A case of Pre-Eclampsia with peripartum cardiomyopathy

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DEPT. OF OBSTETRICS AND GYNAECOLOGY

- Mrs Reshma Supe, 30 years, Primigravida resident of Dighi, Pune, belongs to middle socio-economic class, a home maker referred from PHC, JUNNAR **i/v/o high BP of 170/100mmhg.**
- Patient had H/0 amenorrhea since 8 months.
- She had H/O ↑BP x 1 month (on T. labetalol 100mg BD).
- No H/O warning symptoms and signs (headache, nausea, vomiting, blurring of vision, epigastric pain)
- Urine protein 2+, DTR normal
- No H/O leaking or bleeding per vaginum or labor pain.

- **Menstrual history-**

Past Menstrual cycle- Regular, 30 days/3-4 days, avg flow

LMP- 14/11/21

EDD- 21/08/22

GA- 35.2 weeks (33.3 wks, by early dating scan done at 7.3wks, Delayed Conception)

- **Obstetric History-**

Primigravida,

spontaneous conception

Married since 1 yr,

non consanguineous marriage

H/O PRESENT PREGNANCY

1st Trimester-

- Pregnancy confirmed by urine pregnancy test at home after missed period.
- Registered patient at PHC, Junnar.
- Total ANC visits- 6.
- Started Folic acid in 1st trimester.
- NT scan- WNL. Double Marker Test not done
  All Routine ANC investigations- WNL
- Blood Group- A POSITIVE

2nd Trimester-

- Quickening felt at 5 MOA.
- Completed TT doses and took iron calcium
- Anomaly scan- WNL

3rd Trimester-

- Diagnosed Gestational Hypertension at 29 weeks of gestation with urine protein negative (labetalol 100mg BD)
- Growth scan at 33 weeks-
  - suggestive of oligohydramnios- AFI- 5.
  - Mean uterine artery PI appears to be more than 95th percentile for gestational age

PAST/PERSONAL/FAMILY HISTORY- Not Significant

On Examination

- Patient well built, conscious and oriented to time place and person.
- BMI-23.7 kg/m2
- Bilateral pedal edema +
- Mild Pallor +
- No Icterus/Cynosis/ Lymphadenopathy
- Pulse- 90 bpm regular in rhythm, good volume, radio radial synchronicity and no radio femoral delay
- Blood pressure 170/100 mm Hg in right hand in supine position.
- Spo2 97% on room air.
- RR-18 breaths/minute
- CVS- S1 S2 heard. No murmurs.
- RS- b/l air entry equal. b/l normal vesicular breath sounds heard in all lung fields.
- DTR normal.
- Optic fundus examination- WNL

Obstetric examination:

- Fundal height 34 weeks
- SFH 34 cm
- Vertex presentation
- Head floating
- Left occipitoposterior position
- Uterus Relaxed
- FHS+ 140/min, Regular, heard in midpoint of left spinoumbilical line
- Assessment of fetal wellbeing-

NST on admission- Reactive

Investigations:

- Hb- 8.6 g/dl
- Platelet- 217000/microL
- TLC- 14000/microL
- URM- Protein 2+
- UPCR-11 (suggestive of heavy proteinuria)
- D-dimer-2498
- S.LDH – 632↑
- LFT/RFT/PT INR/APTT/S.Fibrinogen/BT/CT- WNL

30 years old primigravida with 33.5 weeks of gestation with severe pre-eclampsia, was admitted in ward and kept on T. labetalol 100mg TID and Inj Betamethasone 12 mg IM 2 doses 12 hrs apart,

Patient was planned for Elective LSCS after steroid cover

Patient on Day 2 of admission, early morning at 7am ,

Complained of sudden onset of Headache, Nausea, vomiting and Breathlessness in lieing position since 1 hour

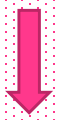
O/E- P- 90bpm, BP- 160/110mmhg, RR- 24 breaths/min, SPO2- 97% on room air

CVS- S1S2 +, No Murmurs, R/S- WNL

Loading dose of MgSO4 by Pritchard's regime (4g IV and 10g IM) Given

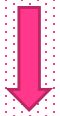
Inj Labetalol 20 mg IV bolus was given to control BP and 15 mins later BP was 150/100mmhg

Patient prepared for Emergency LSCS i/v/o Severe Preeclampsia with impending eclampsia,



Intra-Operative Findings-

- Couvelaire uterus noted.
- Retro placental clot of size 100 gram noted.
- Thin MSL noted.
- Uterus well retracted, No PPH.
- Baby details- MCH/ 1.7kgs/ cried immediately at birth/ APGAR- 7/10
- Baby was shifted to NICU i/v/o LBW and respiratory distress.



