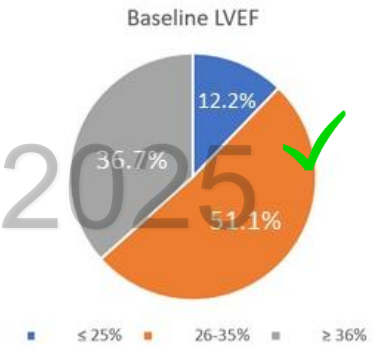
138 women with PPCM

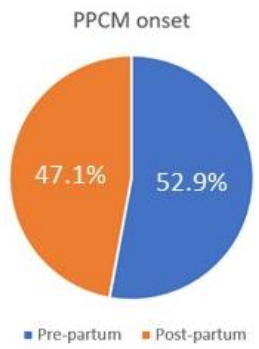
from Hasan Sadikin General Hospital, West Java, Indonesia

Baseline









Hawani et al. International Journal of General Med 2024; 17: 1073-1083.

- HTN in PPCM 30%
- Pre-eclampsia in PPCM 23%

PPCM

Hypertension ⇔ Pre-eclampsia

Tabel 2. Data Karakteristik Klinik Penderita PPCM di RSHS 1 Januari 2011- 31 Desember 2013

Presentasi Klinis	f (%)	p-Value
NYHA		
III	11 (13,8%)	
IV	69 (86,3%)	
Tanpa Hipertensi	28 (35%)	
Hipertensi dalam Kehamilan		
Preeklampsi	35 (43.8%)	0.007
HT Gestasional	13 (16.25%)	
Eklampsi	2 (2.5%)	
HT Kronik	2 (2,5%)	

PLoS One 2015 Aug 7;10(8):e0133466

European Journal of Heart Failure (2017) 19, 1431–1

- Most patients diagnosed with PPCM present with typical signs and symptoms of HF.

- Common symptoms such as dyspnea, fatigue, and mild edema should not be assumed to be related to pregnancy itself, lack of sleep, or other conditions such as bronchitis.

- These symptoms often **overlap with those of pregnancy itself, which can result in a delay or missed diagnosis** and ultimately the development of PPCM-associated complications.

Hilfiker-Kleiner D, et al.Nat Rev.Cardiol.2014

Outpatient Visits …

7 March 2025
- No complaints
- ↑ ARNI 100 mg BD

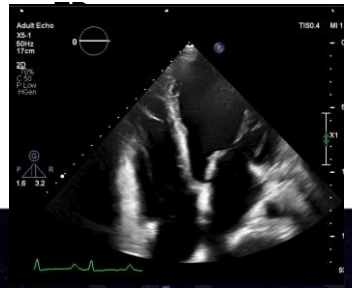
22 April 2025
- Shortness of breath (+)
- Nausea (+), bloating (+)
- ↑ NT-proBNP 3860
- Furosemide bolus 80 mg IV
- + Tolvaptan 15 mg od for 5 days

27 May 2025
Clinically euvolemic

Therapy:
- ARNI 200 mg bd
- Bisoprolol 1.25 mg od
- SGLT2 inh 10 mg od
- Spironolactone 25 mg od
- Ivabradine 5 mg bd
- Furosemide 40 mg od

26 February 2025

Transthoracic echocardiography
- LVEF: 26%
- TAPSE: 13 mm
- EDD: 69 mm
- Functional severe MR
- Functional moderate-severe



21 March 2025
- Occasional dyspnea
- Low appetite
- Minimal pitting edema +/+
- Normal TSH & FT4
- ↑ ARNI 200 mg BD

29 April 2025
- Minimal pitting edema +/+
- + Tolvaptan 1 x 15 mg for 3 days
- Labs : Ferritin 350 TSAT 21

Genetic :

