Pre-eclampsia, Severe Pre-eclampsia & Eclampsia

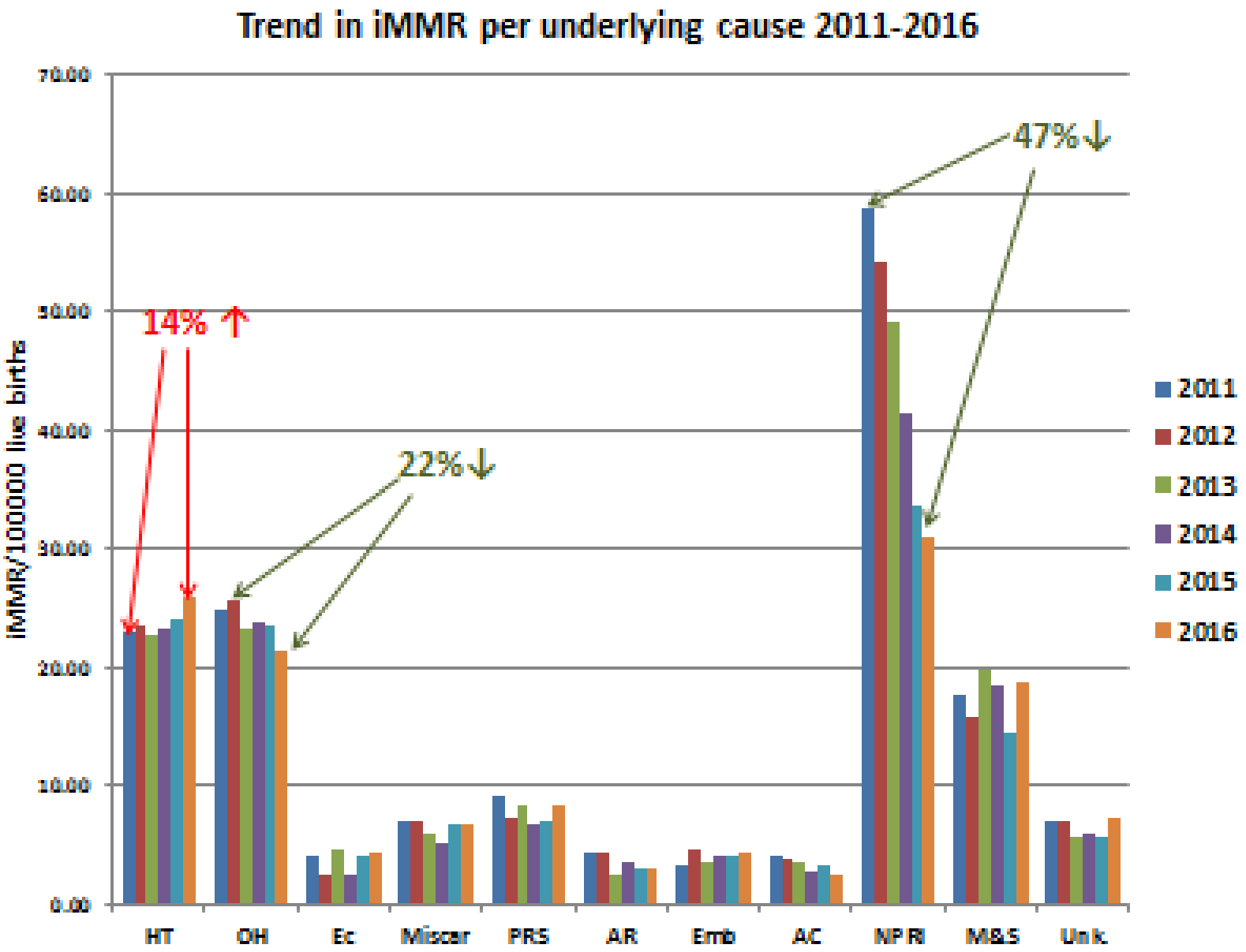
ESMOE

Importance of Pre-/Eclampsia

No 1 direct cause of maternal mortality (MM) and No 2 overall cause of MM in RSA

✓60% of deaths are associated with substandard care

Pre-eclampsia is a disease of the endothelium and therefore potentially always multi-organ


Trend in iMMR per underlying cause 2011-2016
iMMR/100000 live births
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
14% ↑
22%↓
47%↓
HT
OH
Ec
Miscar
PRS
AR
Emb
AC
NPRI
M&S
Unk.
2011
2012
2013
2014
2015
2016

Main causes of death in HD?

1. Cerebral haemorrhage

Control dangerous HT

2. Pulmonary oedema

Do not overload your patients IV

This could reduce deaths due to HT by 70%

Risk factors for developing HT

Prior pre-eclampsia

Chronic hypertension

Multiple gestation

Pre-gestational diabetes

Maternal BMI>35

Anti-phospholipid syndrome/SLE

Assisted reproduction therapies

Interventions

Calcium supplementation (500 g) should be given to all pregnant women

Start aspirin at 12 – 14 weeks (up to 20/52)

Definition: pre-hypertension

BP 130 – 139/85 – 89 mmHg

Management: Repeat after 30 mins – 2 hrs

If persistent review after 3 – 7 days

If normal follow up as low risk

Definition: Hypertension (HT) in Pregnancy

- ✓ Systolic BP ≥ 140mmHg or a diastolic BP ≥ 90 mmHg on more than 2 occasions at least 2 hours apart

- ✓ Severe HT is a BP of more than 160/110 mmHg

- ✓ Gestational HT and pre-eclampsia are diagnosed after 20 weeks.

