GI & Hepatic Complications

HYPEREMESIS • CHOLESTASIS • FATTY LIVER **KMU - FINAL YEAR MBBS**

1. HYPEREMESIS GRAVIDARUM (HG)

Mechanism: Peak hCG levels stimulate the CTZ (Chemoreceptor Trigger Zone).
Peak Incidence: 8 - 12 Weeks.
Triad for Diagnosis:
1. > 5% Weight Loss.
2. Dehydration (Electrolyte imbalance).
3. **Ketonuria** (Starvation Ketosis).

🚨 MANAGEMENT PROTOCOL
1. Admission: If ketonuria 2+.
2. Fluids: Normal Saline (Avoid Dextrose initially to prevent Wernicke's).
3. Thiamine (B1): Give BEFORE fluids to prevent Wernicke's Encephalopathy.
4. Anti-Emetics: Cyclizine, Metoclopramide, Ondansetron (Safe).

2. OBSTETRIC CHOLESTASIS (ICP)

The Classic Presentation:
- Intractable **Itching (Pruritus)** on **Palms & Soles**.
- Worse at night.
- **NO RASH** (Differentiates from PUPPPs).

Diagnosis:
- **Bile Acids > 10 µmol/L** (Diagnostic).
- Raised ALT/AST.

Fetal Risks (Why we worry):
- Bile acids are toxic to the fetal heart.
- Sudden Intrauterine Death (Stillbirth).
- Meconium Aspiration.

Management:
- **Ursodeoxycholic Acid (UDCA):** Improves itch & liver labs.
- **Induction of Labour:** At **37-38 Weeks** (Don't go post-dates!).

3. ACUTE FATTY LIVER (AFLP)

Differentiation from ICP:
- Patient is **SICK** (Nausea, Vomiting, Jaundice).
- **Hypoglycemia** (Liver failure).
- **Coagulopathy** (DIC Risk).
- **Management:** Immediate Delivery (Emergency).

4. MINOR GI AILMENTS

Condition	Mechanism & Management
Heartburn (GERD)	Progesterone relaxes LES. Rx: Antacids, H2 Blockers (Ranitidine).
Constipation	Progesterone ↓ Motility + Iron supplements. Rx: Fiber, Fluids, Lactulose.
Hemorrhoids	Pressure from uterus + Constipation. Rx: Topical Anesthetics, Ice packs.

5. KMU SCENARIO BANK

Q1: Pregnant woman, vomiting, confusion, nystagmus.
Dx: Wernicke's Encephalopathy (B1 deficiency).

Q2: 34 weeks, severe itching on soles, no rash.
Dx: Obstetric Cholestasis. **Check:** Bile Acids.

Q3: 36 weeks, vomiting, low glucose, high PT/APTT.
Dx: Acute Fatty Liver of Pregnancy.

MSK & Pelvic Tumors

FIBROIDS • OVARIAN CYSTS • RHESUS **KMU - FINAL YEAR MBBS**

1. FIBROIDS IN PREGNANCY

Effect of Pregnancy on Fibroids:
- They **Enlarge** (Estrogen dependent).
- **Red Degeneration:** (High Yield)
  - *Timing:* Mid-trimester (2nd Tri).
  - *Cause:* Rapid growth outstrips blood supply -> Necrosis.
  - *Sx:* Acute abdominal pain, fever, tender fibroid.
  - *Rx:* Conservative (Analgesia + Rest). **NO Surgery.**

Effect of Fibroids on Labour:
- **Malpresentation:** Breech/Transverse.
- **Obstructed Labour:** If fibroid is cervical/lower segment.
- **PPH:** Interferes with uterine contraction.

2. OVARIAN CYSTS

Most Common: Corpus Luteum Cyst (resolves by 14w).
Most Dangerous: Dermoid Cyst (Torsion risk).
Complications:
- **Torsion:** Acute pain + Vomiting. Rx: Laparoscopy (Safe in 2nd Tri).
- **Obstruction:** If cyst gets trapped in Pouch of Douglas.

3. MUSCULOSKELETAL ISSUES

Symphysis Pubis Dysfunction (SPD):
- Relaxin hormone loosens joints.
- **Sx:** Pain over pubic bone, "Waddling Gait".
- **Rx:** Pelvic support belt, Analgesia.