RESULT: UNCERTAIN

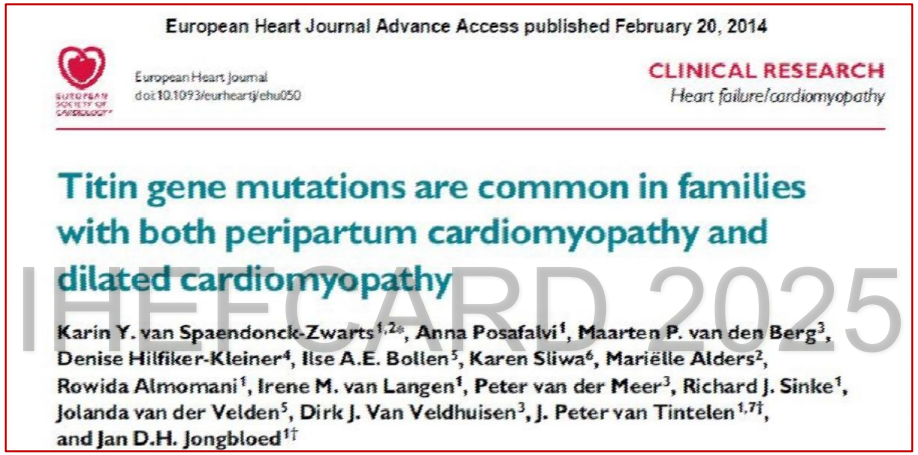
Variant(s) of Uncertain Significance identified.

GENE	VARIANT	ZYGOSITY	VARIANT CLASSIFICATION
ALPK3	c.3254C>T (p.Pro1085Leu)	heterozygous	Uncertain Significance
BAG3	c.587T>C (p.Leu196Pro)	heterozygous	Uncertain Significance

- Genetically dilated cardiomyopathy (DCM) vs PPCM
- **15–20% of PPCM patients carry mutations** in genes like titin, beta-myosin heavy chain, myosin-binding protein C (MYBPC3), lamin A/C or sodium voltage-gated channel alpha subunit 5 (SCN5A)
- Genetic testing may be considered in PPCM, in particular those with a positive familial history.

Bauersachs J, et al.Eur Heart J.2019
Sliwa K, et al.Eur Heart J.2018

Is PPCM a genetic disease?



European Heart Journal Advance Access published February 20, 2014

European Heart Journal
doi:10.1093/eurheartj/ehu050

CLINICAL RESEARCH
Heart failure/cardiomyopathy

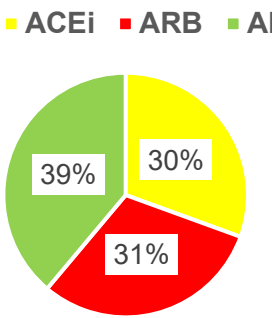
Titin gene mutations are common in families with both peripartum cardiomyopathy and dilated cardiomyopathy

Karin Y. van Spaendonck-Zwarts[1,2*], Anna Posafalvi[1], Maarten P. van den Berg[3], Denise Hilfiker-Kleiner[4], Ilse A.E. Bollen[5], Karen Sliwa[6], Mariëlle Alders[2], Rowida Almomani[1], Irene M. van Langen[1], Peter van der Meer[3], Richard J. Sinke[1], Jolanda van der Velden[5], Dirk J. Van Veldhuisen[3], J. Peter van Tintelen[1,7†], and Jan D.H. Jongbloed[1†]

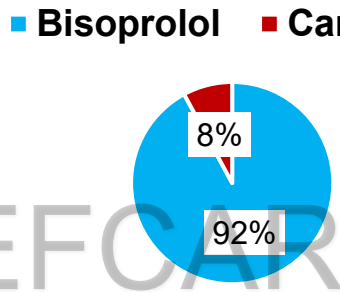
Conclusion: Potentially causal mutations in cardiomyopathy-related genes are common in families with both PPCM and DCM. This supports the earlier finding that PPCM can be part of familial DCM. Our cohort is particularly characterized by a **high proportion of Titin mutations and a low recovery rate in PPCM cases.**

Medications (NCCHK n=40)

