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.

NORMAL POSITION OF FETUS

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"

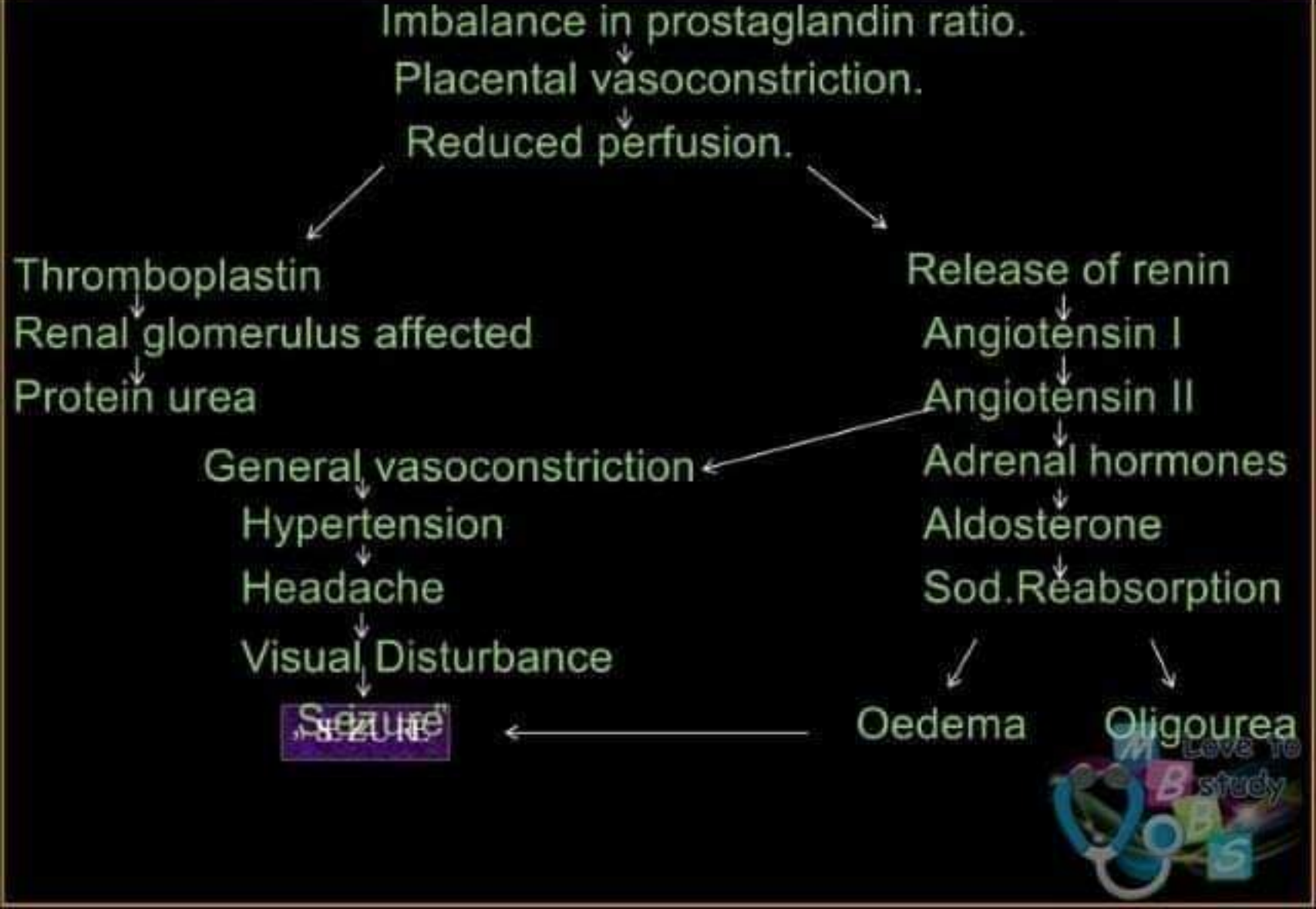
2) CEREBRAL OEDEMA :

~ It may contribute to irritation.

3) CEREBRAL DYSRHYTHEMIA :

~ It increases following anoxia & oedema.

PATHOGENESIS



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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.

