# Eclampsia

# INTRODUCTION

1)Hypertension is most common medical problem encountered during pregnancy.

2)Hypertensive disorder in pregnancy may cause maternal & fetal morbidity & leading cause of maternal mortality.

3)Hypertensive disorders are:

~Pre-eclampsia.

~Eclampsia.

~Gestational Hypertension.

~Chronic Hypertension.

# DEFINITION

1) Varadaeus coined the term eclampsia, is derived from a greek word, meaning is „like a flash of lightening".

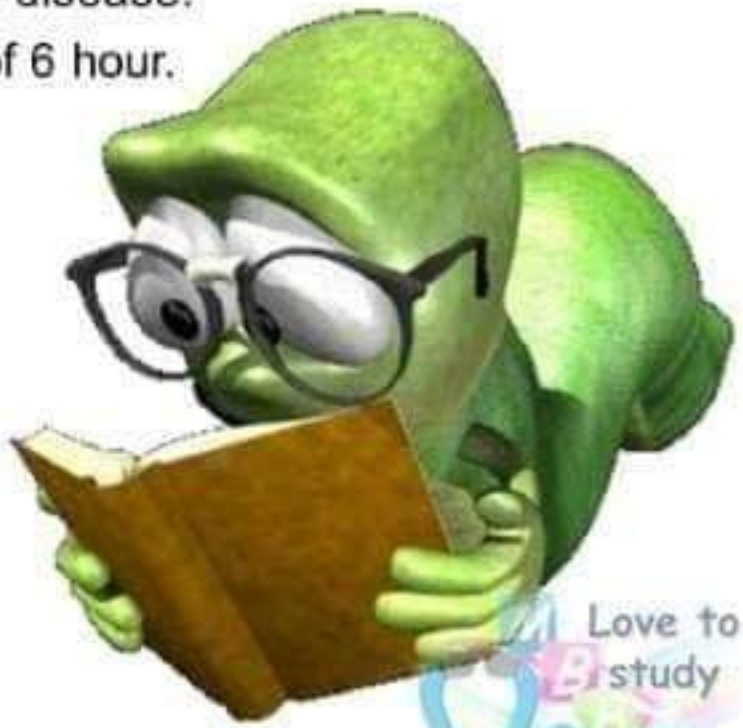
2) Eclampsia is defined as „A new onset of grandmal seizure activity in pregnancy & post partum period.

3) Pre-eclampsia when complicated with generalized tonic-clonic seizures &/ or coma is called eclampsia.

4) In most of cases over 80% ,disease preceded by features of severe pre-eclampsia.

# ETIOLOGY

1) Exact etiology is unknown.
2) More common in previous hypertensive disease.
3) Reading of B.P taken twice at interval of 6 hour.
4) Failure of placentation.
5) Abnormal lipid metabolism.
6) Decrease calcium in diet.
7) Other causes are : „ACDEPR"
   * A ~ Alchohol.
   * C ~ Coarctaction of aorta.
   * D ~ Drugs.
   *E ~ Endocrine disease.
   *P ~ Pregnancy induced hypertension.
   *R ~ Renal disease.



# RISK FACTOR

1) Primigravida.
2) Age.
3) Past history.
4) Pre existing disease.
5) Condition in which placenta enlarges.

# INCIDENCE

1)Eclampsia occure in 10% of all pregnancy .

2) India account 20% of world maternal mortality rate , next to haemorrhage,

pre-eclampsia & eclampsia are direct cause .

3) More common in primigravida 75%.

4)Eclampsia is 3rd leading cause of maternal mortality after thrombo-embolism &

& non-obstetrical injury.

5) Maternal DBP> 110 are associated with increase risk of placental abruption & fetal growth retardation.

6)Eclampsia result in death in advance or uncontrollable stage.

# PATHOGENESIS

Imbalance in prostaglandin ratio.

↓

Placental vasoconstriction.

↓

Reduced perfusion.

Thromboplastin

↓

Renal glomerulus affected

↓

Protein urea

Release of renin

↓

Angiotensin I

↓

Angiotensin II

↓

Adrenal hormones

↓

Aldosterone

↓

Sod.Reabsorption

General vasoconstriction

↓

Hypertension

↓

Headache

↓

Visual Disturbance

↓

Seizure

Oedema

Oligourea

# CAUSE OF CONVULSION

- Cerebral irritation leading to convulsion , & irritation may be provoked by : Anoxia, cerebral oedema , cerebral dysrthythmia.