RAAS-blocker (ACEi/ ARB/ ARNI)
90%



Beta blockers
95%



Mineralocorticoid Receptor Antagonist (Spironolactone)
85%

Loop Diuretic
72.5%
Thiazide 2.5 %

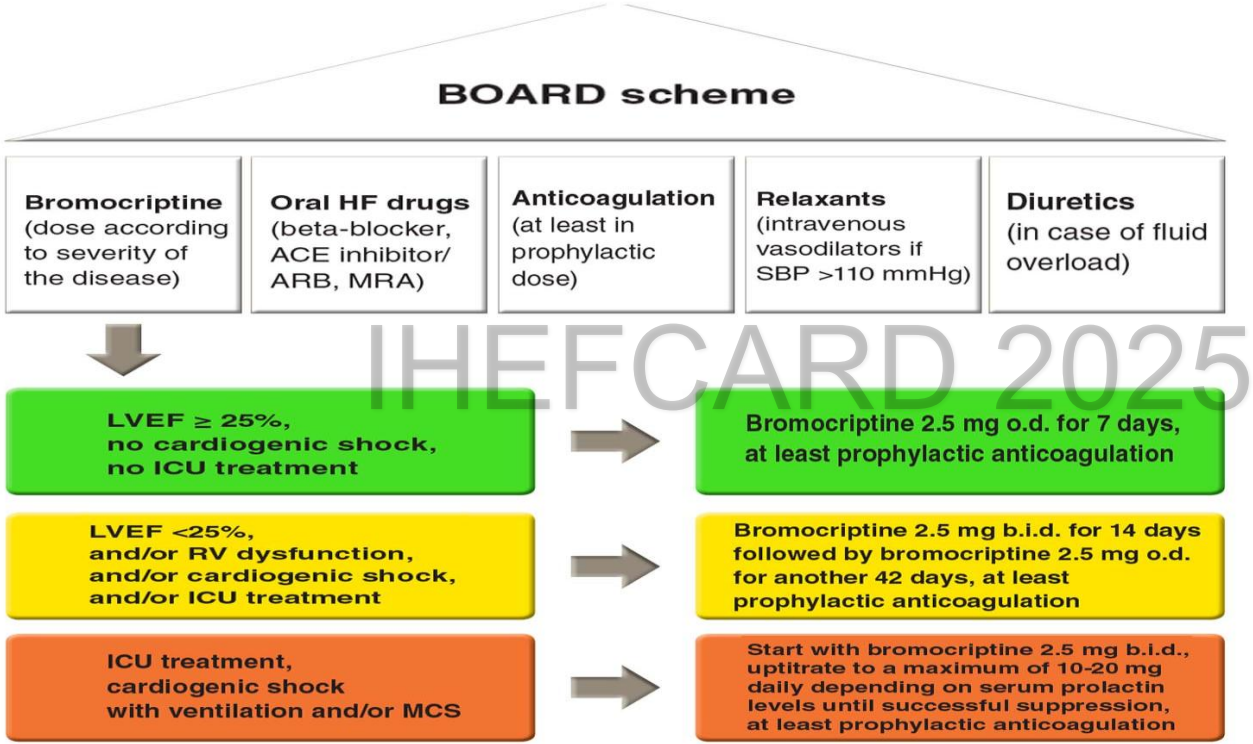
Medication	n (%)
Calcium Channel Blocker	4 (10)
Digoxin	1 (2.5)
Amiodarone	1 (2.5)
Statin	3 (7.5)

Our case : ARNI 2 x 200 mg, Bisoprolol 1 x 1.25 mg, SGLT2 inh 1 x 10 mg, Spironolactone 1 x 25 mg, Ivabradine 2 x 5 mg,Furosemide 1 x 40 mg

Variables	Number of Patients	Values
Medications, n (%)		
Beta-blocker	123	110 (89.4)
Alpha-blocker	123	3 (2.4)
CCB	123	6 (4.9)
ACEi/ARB	123	122 (99.2)
Diuretic	123	117 (95.1)
MRA	123	31 (25.2)
Bromocriptine	128	18 (14.1)
Digoxin	123	7 (5.7)
Anticoagulant	123	11 (8.9)

Abbreviations: ACEi, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; BMI, body mass index; HF, heart failure; IVSD, interventricular septal end diastole; LA, left atrium; LVH, left ventricular hypertrophy; LVEF, left ventricular ejection fraction; LVEDD, left ventricular end diastolic diameter; LVESD, left ventricular end systolic diameter; LV, left ventricle; MRA, mineralocorticoid receptor antagonist; NYHA, New York Heart Association; PPCM, peripartum cardiomyopathy; QTc, corrected QT; SBP, systolic blood pressure; TAPSE, tricuspid annular plane systolic excursion.

