A Miserable Journey of a Woman Through Her Pregnancy

Salient Features of Our Case

Mrs. X, a doctor patient, 6th gravida hailing from Cumilla presented at her 29th week of Pregnancy.

It was her planned pregnancy. She was a booked case and on regular antenatal checkup.

Salient Features of Our Case

At 21st week of her current pregnancy during a regular antenatal visit, her blood pressure was recorded **160/110 mmHg** and she complained of **headache and photophobia**. She was diagnosed as a case of **Pre-eclampsia with severe features**. She had a previous history of 2 cesarean sections and 3 abortions which made her a high risk pregnancy.

Salient Features of Our Case

Following her initial diagnosis, she sequentially took Anti-Hypertensive polytherapy with **Labetalol** upto 200 mg 8 hourly along with **Nifedipine** upto 10 mg 8 hourly, but her blood pressure was still not under control. She also took prophylactic Aspirin 75 mg/day and Low Molecular Weight Heparin from her 1st trimester to have a better outcome of pregnancy.

Salient Features of Our Case

Her anomaly scan at 20 weeks revealed no congenital anomaly of the fetus. Her serial ultrasonograms throughout pregnancy revealed **Intrauterine Growth Restriction** along with severe **oligohydramnios**.

Week	Patient's AFI	Normal Range
24th Week	5	10 – 21
28th Week	2.15	9 - 22
29th Week (just prior to admission)	1.15	9 - 22

Salient Features of Our Case

With these complaints she was first referred to a specialized hospital in Dhaka from her regular ANC center. But due to her progressive decrease in AFI, she was referred to Green Life Hospital for NICU support.

PHYSICAL EXAMINATION

Pulse: 88 beats/min
Blood Pressure: 150/100 mmHg
(with multiple drugs)

Symphysio-Fundal Height:
24 weeks
Fetal Heart Rate: 126-133 beats/min

Bed Side Heat Coagulation
Test: ++++

Investigation Results (Following Admission)

Parameter	Result	Normal Level
Hemoglobin	8.7 g/dl	11.0-15.0 g/dl
Prothrombin Time	13.4 s	11 – 16 s
Activated Partial Thromboplastin Time	36.9 s	32 – 40 s
Serum Albumin	22 g/L	36-53 g/L
SGPT	23 U/L	Upto 59 U/L
Serum Creatinine	0.7 mg/dl	0.6 – 1.3 mg/dl
Urine R/M/E	Proteinuria	

Management

1) The dose of antihypertensives were adjusted.
2) Blood transfusion was given.
3) Magnesium Sulphate infusion loading and maintenance dose was started for prophylaxis against eclampsia and also for its fetal neuroprotective mechanism.
4) Dexamethasone injection was given for fetal lung maturation.

On the Day of Admission

The patient was counselled that the fetus was experiencing severe growth retardation and the future of this pregnancy was quite uncertain.
On the morning of her admission, fetal heart rate was found **112-115 beats/min**.

But that very evening, we encountered a ***sad event***.

On the Day of Admission

From the evening onwards, the patient was complaining of no fetal movement.
Fetal heart rate was inaudible on auscultation with stethoscope as well as with doppler.

The patient was sent for an urgent ultrasound where we discovered that she underwent sudden **Intrauterine Fetal Death.**

Challenges We Faced

1) Psychological upset of the mother
2) Induction of labour following Intra Uterine Death with her previous history of 2 cesarean sections
3) Risk of Uterine Rupture
4) Risk of Intra Partum or Post Partum Eclampsia
5) Risk of Post Partum Hemorrhage
6) Persistently elevated blood pressure unresponsive to antihypertensive polytherapy

Management

1) Counselling with sympathy and empathy
2) Induction of Labour
3) Control of Hypertension
4) Prevention of Convulsion

Induction of labour

The following day, oral **Mifepristone** was given. **Intracervical catheter** was kept for 48 hours under coverage of broad spectrum antibiotics

2 days

Cervix was soft, 1.5 cm dilated. However, progress of labour was not satisfactory. Hence labour was augmented by **Oxytocin** infusion in a titrating dose. Starting with 5 drops/min, and increasing every 15 minutes upto 45 drops/min, while carefully monitoring uterine contraction and patient's vitals.