Carpal Tunnel Syndrome:
- Fluid retention compresses Median Nerve.
- **Sx:** Tingling thumb/index/middle finger (worse at night).
- **Rx:** Wrist splints. Resolves postpartum.

4. RHESUS ISOIMMUNIZATION (THE BASICS)

Pathophysiology:
- Rh Negative Mother carries Rh Positive Fetus.
- Fetal RBCs leak into mom (Fetomaternal hemorrhage).
- Mom makes **IgG Anti-D Antibodies** (Cross placenta).
- Next pregnancy: Antibodies attack fetal RBCs -> Hemolysis **(if >10 IU/ml Anti-D)**

5. MANAGEMENT OF RH NEGATIVE MOM

STEP 1: Check Antibodies (Indirect Coombs Test - ICT)

Scenario A: ICT NEGATIVE (Not sensitized)
- **Prevention: Give Anti-D Immunoglobulin.**
- **Routine: 28 weeks (1500 IU) & 34 weeks.**
- **Events: Give extra dose after any bleed/trauma/procedure within 72 hrs.**
- **Post-Partum: Check baby blood group. If Rh+ -> Give Anti-D.**

Scenario B: ICT POSITIVE (Already Sensitized)
- **Anti-D is USELESS now.**
- **Monitor: Antibody Titers every 2-4 weeks.**
- **Surveillance: MCA Doppler (detects Fetal Anemia).**
- **Treatment: Intrauterine Transfusion (Cordocentesis).**

6. KLEIHAUER-BETKE TEST

Purpose: Quantifies how much fetal blood entered maternal circulation.
Use: Calculates if **EXTRA doses** of Anti-D are needed after a massive bleed (e.g., Abruption).

7. VARICOSE VEINS & DVT

Varicose Veins: Vulval/Legs. Due to progesterone + pressure. Rx: Support stockings.
DVT Risk: Pregnancy is hypercoagulable.
- **Left Leg > Right Leg:** (Right Iliac artery compresses Left Iliac vein).
- **Rx:** LMWH (Enoxaparin). Warfarin is Teratogenic.

Amniotic Fluid Disorders

POLY vs OLIGO • ETIOLOGY • MANAGEMENT **KMU - FINAL YEAR MBBS**

1. POLYHYDRAMNIOS (TOO MUCH)

Definitions:
- **Deepest Vertical Pool (DVP):** > 8 cm.
- **Amniotic Fluid Index (AFI):** > 25 cm.
- **Volume:** > 2000 ml.

Etiology (Swallowing Defect or Excess Urine):
1. Maternal:
- **Diabetes Mellitus** (Fetal polyuria due to hyperglycemia) - *Most Common*.
- Rhesus Isoimmunization (Hydrops fetalis).

2. Fetal (Structural):
- **GI:** Esophageal/Duodenal Atresia (Can't swallow).
- **CNS:** Anencephaly (No swallowing reflex + exposed meninges exude fluid).

3. Placental: Chorioangioma.

Complications (The "Stretch" Effect):
- **Preterm Labour:** Overdistension triggers contractions.
- **PPH:** Uterine Atony (Muscle exhausted).
- **Malpresentation:** Unstable lie (Baby floats).
- **Cord Prolapse:** When membranes rupture (Sudden gush).
- **Placental Abruption:** Sudden decompression.

MANAGEMENT OF POLY

- **Mild/Moderate:** Conservative. Treat Diabetes.
- **Severe (Maternal Distress):**
  1. **Amnioreduction:** Remove fluid (Risk: Infection/Abruption).
  2. **Indomethacin:** Reduces fetal urine output (Use < 32 weeks only, else premature ductus closure).

2. OLIGOHYDRAMNIOS (TOO LITTLE)

Definitions:
- **Deepest Vertical Pool (DVP):** < 2 cm.
- **Amniotic Fluid Index (AFI):** < 5 cm.
- **Volume:** < 500 ml.

Etiology (Renal Failure or Leak):
1. Fetal (Renal):
- **Renal Agenesis** (Potter's Syndrome).
- Polycystic Kidneys.
- Urethral Valves (Bladder outlet obstruction).

2. Placental:
- **IUGR:** Placental insufficiency (Blood diverted from kidneys to brain).
- **PPROM:** Rupture of membranes (Leak).