1) ANOXIA: Spasm of cerebral vessels.

↓

Increased cerebral vascular resistance.

↓

Fall in cerebral oxygen consumption.

↓

„Anoxia"

2) CEREBRAL OEDEMA :

~ It may contribute to irritation.

3) CEREBRAL DYSRHYTHEMIA :

~ It increases following anoxia & oedema.

# COURSE OF CONVULSION

1.Seizure last for 60-70sec tonic-clonic type , later goes into coma.

2.Throughtout seizure , diaphragm is fixed , breathing doesn't occure.

3.First convulsion is forerunner of other. May be 1 or 2 in mild case to continuous result in status eclampticus.

# ONSET OF FITS

Fits occur more commonly in 3rd trimester ( more than 50% ) ,on rare condition fits may occur in early months as in hydatiform mole.

1. ANTIPARTUM (50%) :

*Fits occur before onset of labour . more often , labour starts soon after & at times it is impossible to differentiate it form intrapartum ones.

2. INTRAPARTUM ( 30% ) :

*Fits occur for first time during labour

.

3. POSTPARTUM (20%) :

*Fits occur for the first time in puerperium,usually with in 48 hour of delivery.

*Fits occur beyond 48 hr but less than 4weeks after delivery is accepted as „Late Postpartum Eclampsia".

# CLINICAL FEATURE

The eclamptic fits are epileptiform & consist of four stages , that are :

1).PREMONITORY STAGE :

*The patient becomes unconscious.
*There is twitching of muscles of face,tongue & limbs.
*Eye balls or are turned to one side & become fixed.
*This stage lasts for about 30 second.

2)TONIC STAGE :

*The whole body goes into a spam called trunk opisthotonus.
*Limbs are flexed & hands clenched.
*Respiration ceases & tongue protrudes between the teeth.
*Cyanosis appears.
*Eyes balls become fixed.
*This stage lasts for about 30 seconds.

3) CLONIC STAGE :

* All the voluntary muscles undergo alternate contraction & relaxation.

*The twitching starts in face then involve one side of extremities & ultimately the whole body is involved in the convulsion.

*Biting of tongue occurs.

*Breathing is stertorous & blood stained frothy secretions fill the mouth.

*Cyanosis gradually disappears.

*This stage lasts for 1-4 minutes.

4) STAGE OF COMA :

*Following the fit , the patient passes on the stage of coma.

*It may last for a brief period or in others deep coma persists till another convulsion.

*On occasion, the patient appears to be in a confused state following the fit & fails to remember the happenings.

*Rarely, the coma occurs without prior convulsion.

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*The fits are usually multiple , recurring at varying intervals.

*When it occurs continuously it is called status eclampticus.

*Following the convulsion ,temperature rises , pulse & respiration rates are increased & blood pressure also increases.

*The urinary output is markedly diminished , proteinuria is is pronounced & blood uric acid is raised.

# OTHER CLINICAL FEATURE

- OTHER SYMPTOMS :

  may be :

~Asymptomatic.

~Headache.

~Visual disturbance.

~Epigastric pain.

~Oedema.

~High B.P.

~Fluid retention.

~Brisk reflex.

~Fundal level less than approximate date.

# COMPLICATION

1.MATERNAL COMPLICATION : Are as follows,

*Tongue biting.

*Head trauma.

*Aspiration.

*Broken bones.

*Permanent CNS damage.

*Intra cranial hemorrhage.

*Renal failure.

*Death.

*Injuries due to falling from bed.

*Disturbed vision.

*Psychosis.

*Shock.

## CONTI.....

*Acute left ventricular failure.

*Pneumonia.

*Adult respiratory distress syndrome (ARDS)

*Pulmonary oedema.

*Hepatic necrosis.

2.NEONATAL & FETAL COMPLICATION :

*Death.

*Prematurity.

*Placental infraction.

*Abruptio placentae.

*Fetal hypoxia,aspiraton,ect.

*IUGR (Intra uterine growth retardation).

*Sepsis.