Mx of Hypertension (Clinic)

BP ≥ 140/90 mm Hg and < 160/110 mm Hg without proteinuria

Start α-methyldopa 500 mg tds

Refer to District Hospital within 3 days to check BP and urine

Management of Pre-eclampsia

BP ≥ 140/90 and 1+ proteinuria

CHCs – immediate referral

Why?

Because organ systems need to be assessed (blood tests)

Management of preeclampsia

All cases of preeclampsia should be managed in a secondary or tertiary hospital with 24 hour laboratory and safe CD facilities.

Definition of Pre-eclampsia

Hypertension after 20 weeks with 1 or more of the following:

Proteinuria

Renal impairment

Liver impairment

Haematological impairment

Neurological impairment

Growth restriction

The range of organs affected are not limited and a result of endothelial dysfunction

Why is Pre-eclampsia so Dangerous?

- Because the extent of disease is invariably underestimated
- Many organ dysfunctions are asymptomatic and not recognised
- Health Care Providers do not appreciate the severity of disease in these patients

Principles of Management

1. Stabilise mother and then deliver fetus

2. Treat and prevent fits

3. Treat dangerously raised blood pressure (BP)

4. Attention to fluid balance

5. Be aware of and prevent complications

What is stabilization?

CAB performed

$MgSO_4$ administered

BP controlled

All blood results available

Intake/Output control in place

Management of pre-eclampsia

Admit and perform initial assessment

Evaluate systems

If mom stable monitor fetus with 6 hourly CTGs

Deliver when maternal condition deteriorates, fetal compromise noted or fetal maturity certain

Maternal indications to deliver

Imminent/eclampsia after $MgSO_4$

Cannot control the BP

Deteriorating organ function

Immediate Assessment

CAB

Position

Support circulation, airway & breathing

IV access

$MgSO_4$

Big 5, Forgotten 4 and Core 1

Severe Pre-eclampsia

BP ≥ 160/110

OR

3+ proteinuria

OR

Symptomatic pre-eclampsia/imminent eclampsia (headache, visual disturbances, N&V, epigastric pain or jittery)

Specific Management

- Magnesium sulphate
- Severe hypertension
- Evaluation of the mother
- Fluid balance

Magnesium Sulphate ($MgSO_4$): The Anticonvulsant of Choice

Loading dose: 14g

- 4g in 200mls normal saline (NS) – standard giving set – administered IV over 20 mins
- 5g with 1ml 2% lignocaine IM in each buttock

Maintenance:

- 5g with 1ml 2% lignocaine IM every 4 hours until 24 hours after birth or 24 hours after last convulsion

- $MgSO_4$ – is always a 50% solution (1 gm in 2 ml)

Magnesium Caution!

- ✓Do not give the next dose of magnesium if:
  - Absent knee jerk
  - Urine output less than 100 mls in last 4 hours (< 25ml/hr)
  - Respiratory rate less than 16 breaths per minute

- ✓If respiratory rate less than 16 breaths/minute stop magnesium and give calcium gluconate 10% 1 g iv over 10 minutes

Magnesium Sulphate

- ✓ If convulsions recur give an additional 2g IV over 10-15 minutes

Who Should Receive $MgSO_4$

Severe pre-eclampsia

Imminent eclampsia

Eclampsia

Concern when transferring

Managing severe HT (BP > 160/110 at risk of CVA)

Oral Rx	Parenteral Rx
Nifedipine 10mg po Repeat every 30 minutes → max 4 doses or until BP < 160/110	Labetolol 20, 40, 80, 80 and 80mg (max 300mg) Give a bolus every 10 mins until BP < 160/110
Contra-indications Pulse > 120 Cardiac lesion Unable to swallow	Contra-indications Patients with asthma and ischaemic heart disease

Organ System Evaluation 1

Big 5

- CNS
- CVS — Tachycardia; shock
- Resp — Tachypnoea, SaO_2<90%
- Liver & GIT — Abnormal liver enzymes, glucose, bowel sounds, acute abd
- Renal — Decreased urine output, ↑ urea and creatinine

Organ System Evaluation 2

Forgotten 4

- Haematological Hb, Plt
- Immunological HIV status, temperature
- Endocrine Glucose
- Musculo-sketetal DVT

Core 1

Obstetric evaluation

Basic PE bloods

FBC (HB and platelets)

ALT & LDH (not liver function tests)

Creatinine and urea

Fluid Management 1

Catheterise & start Intake/Output chart

Initial loading dose: 200 ml NaCl

IV Ringer's Lactate (R/L) 80 ml/hr

Output < 30 ml/hr give 1 x 200 ml R/L bolus

Urine output still < 30 ml/hr – continue IV at 80 ml/hr without further boluses

Fluid Management 2

It is better to run a patient dry than drown them!