Prameswari HS, Dewi TI, Hasan M, Martanto E, Astuti A, Saboe A, Cool CJ. Clinical Presentation and 6-Month Outcomes of Patients with Peripartum Cardiomyopathy in Indonesia. International Journal of General Medicine. 2024 Dec 31:1073-83.



Bromocriptine ?

Bromocriptine treatment

- Addition of the prolactin-blocker bromocriptine to standard heart failure therapy has beneficial effects on **LVEF and mortality**
- Bromocriptine may be considered in patients with PPCM (class IIb recommendation)
- **Anticoagulation** at least in prophylactic dosages

Bauersachs J, et al.Eur Heart J.2019
Sliwa K, et al.Eur Heart J.2018

Structured Graphical Abstract

Key Question

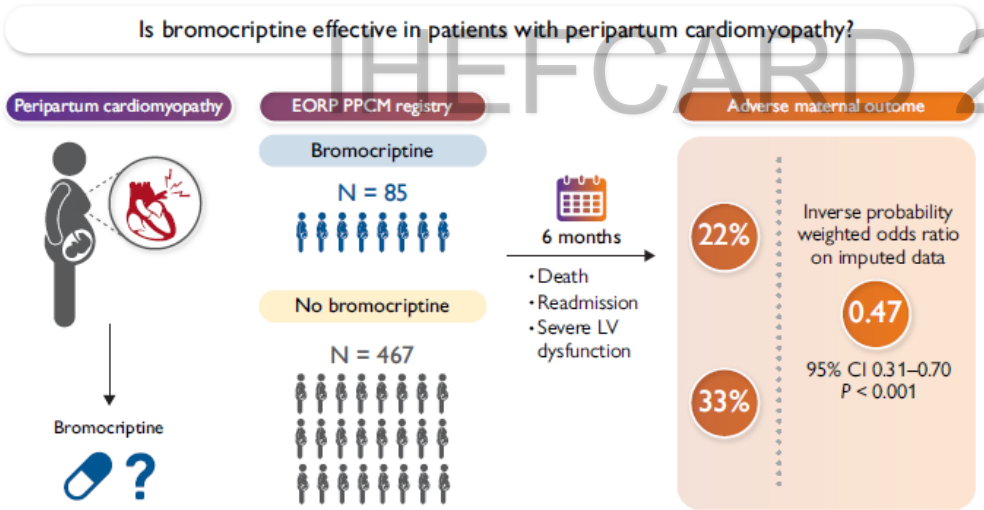
Is bromocriptine treatment associated with improved maternal outcomes in patients with peripartum cardiomyopathy (PPCM)?

Key Finding

In women with PPCM, bromocriptine treatment was associated with better maternal outcomes, as compared to standard-of-care group. This benefit was primarily driven by fewer patients with severe LV dysfunction after 6 months. Furthermore, no differences in thromboembolic events were observed between the two groups.

Take Home Message

In women with PPCM, bromocriptine treatment in addition to standard-of-care is associated with better maternal outcomes.



van der Meer P, van Essen BJ, Viljoen C, Böhm M, Jackson A, Hilfiker-Kleiner D, Hoevelmann J, Mebazaa A, Farhan HA, Goland S, Ouwerkerk W. Bromocriptine treatment and outcomes in peripartum cardiomyopathy: the EORP PPCM registry. European Heart Journal. 2024 Sep 2:ehae559.