3. Drugs (Iatrogenic):
- **NSAIDs** (Indomethacin).
- **ACE Inhibitors** (Renal failure in fetus).

POTTER'S SEQUENCE (COMPLICATIONS)
Cause: Severe Oligohydramnios.
Features:
1. Pulmonary Hypoplasia: Lungs can't develop without fluid (Fatal).
2. Limb Contractures: Talipes (Clubfoot).
3. Compression Facies: Flat nose, low ears.

MANAGEMENT OF OLIGO

- **Rule out PPROM:** Sterile speculum exam.
- **Rule out Anomalies:** Detailed Ultrasound (Kidneys/Bladder).
- **If Term (>37w):** Deliver (Induction).
- **Amnioinfusion:** Only used during labour to prevent cord compression (Not a cure).

Venous Thromboembolism

DVT • PULMONARY EMBOLISM • WARFARIN vs HEPARIN **KMU - FINAL YEAR MBBS**

1. WHY IS PREGNANCY PRO-THROMBOTIC?

Virchow's Triad (All 3 present):
1. **Hypercoagulability:** High Fibrinogen, Factors VII, VIII, X. Low Protein S.
2. **Venous Stasis:** Uterus compresses iliac veins + Progesterone relaxes veins.
3. **Endothelial Injury:** During delivery/placental separation.
• **Risk:** 10x higher than non-pregnant. Highest risk is **Post-partum**.

2. SIGNS & SYMPTOMS

Deep Vein Thrombosis (DVT):
• Unilateral leg swelling (Left leg > Right leg).
• Calf pain/tenderness.
• **Left Iliac Vein Compression:** Right iliac artery crosses over left vein (Anatomical risk).

Pulmonary Embolism (PE):
• Dyspnea (Sudden onset).
• Pleuritic Chest Pain.
• Tachycardia / Collapse.
• **ECG:** S1Q3T3 (Rare). Sinus Tachycardia (Most common).

3. INVESTIGATION HIERARCHY

1. D-Dimer? USELESS in pregnancy (Physiologically elevated). Do NOT order.
2. Suspected DVT: Compression Doppler Ultrasound (Start LMWH *before* scan if delay expected).
3. Suspected PE (CXR Normal): V/Q Scan (Less radiation to breast).
4. Suspected PE (CXR Abnormal): CTPA (Better diagnostic yield, but breast cancer risk).

4. DRUG TREATMENT PROTOCOLS

Drug of Choice: LMWH (Enoxaparin).
• Does NOT cross placenta. Safe.
• Dose is weight-based.

Unfractionated Heparin (UFH):
• Use if: Massive PE (hemodynamically unstable) or near delivery (shorter half-life).

Warfarin:
• **Contraindicated** in pregnancy (Teratogenic - Bone defects/Nasal hypoplasia).
• **Safe** in Breastfeeding.

🚨 **TREATMENT DURATION (MCQ GOLD)**
During Pregnancy: Continue LMWH throughout.
Post-Partum: Continue for at least 6 weeks.
Total Duration: Minimum 3 months total therapy.
(Example: DVT at 8 months -> Treat till 6 weeks postpartum).

5. THROMBOPHILIA SCREENING

Inherited: Factor V Leiden (Most common), Protein C/S deficiency.
Acquired: Antiphospholipid Syndrome (Lupus Anticoagulant).
• **When to screen?** NOT during acute thrombosis or pregnancy (levels are altered). Screen 6 weeks postpartum.

6. LABOUR MANAGEMENT

Epidural Risk: Spinal Hematoma risk with LMWH.
• **Rule:** Stop Prophylactic LMWH **12 hours** before Epidural.
• Stop Therapeutic LMWH **24 hours** before Epidural.

Cardiac Disease

RISK STRATIFICATION • MITRAL STENOSIS • LABOUR MGMT **KMU - FINAL YEAR MBBS**

1. HEMODYNAMIC BURDEN (WHEN DO THEY CRASH?)

1. 20 - 24 Weeks: Peak Cardiac Output (Max volume load).
2. During Labour: Each contraction dumps 300-500ml blood into circulation.
3. Immediate Postpartum: Sudden venous return after placenta delivery + Relief of IVC compression.