In Post Recovery Room, Vitals was stable, Uterus well Retracted, No PPH,

On shifting patient to ward (after 2 hours of LSCS)

- patient appeared breathless (dyspnoea NYHA grade 3) on supine position
- Vitals: P-86 bpm BP- 170/100 mmHg RR-26 breaths/minute
- SPO2- 84% on room air
- CNS- conscious and oriented.
- CVS- systolic murmur present
- RS- bilateral crepts present
- Uterus well Retracted
- Minimal bleeding PV

- Patient was put on propped up position with 10L of 02, Inj labetalol 20mg IV bolus was given.
- Patient saturation was 90% and shifted to ICU immediately for further management.

- On shifting patient to ICU,
  - 2D echo- Mild Global Hypokinesia with ejection fraction 45% with severe MR
  - NT ProBNP- 3749 (elevated)
  - ABG – WNL
  - ECG- WNL
  - Chest xray- Bilateral lung haziness with blunting of costophrenic angle
  - TROP-I/CPK-MB- WNL
  - All other blood investigations- WNL

  - Patient diagnosed as-

Post operative LSCS i/v/o Severe PreEclampsia with Impending Eclampsia with abruption with bilateral pleural effusion with ?Peripartum cardiomyopathy with severe MR

MANAGEMENT-

- Treatment-
  - NTG infusion 50mg in 50cc NS @5ml/hr
  - Inj Lasix 20mg TDS
  - labetalol infusion
  - T. Nifedipine 10mg BD
  - T. Ramace 1.25mg BD
  - IV antibiotics (INJ PIPTAZ 4.5g IV TDS and INJ Metro 100ml TDS)
- Patient was kept on Non invasive ventilation to maintain oxygen saturation, on day 4 shifted to Nasal Prongs with gradual tapering of O2 and eventually on day 6 patient was maintaining oxygen saturation on room air
- Patient was in ICU for 6 days, patient gradually improved during the course of stay in ICU
- Medications were gradually tapered down on Day 6

- On POD6, O/E- P- 90/m, BP-130/80mmhg, CVS/RS-NAD, RR-20breaths/min, SPO2- 98% on RA, PA- UTWR L/E-NAB
- Patient was shifted to the ward on T. lasictone (20/50) OD ,

T. Ramace 1.25mg BD and T. Nicardia Retard 10 mg BD

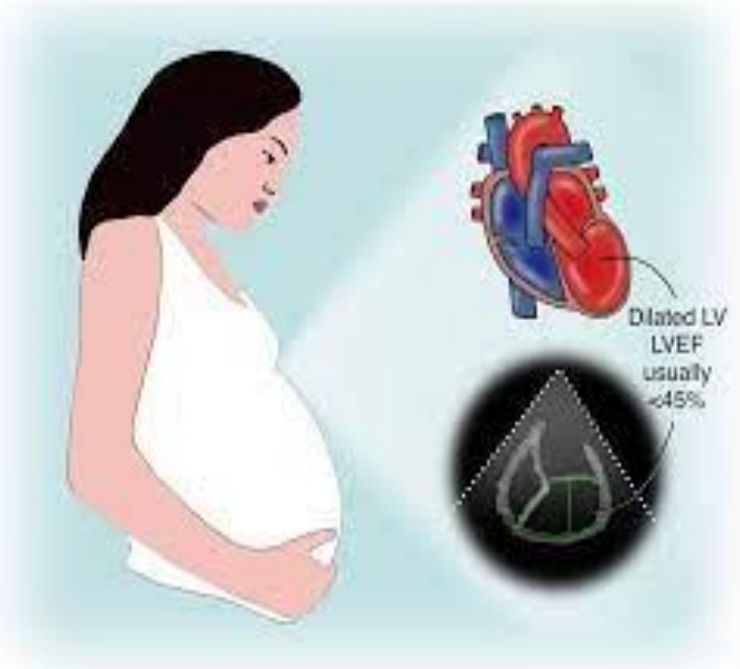
Patients condition further improved during ward stay