2 days

Progress of labour was still not satisfactory. After proper counselling of the patient, per-vaginal **Misoprostol** was given to further augment the process of labour. 3 doses of 50 µg were given 4 hours apart.

Induction of labour

1 day

Macerated and malformed dead fetus was expelled **5 days** after she experienced IUFD. Placenta, cord and membranes were delivered by controlled cord traction. The fetus had neural tube defects and triple knot of cord around the neck.

Throughout the whole process, patient repeatedly requested for Cesarean delivery.

Control of Hypertension

Day	Recorded Blood Pressure	Antihypertensives Given
1	150/100 mmHg	**Oral Labetalol** 200 mg 6 hourly **Oral Nifedipine** 10 mg 8 hourly
3	160/110 mmHg	**Injectable Labetalol** 20 mg (4ml) repeated after 30 minutes to a total of 4 times was added in addition to previous treatment
4-5	160/110 mmHg	Previous treatment was continued
6 (Following delivery of dead fetus)	150/100 mmHg	Oral Labetalol was omitted. Injectable Labetalol was planned if blood pressure exceeded 160/110 mmHg, but was not required. Combination of **Amlodipine** (5 mg) with **Atenolol** (50 mg) was given 12 hourly Oral Nifedipine dose was adjusted to 20 mg 12 hourly
7	140/90 mmHg	Oral Nifedipine **omitted**
8	130/90 mmHg	Previous treatment

Our Success

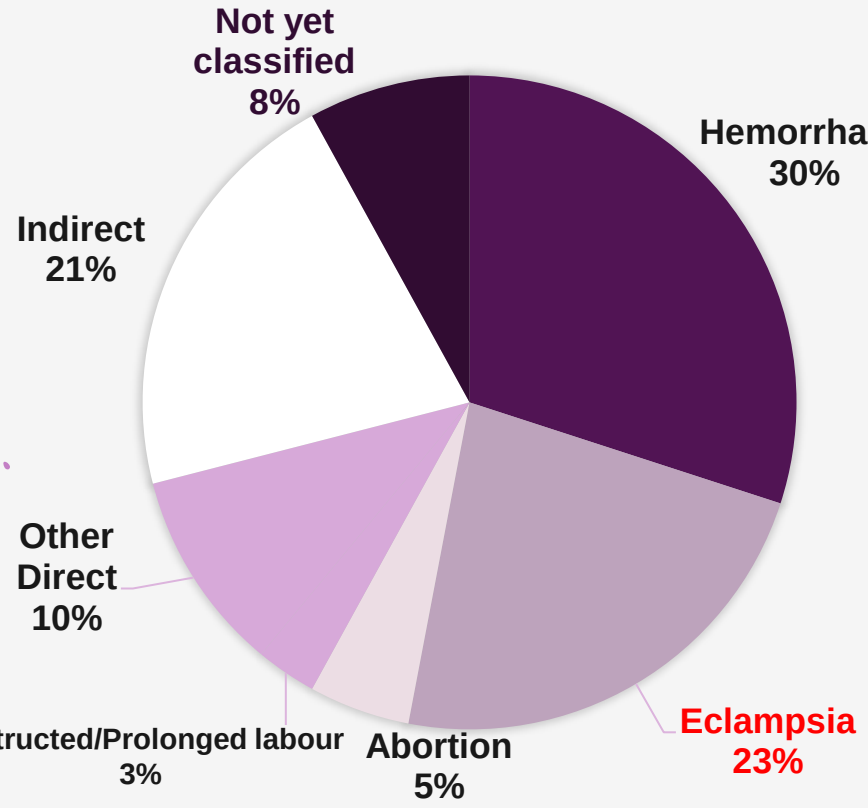
1) We earned the distressed patient's cooperation and trust as result of our counselling and emotional support.

2) Expulsion of dead fetus was done without operative burden of the patient, which was especially difficult due to her history of previous cesarean sections.