# PROGNOSIS

1.MATERNAL PROGNOSIS :

Once convulsion occur prognosis become uncertain , prognosis depends on many factors & features , that are :

1.Long interval between onset & commencement of treatment (late referral).
2.Antepartum eclampsia specially with long delivery interval.
3.NO. of fits more then 10.
4.Coma in between fits.
5.Temperature over 102 F with pulse rate above 120/min.
6.Systolic Blood pressure above200mm hg.
7.Oligouria with protein urea.
8.Non response to treatment.
9.Jaundice .
10.Respiration rate 40/min.
11.Coma taken 6 hour or more.

## CONTI...

### Maternal mortality in eclampsia is very high in India because of :

1.Cardiac failure

2.Pulmonary oedema.

3.Aspiration & septic pneumonia.

4.Cerebral haemorrhage.

5.Acute renal failure.

6.Cardio-pulmonary arrest.

7.ARDS

8.Pulmonary embolism.

9.Postpartum shock.

10.Puerperal sepsis.

### If the patient recovers from acute illness she is likely to recover rapidly in 2-3 weeks ,recurence of eclampsia is uncommon , although chance of pre-eclampsia is about 30%.

## CONTI.....

2.FETAL PROGNOSIS :

#Mortality rate is high about 30-50 % , causes are :

1.Prematurity –Spontaneous or induced.

2.Intra uterine asphyxia – Due to placental insufficiency arising out of infraction ,spasm of utero-placental vasculature & retro-placental haemorrage.

3.Effect of drugs –Used to control convulsion & hypertension.

4.Trauma –During operative delivery.

# *MANAGEMENT*

- Aim of management.
- Prediction & prevention.
- First aid treatment outside the hospital.
- General management ( Medical & Nursing )
- Specific Management.
- Obstetric Management.

## CONT.....

1.AIM OF MANAGEMENT :

- Arrest convulsion.
- Maintenance of patent airway , breathing & circulation.
- Oxygen administration at the rate 8-10 L/Min.
- Terminate pregnancy.
- Ventilatory support.
- Prevention of complication.
- Hemodynimical stable.
- Prevention of life threatening situation.
- Postpartum care.
- Medicine & regular follow up.

## CONTI...

2.PREDITION & PREVENTION :

*In majority of cases , eclampsia is preceded by pre-eclampsia.

*Thus prevention of eclampsia rest on early detection & effective institutional treatment with judicious treatment of pregnancy during eclampsia.

*Eclampsia may present in atypical ways , hence it is at times difficult to predict.

*Use of anti-hypertensive drugs , anti-convulsant therapy & timely delivery are important steps.

*Close monitoring during labour & 24 hour of postpartum , are also important in prevention of eclampsia.

*Unfortunately 30-85% of cases of eclampsia remained unpreventable.

*Use of magnesium sulphate lowers the risk of eclampsia.

## CONTI....

3.FIRST AID TREATMENT OUTSIDE THE HOSPITAL :

*The patient , either at home or in the health center should be shifted urgently to the tertiary referral care hospitals , because there is no place of continuing the treatment in such place.

*Transport of an eclamptic patient to a tertiary care center is very important.

*Such patient needs neonatal & obstetric intensive care management.

*Important steps in transport are :

1.All maternal records & detailed summery should be sent with patient.

2.B.P should be established & colvulsions should be arrested.

3.Drugs should be give like : magnesium sulphate ,labetalol,diuretics, diazepam.

4.One medical personnel & a trained midwife accompany the patient in equipped ambulance to prevent injury & complication.

CONTI...

## 4.GENERAL MANAGEMENT (MEDICAL & NURSING ):

### i) SUPPORTIVE CARE :

*Aim to prevent serious maternal injury from fall , to prevent aspiration , to maintain airway & to ensure oxygenation.

*Patient is kept in railed cot & a tongue depressor is inserted between teeth.

*She is kept in the lateral position to avoid aspiration.

*Vomitus & oral secretion are removed by frequent suctioning , oxygenation is maintained through face mask to prevent respiratory acidosis.

*Oxygenation is monitored using a transcutaneous pulse oximetery .

*ABG analysis is needed when oxygen saturation falls below 92%.

*Sodium bicarbonate is given when pH is below 7.10 .

*The patient should have a doctor or at least a trained midwife for constant supervision.

## CONTI...

ii) HISTORY ;

- Detailed history is to be taken from relatives , relevant to diagnosis of eclampsia , duration of pregnancy , number of fits,& nature of medications administered outside.

iii)EXAMINATION ;

Once the patient is stabilished , a thorough out quick general , abdominal & vaginal examination are made. A self retaining catheter is introduced & urine is tested for protein.

iv)MONITORING ;

*Half hourly pulse , respiration rate are recorded

*Hourly urine output is to be noted.