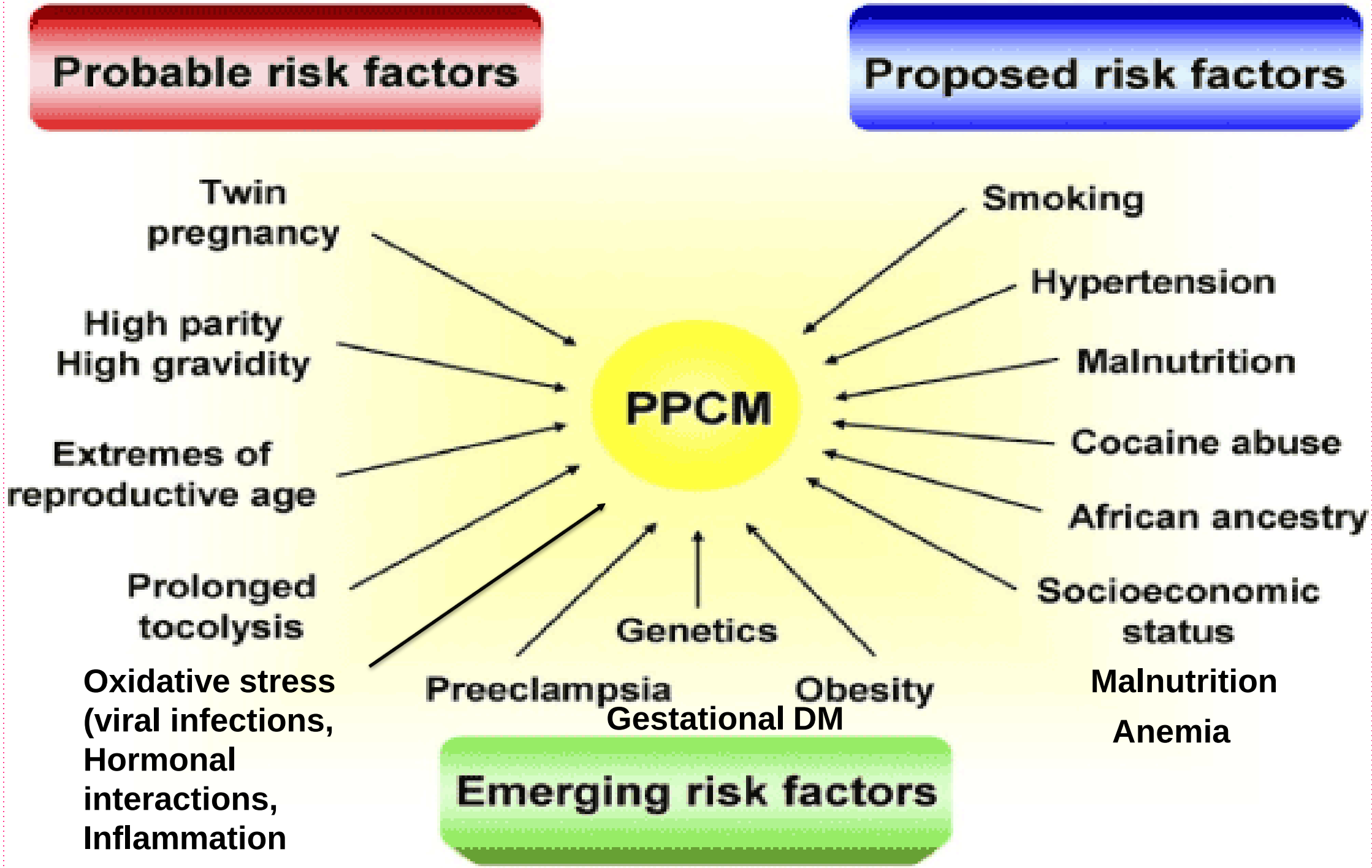
- After 2 weeks
  - 2D- echo- WNL with EF 60%
  - Chest Xray-WNL

Patient discharged on day 14 with stable condition on metaprolol XL 25mg OD and T. Nicardia Retard 10mg BD and was asked to follow up with cardiology.