Improvement of Left Ventricular Function Following Bromocriptine Therapy in PPCM: Tangerang General Hospital PPCM Registry

Dwita Rian Desandri, Evan Hindoro, Ina Nadia, Dian Yaniarti, Siti Elkana Nauli, Amiliana Mardiani Soesanto

- RESULTS

LVEF was increased from 31.4±13.30% to 47.1±14.34% in standard treatment group only (p 0.03), but with very wide confidence interval (CI 95% 1.36 to 30.0). In bromocriptine group, LVEF was significantly increased from 29.63% to 49% (p 0.001, CI 95% 10.61 to 28.13). Full LVEF recovery was achieved in one patient (14%) in standard treatment group and three patients (37.5%) in bromocriptine group.

- CONCLUSION

Bromocriptine has more beneficial effect on improvement of LV function compared to standard heart failure treatment only in PPCM patients in Indonesia

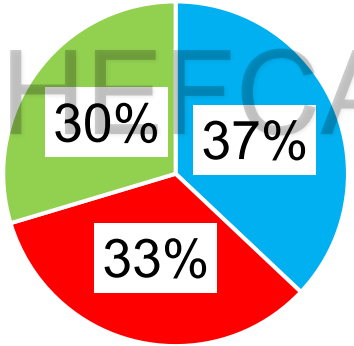
Unpublished data

Recovery ?....

Initial LVEF: 31 (±7) %

Recovery

Yes No Lost to Follow Up



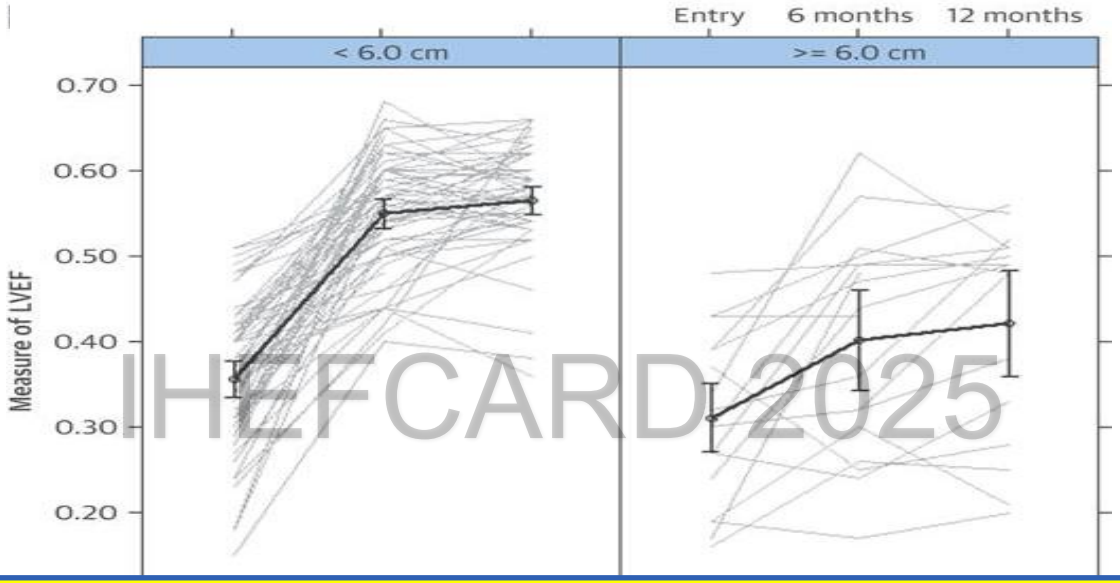
Our case ?
EDD 69 mm

Single centre (Indonesia)

Mean recovery time : 10.03 ± 6.48 months

Hawani et al. International Journal of General Med 2024; 17: 1073-1083.

Prognosis Peripartum CM
Initial LVEDD ….



Severe LV dysfunction (EF <30%) & LVEDD >60 mm at study entry predict worse recovery:
NONE RECOVERED at 1 year

McNamara DM. JACC. 2015.