2. RISK STRATIFICATION (WHO/NYHA)

NYHA Class (Functional):
• I: No limitation.
• II: Slight limitation (Dyspnea on ordinary exertion).
• III: Marked limitation (Dyspnea on less than ordinary).
• IV: Symptoms at Rest.

High Risk Lesions (Mortality 25-50%):
• **Pulmonary Hypertension (Eisenmenger):** Pregnancy is CONTRAINDICATED.
• **Marfan's Syndrome:** If Aortic Root > 4.5cm (Dissection risk).
• **Severe Aortic Stenosis:** Fixed output.
• **Peripartum Cardiomyopathy:** EF < 30%.

3. SPECIFIC LESIONS

Mitral Stenosis (Most Common Rheumatic):
• **The Enemy:** Tachycardia.
• **Why?** Short diastole -> Less time for LA to empty -> Pulmonary Edema.
• **Management:** Beta-blockers (keep HR < 80), Diuretics.

Peripartum Cardiomyopathy:
• Heart failure in last month of pregnancy or 5 months postpartum.
• Dx: Exclusion of other causes. EF < 45%.

4. INTRAPARTUM MANAGEMENT (LABOUR)

🚨 **THE CARDIAC LABOUR PROTOCOL**
Position: Left Lateral (Max CO).
Pain Relief: Epidural is EXCELLENT (Reduces tachycardia & cardiac work).
2nd Stage (Pushing): AVOID VALSALVA. Shorten with Forceps/Vacuum (Assisted delivery).
3rd Stage (Placenta): NO ERGOMETRINE.
(Ergometrine causes sudden vasoconstriction -> Acute Heart Failure). Use Oxytocin infusion.

5. ANTICOAGULATION (MECHANICAL VALVES)

Warfarin: Teratogenic (1st Tri). Most effective for valves.
LMWH: Safer for baby, but higher valve thrombosis risk.

The Regimen:
• **< 12 Weeks:** LMWH (or Warfarin if high risk <5mg).
• **12 - 36 Weeks:** Warfarin. (*Risk of Intraventricular Hemorrhage)
• **> 36 Weeks:** Heparin (to clear before delivery).

6. KMU SCENARIO BANK

Q1: Pregnant woman with MS develops sudden breathlessness in labour.
Dx: Acute Pulmonary Edema (tachycardia).
Rx: Sit up, O2, Furosemide, Morphine.

Q2: Marfan's patient, sudden tearing chest pain.
Dx: Aortic Dissection.

Diabetes & Thyroid

GDM CRITERIA • INSULIN PROTOCOLS • THYROID STORM **KMU - FINAL YEAR MBBS**

1. DIABETES: TYPES & PHYSIOLOGY

The "Diabetogenic" State:
- **hPL (Human Placental Lactogen):** Increases insulin resistance (peaks 24-28w).
- Ensures glucose shunts to baby.
- **Maternal Risk:** If pancreas can't keep up -> GDM.

Congenital Anomalies (Pre-existing DM Only):
- HbA1c > 10% = 25% risk of anomalies.
- **Caudal Regression Syndrome (Sacral Agenesis):** Most specific to DM.
- Cardiac (VSD/TGA), Neural Tube Defects.
- *Note: GDM has NO risk of anomalies (hyperglycemia starts after organogenesis).*

2. GDM SCREENING & DIAGNOSIS

Universal Screening: 24 - 28 Weeks.
Test: 75g OGTT (Oral Glucose Tolerance Test).
Diagnostic Criteria (One abnormal value):
- **Fasting:** ≥ 5.1 mmol/L.
- **1 Hour:** ≥ 10.0 mmol/L.
- **2 Hour:** ≥ 8.5 mmol/L.

3. FETAL COMPLICATIONS

Macrosomia (>4kg): Glucose crosses placenta -> Fetal Insulin ↑ -> Growth Factor.
Polyhydramnios: Fetal Polyuria.
Neonatal Hypoglycemia: Baby's pancreas is hyperactive, sugar supply cuts off at birth -> Crash.
RDS: Insulin blocks surfactant production.
Shoulder Dystocia: Due to fat shoulders.

4. DIABETES MANAGEMENT

1. Diet/Exercise: Folate supplements (5mg daily)
2. Pharmacological:
- **Metformin:** Safe.
- **Insulin:** Gold standard. If fasting > 7.0 or Diet fails.
- **Glibenclamide:** Avoid if possible.