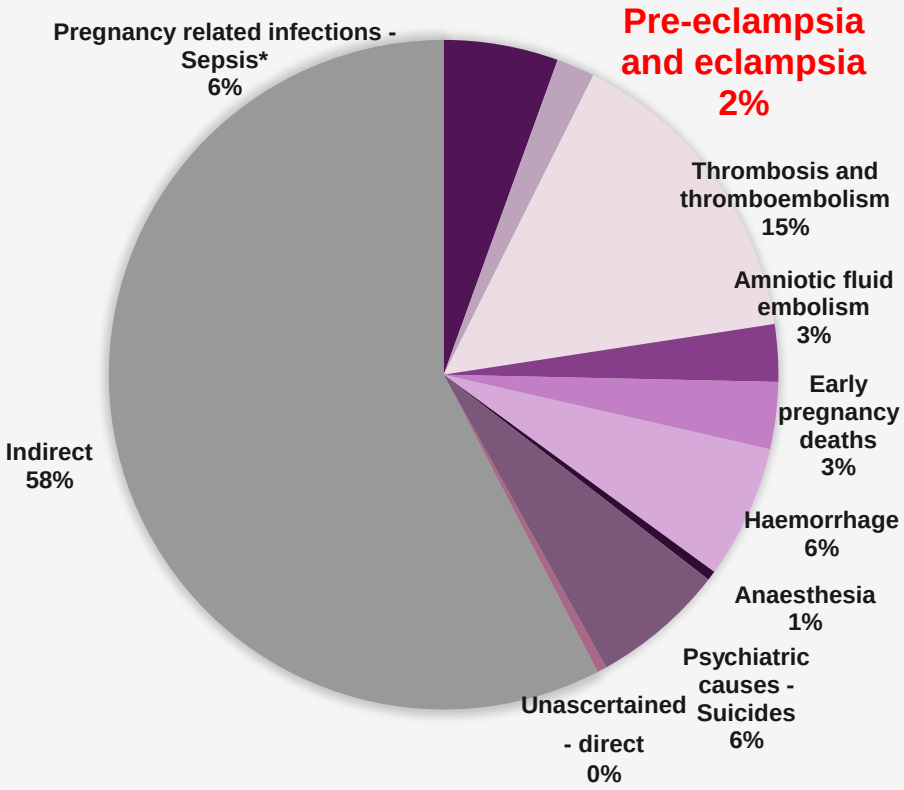
3) Mitigation of the risk of **uterine rupture**, **eclampsia** and **post partum hemorrhage** as a result of our vigilant monitoring and cautious interventions.