Correlation of LV Characteristic and Functional Status at Admission with Left Ventricular Function Recovery in PPCM patients in Tangerang General Hospital Indonesia : a Single Centre Experience

Dian Yaniarti Hasanah, Ina Nadia Irawadi, Dwita Rian Desandri, Siti Elkana Nauli, Rarsari Soerarso, Nani Hersunarti

- **Results** : From 36 patients, fifteen patients (42%) have recovery LV function at follow up to 24 months. Factor associated with EF recovery was baseline EF at diagnosis (p=0.050) and bromocriptine additional therapy (p= 0.04), meanwhile LV diastolic dimension (EDD) and NYHA functional status at admission were not associated with EF recovery in this study, with p value were 0,853 and 1.000 respectively. Beneficial effect of bromocriptine on improvement of LV function has been discussed in several studies. **Median of EF baseline in recovery group was higher than non recovery group, which was 32.5% (12 – 43) and non recovery group was 24 % (14 – 39).**
- **Conclusion :** LV systolic function at diagnosis has association with LV recovery at 24 months follow up in PPCM patients in Tangerang General Hospital Indonesia.

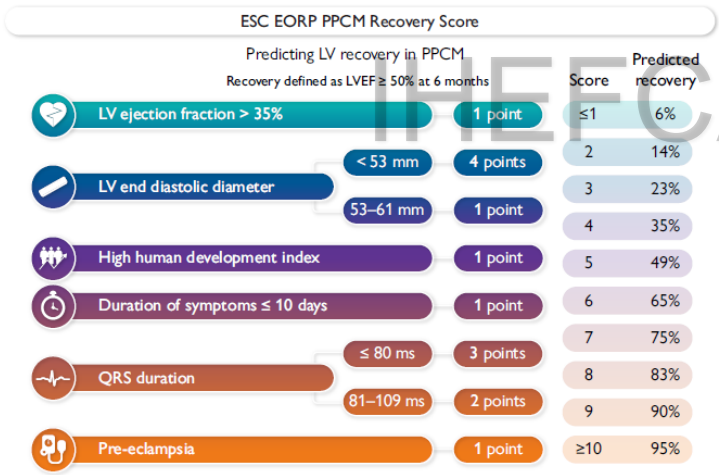
Unpublished data

Unpublished data

Key Question
Can left ventricular (LV) recovery in women with peripartum cardiomyopathy (PPCM) be predicted?

Key Finding
A model to predict the probability of LV recovery in PPCM was derived. It was well calibrated and had good discriminative ability (C-statistic 0.79, 95% CI 0.74-0.83). It was internally validated using bootstrap methods.

Take Home Message
The ESC EORP PPCM Recovery Score can be easily applied in clinical practice to predict the probability of LV recovery. This can help to guide tailored counselling and treatment.



ESC European Society of Cardiology
European Heart Journal (2024) 45, 1430–1439
https://doi.org/10.1093/eurheartj/ehad888

CLINICAL RESEARCH
Heart failure and cardiomyopathies

A novel score to predict left ventricular recovery in peripartum cardiomyopathy derived from the ESC EORP Peripartum Cardiomyopathy Registry

Alice M. Jackson[1]*, Sorel Goland[2,3], Hasan Ali Farhan[4], Israa Fadhil Yaseen[4], Hawani Sasmaya Prameswari[5], Michael Böhm[6], Pardeep S. Jhund[1], Aldo P. Maggioni[7], Peter van der Meer[8], Karen Sliwa[9], Johann Bauersachs[10], and Mark C. Petrie[1]

Our case : 3 ~ 23% chances to recovery within 6 months

53% EF>50%
83% some recovery
1 year
2017

72% EF>50%
1 year
2015

46-63% EF>50%
6 months

21-36% EF>50%
6 months

Myocardial recovery is variable

Eur J Heart Failure 2018;20:951-962

Conclusion…..

PPCM in Indonesia ?

- Need more data collaboration >> prevalence 26.23 % (Prameswari HS, et all, 2015) >> **single center data !**
- Significant risk factors of PPCM were **age over 30 years, multiparous, low socioeconomic, and preeclampsia**
- **Implementation of GDMT is established**, but Bromocriptine use is still variable in clinical setting
- **Mean recovery time : 10.03 ± 6.48 months >>** needs larger population
- Needs external validation for **novel score to predict left ventricular recovery in peripartum cardiomyopathy** in Indonesian population


IHEFCARD 2025