*If undelivered the uterus should be palpated at regular intervals to detect the progress of labour & fetal heart rate is to be monitored.

*Immediately after convulsion fetal bradycardia is common.

## CONTI.....

v) FLUID BALANCE :

*Ringer's solution started as first choice.

*A excess of dextrose or crystalline solutions should not be used as it will aggravate the tissue are overload leading to pulmonary oedema , circulatory overload & ARDS.

vi)ANTIBIOTIC :

*To prevent infection, ceftriaxone 1gm IV bd.

## CONTI...

5.SPECIFIC MANAGEMENT :

i) ANTICONVULSANT & SEDATIVE THERAPY :

*The aim to control the fits & to prevent its recurrence.

### Magnesium sulphate is drug of choice , it acts as a membrane stabilizer & neuroprotector .

~It reduces motor end plate sensitivity to acetylcholine , it induce cerebral vasodilatation , dilates uterine arteries , inhibit platelet activation . It has no adverse effects on neonate within therapeutic level, it has got excellent result with maternal mortality of 3%, it doesn't control hypertension.

~Repeat injection are given only if knee jerk are present , respiration rate more than 12/min , urine out put exceed 30ml/hour.

~The therapeutic level of magnesium is 4-7mEQ/L . For recurrence of fit 2gm IV bolus is given over 5 min.

## CONTI...

### BENEFITS OF MAGNESIUM SULPHATE USE :

i)It control fits effectively without any depression effect to the mother or infant.

ii)It reduce risk of recurrent fits.

iii)It reduce maternal death rate at 3% .

iv)It reduce perinatal mortality rate.

### OTHER REGIMEN ARE :

1.Phenytoin.

2.Diazepam.

3.Lytic cocktail , MENON 1961 ( chlorpromazine , pethidine , promethazine )

## CONTI...

ii) ANTIHYPERTENSIVE & DIURETICS :

- Inspite of anticonvulsant & sedative regimen, if the blood pressure remains more then 160/110 mm hg ,antihypertensive drugs should be administered.
- Drugs commonly used are : Hydralazine , labetalol , calcium channel blocker , or nitroglycerine.
- Presence of pulmonary oedema require diuretics, in such case " Frusemide " should be administered in doses of 20-40 mg IV & repeated at interval.

iii) MANAGEMENT DURING FITS :

- In premonitory stage : a mouth gag is placed in between teeth to prevent tongue bite & removed after clonic stage or phase is over.
- The air passage is to be clear off the mucus with mucus sucker , the patient"s head is to be turned to the one side , raising the foot end of bed facilitates postural drainage of the upper respiratory tract.
- Oxygen is given until cyanosis disappears.

CONTI..

iv) STATUS ECLAMPTICUS :

- Thiopentone sodium 0.5 gm dissolved in 20 ml of 5% dextrose is given IV very slowly.
- In unresponsive cases, caesarean section in ideal surroundings may be a life saving attempt.

v) TREATMENT OF COMPLICATION :

- Prophylactic use of antibiotics maekedly reduces the complications like pulmonary & puerperal infection.
- For pulmonary oedema & ARDS : Frusemide 40 mg I.V followed by 20gm of mannitol I.V ,pulse oxymeter is very useful in such patient . Aspiration of mucus from tracheo-bronchial tree by a suction apparatus is done.
- For heart failure : Oxygen inhalation , parenteral lasix & digitalis are used.
- For anuria : The dopamine infusion is given .
- For hyperpyrexia : Cold sponging, & antipyretics are given.
- For psychosis : Chlorpromazine or Trifluoperazine is quite effective.

CONTI...

### INTENSIVE CARE MONITORING :

*The patient with multiple medical problems needs to be admitted in intensive care unit where she is looked after by a team consisting of obstetrician , a physician & an expert anaesthetist .

*Cardiac, renal & pulmonary complication are managed effectively.

*Use of blood gas analyzer to detect hypoxia & acidosis , pulse oxymetery & centeral venous pressure monitor should be done depending on individual case or need.

*A deeply unconscious patient with raised ICP needs steroids & diuretic therapy.

* CT-SCAN & MRI may be needed for the diagnosis.