3. Delivery Timing:
- GDM (Controlled): 38-39 Weeks.
- GDM (Uncontrolled/Macrosomia): 37-38 Weeks.

5. THYROID DISORDERS

Physiology:
- hCG mimics TSH -> TSH is LOW in 1st Trimester (Normal).
- Total T3/T4 is HIGH (due to high TBG).
- **Check FREE T4 for diagnosis.**

6. HYPOTHYROIDISM

Risks: Infertility, Miscarriage, **Cretinism** (Lower IQ in child).
Management:
- Levothyroxine is SAFE.
- **Rule:** Increase dose by **25-50%** as soon as pregnancy confirmed.
- Target TSH: < 2.5 (1st Tri), < 3.0 (2nd/3rd Tri).

7. HYPERTHYROIDISM (THYROTOXICOSIS)

Cause: Graves' Disease.
Risks: Thyroid Storm (Labour), Fetal Thyrotoxicosis (Antibodies cross placenta).
Drugs (The Switch):
- **1st Trimester: Propylthiouracil (PTU)**. (Carbimazole causes Aplasia Cutis).
- **2nd/3rd Trimester:** Switch to **Carbimazole** (PTU is hepatotoxic).

Thyroidectomy: If Drugs fail (2nd Tri)

8. THYROID STORM (EMERGENCY)

Triggers: Labour, Infection, Surgery.
Signs: Fever, Tachycardia (>140), Agitation, Vomiting.
Rx:
1. Beta Blockers (Propranolol).
2. PTU (High dose).
3. Steroids (Hydrocortisone - blocks T4->T3).
4. Lugol's Iodine (inhibits release).

Autoimmune Disorders

SLE • ANTIPHOSPHOLIPID SYNDROME • MANAGEMENT **KMU - FINAL YEAR MBBS**

1. SLE (LUPUS) IN PREGNANCY

Rule of Thirds: 1/3 Improve, 1/3 Worsen (Flares), 1/3 Stay same.
Best Prognosis: If disease quiescent for 6 months prior to conception.
Maternal Risks: Lupus Nephritis (Renal failure), Pre-Eclampsia (High risk).

The "Neonatal Lupus" Trap:
- Caused by **Anti-Ro (SSA)** and **Anti-La (SSB)** antibodies crossing placenta.
- **Effect: Congenital Heart Block** (Bradycardia in fetus).
- **Rx:** Dexamethasone (crosses placenta) to treat fetal heart.

Lupus Flare vs. Pre-Eclampsia (PE):
Both cause HTN + Proteinuria. How to distinguish?
- **Lupus Flare:** Low C3/C4 Complement levels. Active urinary sediment (RBC casts).
- **Pre-Eclampsia:** Normal Complement. Rising Uric Acid.

2. ANTIPHOSPHOLIPID SYNDROME (APS)

Diagnosis (1 Clinical + 1 Lab):
Clinical:
- Thrombosis (DVT/PE/Stroke).
- 3+ Miscarriages (<10w).
- 1+ Fetal Death (>10w).

Lab: Lupus Anticoagulant, Anticardiolipin Ab, Anti-B2 Glycoprotein.

🚨 **APS MANAGEMENT PROTOCOL**
Goal: Prevent clots in placenta (which cause miscarriage/IUGR).
Drug Regimen: Low Dose Aspirin (75mg) + LMWH (Enoxaparin).
Start Aspirin from conception. Start LMWH when fetal heart seen.

3. HEMATOLOGICAL DISORDERS

A. Sickle Cell Disease (HbSS):
- **Risk:** Sickle Crisis (Vaso-occlusive).
- **Triggers:** Cold, Dehydration, Hypoxia, Infection (UTI).
- **Complications:** Pre-eclampsia, IUGR, Preterm Labour.
- **Management:**
  1. **Folic Acid 5mg** (High turnover).
  2. Avoid crisis triggers (Keep warm/hydrated).
  3. VTE Prophylaxis (LMWH).

B. ITP (Immune Thrombocytopenia):
- IgG antibodies destroy platelets.
- **Maternal Risk:** PPH (if platelets < 50k).
- **Fetal Risk:** IgG crosses placenta -> Neonatal Thrombocytopenia (check cord blood).
- **Rx:** Steroids / IVIG if platelets < 20-30k or bleeding.