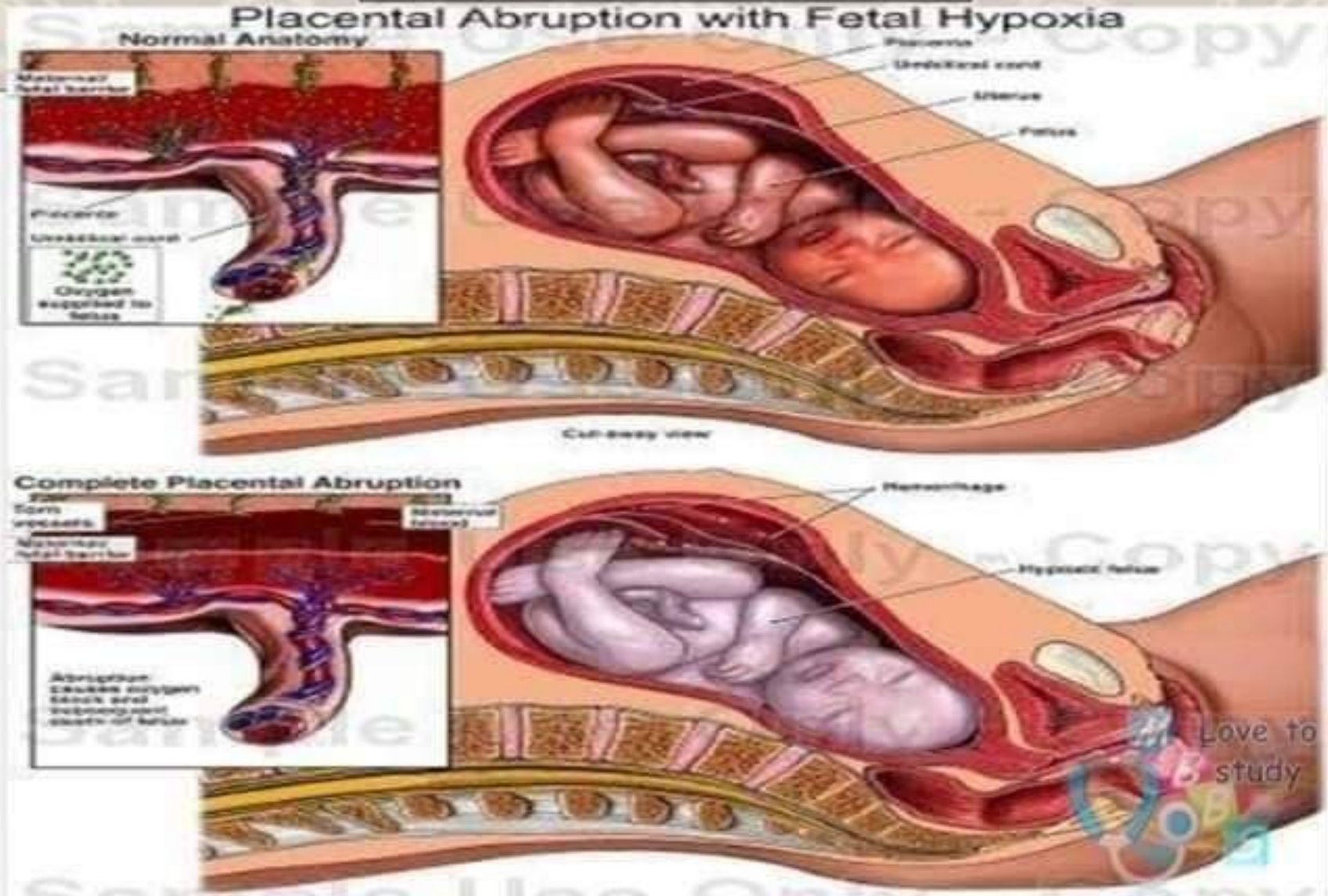
*Disturbed vision.

*Psychosis.