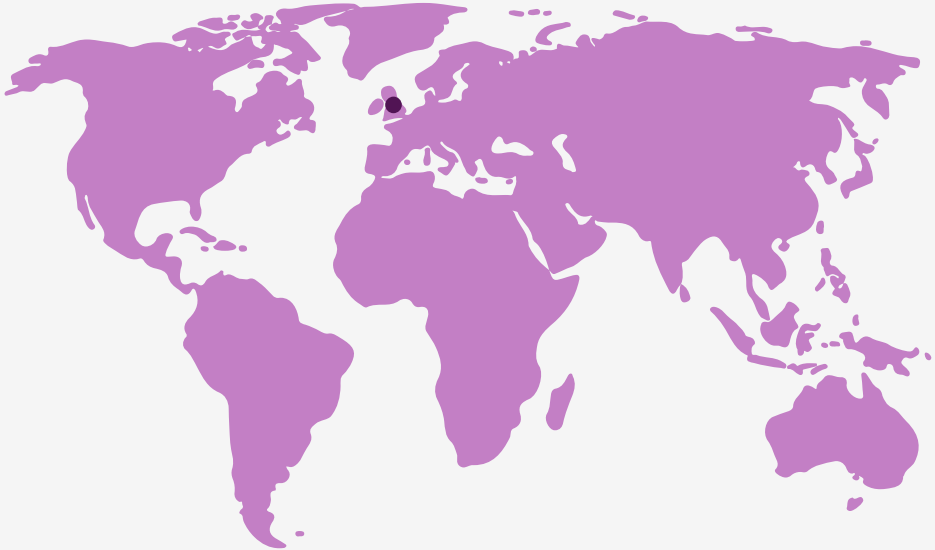
Hypertensive Disorder of Pregnancy

Impact of HTD in Bangladesh

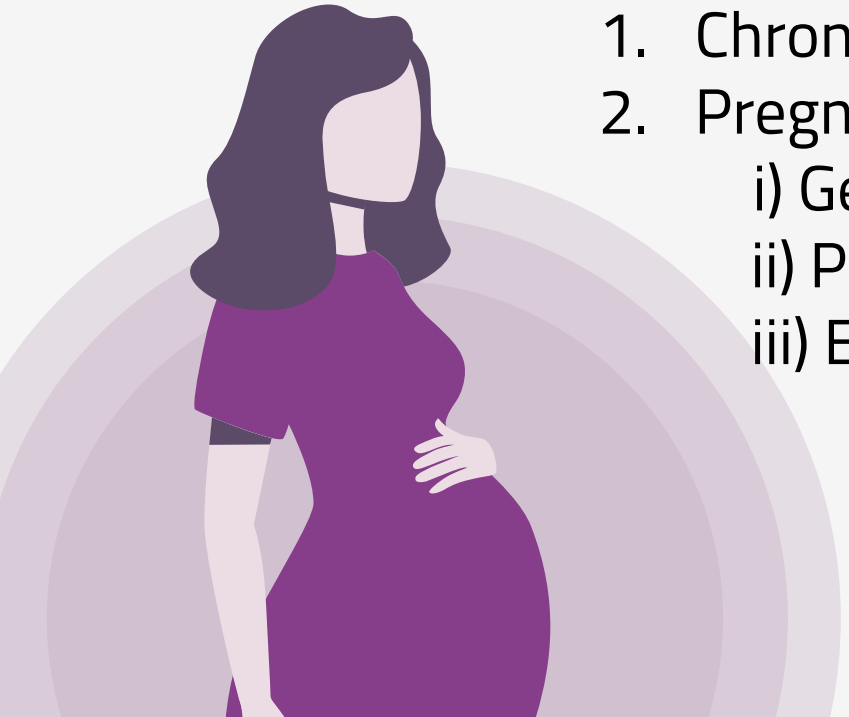


Impact of HTD in the developed World





Classification of Hypertensive Disorder of Pregnancy



1. Chronic hypertension (<20 weeks)
2. Pregnancy induced hypertension (>20 weeks)
    i) Gestational hypertension
    ii) Pre-eclampsia
    iii) Eclampsia

Pre-eclampsia:

New onset of hypertension (over 140 mmHg systolic or over 90 mmHg diastolic) after 20 weeks of pregnancy and the coexistence of 1 or more of the following new-onset conditions:

Proteinuria

Urine PCR ≥ 30 mg/mmol **or** ACR ≥ 8 mg/mmol, **or** at least 1 g/L [2+] on dipstick testing

Renal insufficiency

Creatinine ≥ 1.02 mg/dl

Liver involvement

Transaminases ≥ 40 IU/L, right upper quadrant or epigastric abdominal pain

Neurological complications

Altered mental status, blindness, stroke, clonus, severe headaches, visual scotomata

Haematological complications

Thrombocytopenia < 150,000/μL, DIC or haemolysis

Uteroplacental dysfunction

FGR, abnormal umbilical blood flow, or stillbirth

- NICE Guideline No 133

Classification of Pre-eclampsia

1) Pre-eclampsia with severe feature

2) Pre-eclampsia without severe feature

Pre-eclampsia with severe feature

Pre-eclampsia with severe hypertension that does not respond to treatment or is associated with :

1. ongoing or recurring severe headaches, visual scotomata, nausea
2. vomiting,
3. epigastric pain,
4. oliguria,
5. progressive deterioration in laboratory blood tests such as rising creatinine or liver transaminases or falling platelet count,
6. failure of fetal growth or abnormal doppler findings.