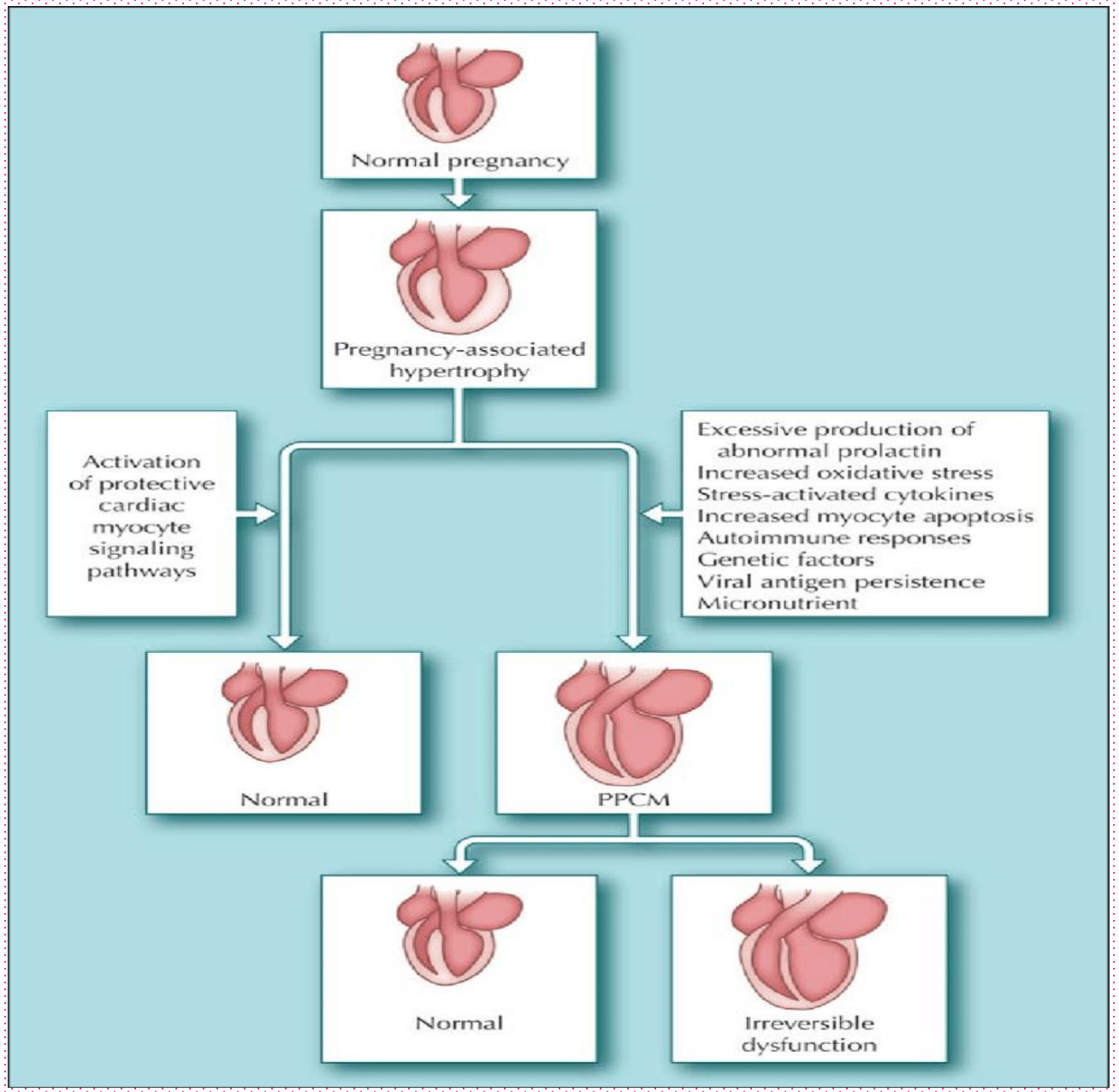
Peri Partum Cardiomyopathy

- Development of sudden onset cardiac failure in the last 6 weeks of pregnancy (34 weeks) or within 5 months of delivery.
- Its aetiology is unknown
- Absence of any identifiable cause of heart failure prior to last month of pregnancy.
- DIAGNOSTIC CRITERIA-
  - Left ventricular systolic dysfunction on Echo Cardiography with decreased ejection fraction almost less than 45%, LV may or may not be dilated
  - Left ventricular end diastolic dimension >2.7cm/m^2 body surface area
  - M- mode fractional shortening <30%




Probable risk factors
Proposed risk factors
Twin pregnancy
High parity
High gravidity
Extremes of reproductive age
Prolonged tocolysis
Oxidative stress (viral infections, Hormonal interactions, Inflammation
Smoking
Hypertension
Malnutrition
Cocaine abuse
African ancestry
Socioeconomic status
Malnutrition
Anemia
PPCM
Genetics
Preeclampsia
Obesity
Gestational DM
Emerging risk factors

Pathophysiology Of PPCM



Clinical Features

- Dyspnea on exertion
- Orthopnea
- (NYHA) class III or IV function
- Pedal edema
- Dry cough
- Palpitations
- Chest and abdominal discomfort
- Fatigue
- Increase of abdominal Girth