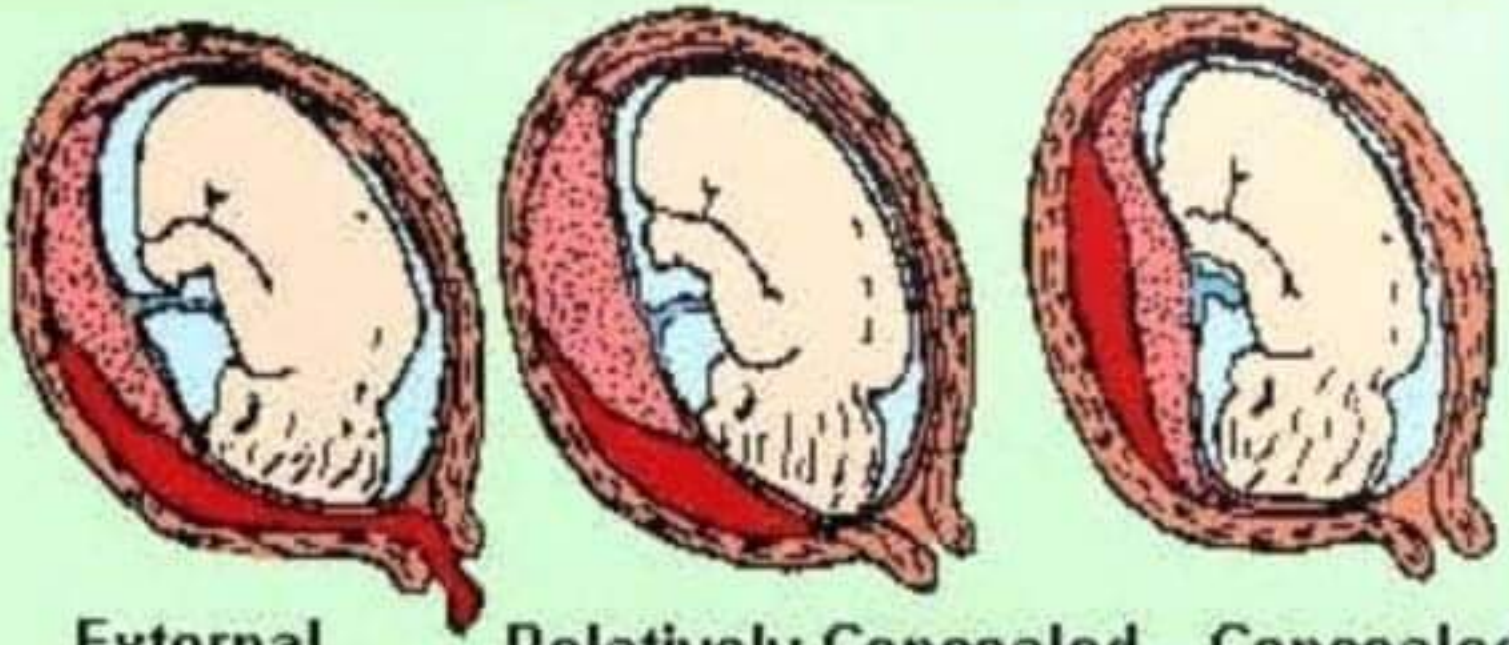
*Shock.

PREMATURE INFANT

FETAL HYPOXIA



ABRUPTIO PLACENTAE



External Abruption

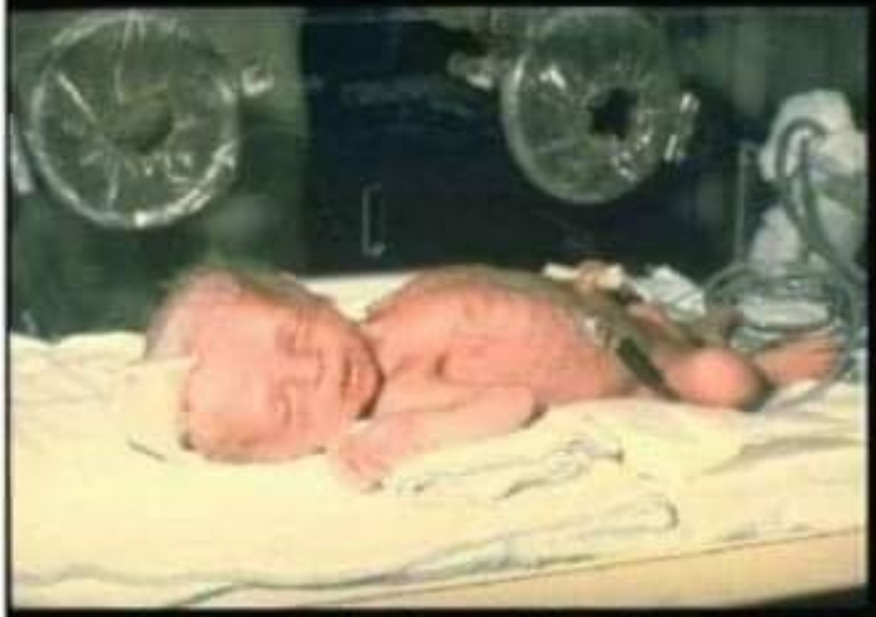
Relatively Concealed Abruption

Concealed Abruption

Classification of Abruptio Placentae

INNTRA UTERINE GROWTH RETARDATION

IUGR



Note relationship between large cranium and small abdomen and thorax

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%.

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...

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.

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.

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MAGNESIUM SULPHATE

ANTI HYPERTENSIVE DRUG

THIOPENTONE SODIUM