- NICE Guideline No 133

Criteria of Pre-eclampsia with Severe Feature

1. Systolic BP ≥ 160 mmHg and/or Diastolic BP ≥ 110 mmHg on 2 occasions at least 4 hours apart
2. Proteinuria (≥0.3 gm/24hours) or Protein creatinine ratio 0.3 or ≥1+ on Dipstick
3. Platelet count <1,00,000/microliter
4. Impaired liver functions – elevated liver transaminases ≥ twice normal

Criteria of Pre-eclampsia with Severe Feature (cont'd)

5. Pulmonary edema
6. Cerebral or visual symptoms, Headache, blurred vision
7. Oliguria (<400 mL urine in 24 hours)
8. Upper abdominal pain (epigastric pain or pain in right upper quadrant)

- OGSB Guideline

Management of Pre-eclampsia

1. General Management
2. Control of Hypertension
3. Prevention of Convulsions: Loading and Maintenance dose of Magnesium Sulfate
4. Obstetric Management

Outcome of Pre-eclampsia

Validated risk prediction models:

1. fullPIERS (at any time during pregnancy)
2. PREP-S (up to 34 weeks of pregnancy)

- NICE Guideline No 133

fullPIERS model

fullPIERS model:

- Gestational age
- Chest Pain
- Platelets
- Creatinine
- Aspartate Amino Transferase
- SpO2

PREP-S Model

- Maternal age
- Gestational age
- Exaggerated tendon reflexes
- Preexisting medical conditions
- Protein:Creatinine
- Serum Urea
- Platelet Count
- Systolic Blood Pressure
- Treatment with Antihypertensive
- Treatment with Magnesium Sulfate
- SpO2
- Alanine Amino Transferase
- Serum Creatinine

Monitoring of Pre-Eclampsia

Management	Pre-eclampsia without severe feature	Pre-eclampsia with severe feature
Admission to Hospital	Admission if high risk of adverse events suggested by validated risk prediction models (>30% according to fullPIERS, >50% according to PREP-S)	Urgent Admission
Blood Pressure Measurement	Every 4-6 hours after admission	Every 30 mins – 2 hours
Blood Tests (Complete Blood Count, Liver Function, Renal Function)	Twice a week	Thrice a week
24 hour Urinary Protein	No need for repeat quantification of proteinuria	No need for repeat quantification of proteinuria

Obstetric Management of Pre-eclampsia with Severe Feature

Before 34 weeks: All women should be given intravenous Magnesium Sulfate and a course of antenatal Corticosteroids.

34 – 36 weeks: All women should be given a course of antenatal Corticosteroids

37 week onwards: Initiate birth within 24-48 hours

- NICE Guideline No 133

Patients with Pre-eclampsia with Severe Feature are at a much greater risk of **Sudden IUD.**

Induction of labour in Intrauterine Fetal Death

Women with a non-scarred uterus:

1. Oral Mifepristone 200 mg followed by vaginal Dinoprostone or oral or vaginal Misoprostol
2. A mechanical method of induction

Women who have had a previous caesarean birth:

1. Mechanical methods of induction is most suitable, but carries risk of intrauterine infection
2. Dinoprostone and Misoprostol are relatively contraindicated due to their chance of causing uterine rupture

- NICE Guideline No 207

Take Home Message

1. Pre-eclampsia is not preventable or curable.
2. Proper follow-up, monitoring with multidisciplinary holistic approach is required for proper management.
3. In Pre-eclampsia with severe feature, both maternal and fetal outcome can be devastating.

Take Home Message

4. Standard Guidelines can be used to ensure appropriate care and options should be offered to patient with informed consent.
5. A system should be in place to give psychological support for staff involved with an IUFD.
6. Operative interference can be avoided with proper counselling, careful monitoring and due consent of the patient regarding the outcome.

REFERENCES

- Bangladesh Maternal Mortality and Health Care Survey 2016
- Maternal mortality 2020-2022, MBRRACE-UK
- Hypertension in pregnancy: diagnosis and management [NICE Guideline 133]
- Inducing labour [NICE Guideline 207]
- OGSB Guideline


Thank
You