Capillaries are leaky therefore control fluid input to prevent cerebral and pulmonary oedema

Because of the capillary leak patients are intra-vascularly dehydrated and should not receive diuretics

Maternal Stabilisation

Is only complete when the lab results are back and this allows evaluation of the organ systems (can do bedside Hb, bleeding and clotting times if lab delay)

It is not appropriate to monitor the fetus prior to this

Evaluation of Fetus

- ✓ Evaluate fetus for viability
- ✓ Arrange transfer or
- ✓ Consult re-termination of pregnancy

- ✓ There is no place for expectant management in district hospitals!

- ✓ If the fetus is preterm start steroids

Referral of Patients

It is essential to supply the receiving unit with all the necessary information and the SBAR chart should be used for this.

It should also be used when discussing the transfer

Complete the bottom line and keep a copy of the form

While awaiting EMS it is essential to “special” the patient

DEPARTMENT OF HEALTH
Republic of South Africa

SBAR Clinical report on Maternity situation

S

SITUATION

I am calling about (name of woman) _____Ward: _____Hosp. No:_____

The problem I am calling about is _____

I just made an assessment of the patient:

Vital signs:- BP _____/_____Pulse _____resp rate _____Oxygen saturation _____% Oxygen at ____l/min Temperature _____C I am concerned about:

Blood pressure because :-

- Systolic pressure greater than 160 mm Hg
- Diastolic pressure more than 100 mm Hg
- pressure less than 90

Pulse because:-

- Pulse rate more than 120
- Pulse rate less than 40
- Pulse rate greater than systolic BP

Respiration rate because:-

- Rate less than 10/min
- Rate more than 30/min

Urine output:-

- Output less than 100 ml over last 4 hours
- Significant proteinuria (+++/++++) Systolic

Haemorrhage

- Antepartum
- Postpartum

Fetal well-being

- CTG pathology

Early obstetric warning scores

B

BACKGROUND (tick relevant sections)

☐ **The woman is:-**

Parity [primiparous / multiparous/ grandemultiparous] with gestation_____weeks and a [singleton/ multiple] pregnancy

She had _____previous caesarean sections or episodes of uterine surgery

☐ **The present fetal assessment is :**

Fundal height _____cm Presentation _____with _____fifths above brim: Fetal heart rate _____bpm

CTG : Not done / normal/ suspicious/ pathological

☐ **Antenatal risks**

Risks identified on antenatal card _____

☐ **Labour**

Not in labour / spontaneous onset of labour/ induced labour

IUGR / Pre-eclampsia/ reduced fetal movements/ Diabetes/ Antepartum haemorrhage

On syntocinon infusion (_____IU/_____ml fluid given at _____ml/hour)

Most recent vaginal examination done at __h Dilated _____cm with _____above brim and position _____

Membranes : Intact/ ruptured at _____h with currently Clear / meconium stained liquor/ Blood stained liquor

Delivered _____at _____h with 3rd stage complete/ retained placenta

☐ **Post Natal**

Delivery date _____at _____h____ Type of delivery _____ With/ without perineal trauma

Blood loss _____ml Syntocinon infusion _____IU/ _____ml at _____ml/hour

Fundal height: High / Atonic/ Tender/ Abdominal- perineal wound oozing

☐ **Treatment given/ in progress**

Rx _____

A

ASSESSMENT

I think the problem is _____

The problem may be related to: Cardiac/infection/ respiratory/haemorrhage/PET/HELLP/Embolism/ Pulm oedema/Fetal distress

I am not sure what the problem is, but the woman is deteriorating and we need to do something

R

RECOMMENDATION

Request

- ☐ Please come and see the woman immediately
- ☐ I think delivery needs to be expedited
- ☐ I think the patient needs to be transferred
- ☐ I would like advice on management of the patient

Response

_____

Person completing form: (Name) _____Rank_____Date_____Time_____

PERSON REPORTED TO (Name) _____Rank _____Inst._____

NB! After completing and consultation, place this form in the patient file as proof of communication and response

Delivery

Pre-eclampsia is a disease of pregnancy and the only cure is to end the pregnancy

Terminate pre-viable pregnancies

Vaginal delivery at an appropriate level of care is optimal

It is often necessary to individualise Mx

After Delivery

Monitor in a “designated area” until the patient is stable

Remember (pre-)eclampsia can get worse or the first fit can occur in the postpartum period

Continue magnesium for 24 hours – no need to “tail off”

Postpartum anti-hypertensives

ACE inhibitor

Enalapril 5mg mane (can ↑ → 20mg/day)

Ca channel blocker

Amlodipine 5mg daily (can ↑ → 10mg/day)

B-blocker

Atenolol 50mg/day (can ↑ → 100mg/day)

Conclusion

HT in pregnancy is an important cause of maternal and perinatal morbidity and mortality

Increase in NCDs – more women with risk factors for PET – chronic HT, obesity

Aggressive inpatient management