- Findings on Physical Examination
  - Jugular venous distention
  - Displaced apical impulse
  - Third heart sound
  - Mitral regurgitation murmurs
  - Pulmonary crepts
  - Hepatomegaly

DIFFERENTIAL DIAGNOSIS

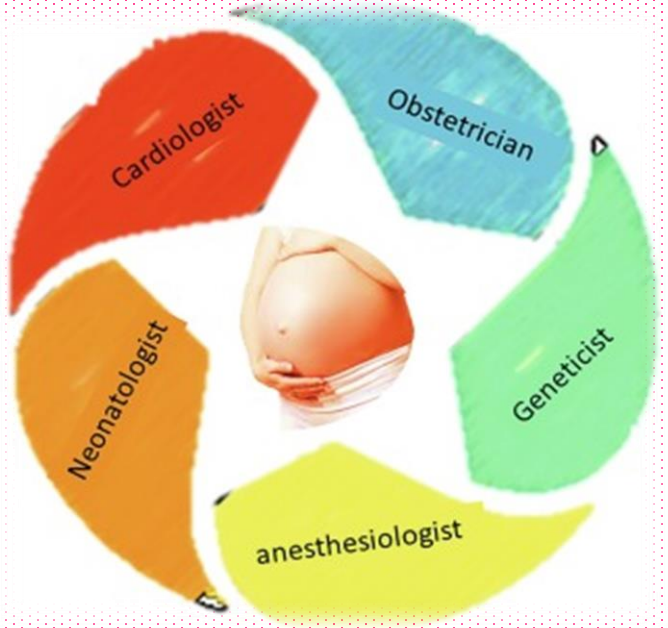
- Severe preeclampsia or eclampsia
- Pulmonary embolism
- Previously undiagnosed valvular disease(Example, rheumatic valve disease)
- Acute pulmonary edema from prolonged tocolysis
- Cardiac dysfunction secondary to arrhythmia
- Amniotic fluid embolism syndrome
- Asthma
- Pneumonia

COMPLICATIONS – OUTCOMES (6months)

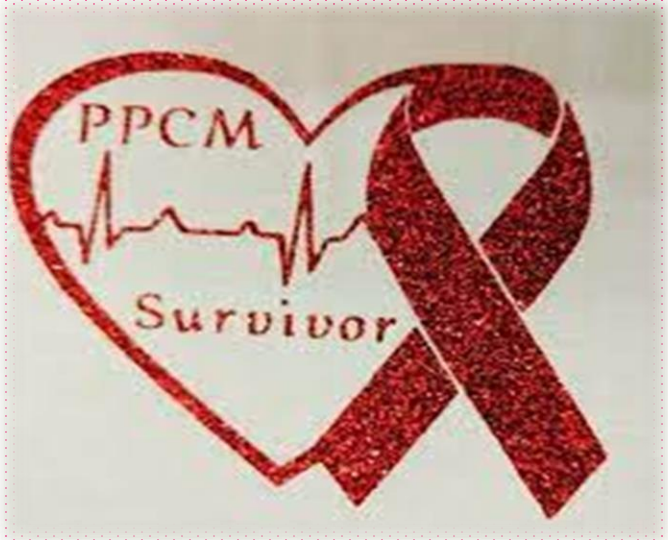
- Thromboembolism
- High prevalence of mental health disorders (depression, anxiety, PSD)
- Arrythmias (often fatal)
- Progression to severe Heart failure
- Cardiogenic Shock
- Death

MANAGEMENT

- Close monitoring in ICU
- Treatment includes conventional pharmacologic heart-failure therapies—principally oxygen, diuretics, angiotensin-converting enzyme inhibitors, vasodilators, digoxin, β-blockers, anticoagulants, and peripartum cardiomyopathy-targeted therapies.
- Therapeutic decisions are influenced by drug-safety profiles during pregnancy and lactation.
- Mechanical support and transplantation might be necessary in severe cases.
- Targeted therapies (such as intravenous immunoglobulin, pentoxifylline, and bromocriptine) have shown promise in small trials but require further evaluation.



PROGNOSIS



- Poor Prognostic Markers-
  - LVEF <30%
  - LVEDD >5.6cm
  - RV systolic dysfunction
  - Higher Troponin and BNP levels
- Prognosis- 50% complete recovery of ventricular function within 6 months of delivery
- Besides treatment, Mortality- 10-25%
- risk of recurrence in subsequent pregnancy and may worsen in the subsequent pregnancy
- If pregnancy is desired, the patient should wait for at least 5 years after the ejection fraction has normalized.

Thank You!