4. NEUROLOGICAL DISORDERS

A. Epilepsy:
- **Seizure Risk:** Increased in labour (sleep deprivation).
- **Drug Safety:**
  - **Safe(r):** Lamotrigine, Carbamazepine, Levetiracetam.
  - **UNSAFE:** Valproate (Neural Tube Defects - Spina Bifida).
- **Management:** 5mg Folic Acid.

B. Multiple Sclerosis (MS):
- **Pregnancy Effect:** Relapses REDUCE (Pregnancy is immunosuppressive).
- **Postpartum:** High risk of "Rebound Relapse" (3-6 months).
- **Drugs:** Steroids safe for acute relapse.

5. KMU SCENARIO BANK

Q1: Lupus patient, baby born with HR 50 bpm.
Dx: Congenital Heart Block (Anti-Ro antibodies).

Q2: Recurrent miscarriages, DVT history. Best Rx?
Rx: Aspirin + LMWH (APS Syndrome).

Q3: Epileptic on Valproate wants to conceive.
Advice: Switch to Lamotrigine BEFORE conception. Start Folic Acid 5mg.

Hypertensive Disorders (I)

CLASSIFICATION • PATHOPHYSIOLOGY • ORGAN DAMAGE **KMU - FINAL YEAR MBBS**

1. THE CLASSIFICATION (TIMELINE RULE)

1. Chronic Hypertension:
• BP > 140/90 **Before 20 Weeks** of pregnancy.
• Persists > 12 weeks postpartum.

2. Gestational Hypertension (PIH):
• New onset BP > 140/90 **After 20 Weeks**.
• **NO Proteinuria**.

3. Pre-Eclampsia (PE):
• New onset BP > 140/90 **After 20 Weeks**.
• **PLUS Proteinuria** (>300mg/24h or PCR >30).
• *(Or End Organ Damage in absence of proteinuria).*

4. Superimposed Pre-Eclampsia:
• Chronic HTN patient who develops NEW proteinuria.
Rx: IV MgSO4 (Convulsions), IV Hydralazine/Labetalol, Oxytoxcin (Delivery)

2. CHRONIC HYPERTENSION

Cause: Essential HTN (90%) or Secondary (Renal/Endocrine).
Management:
• **Stop Teratogens:** ACE Inhibitors, ARBs, Diuretics.
• **Start Safe Drugs:** Methyldopa or Labetalol.
• **Target BP:** 135/85 mmHg.
• **Aspirin 150mg:** Start at 12 weeks (Prevents Superimposed PE).

3. PRE-ECLAMPSIA PATHOPHYSIOLOGY

Two-Stage Theory:
Stage 1 (Placental):
• Failed Trophoblast Invasion.
• Spiral Arteries remain narrow (High resistance).
• Result: Placental Ischemia.

Stage 2 (Maternal):
• Ischemic placenta releases **sFlt-1** (Anti-angiogenic factor).
• Causes widespread **Endothelial Dysfunction**.
• Result: Vasospasm + Leaky Capillaries.

4. ORGAN SPECIFIC DAMAGE (SYMPTOMS)

1. CNS (Cerebral Edema):
• Headache (Frontal/Occipital) - resistant to analgesia.
• Visual Disturbances (Blurring/Flashing lights).
• Hyper-reflexia (Clonus) -> Seizures (Eclampsia).

2. Liver (Ischemia/Edema):
• **Epigastric Pain:** Stretching of Glisson's Capsule.
• Elevated Enzymes (ALT/AST).

3. Renal (Glomeruloendotheliosis):
• **Proteinuria:** Leaky glomeruli.
• Oliguria: Renal failure.
• Rising Uric Acid (Earliest sign).

4. Hematological:
• Thrombocytopenia (Platelet consumption).
• Hemolysis (Microangiopathic).

5. Lungs:
• **Pulmonary Edema:** Leaky capillaries + Fluid overload.

5. HELLP SYNDROME

Hemolysis (High LDH, Schistocytes)
Elevated Liver Enzymes (AST > 70)
Low Platelets (< 100,000)

Risk: Stroke, DIC, Liver Rupture, Abruption.
Mgmt: Stabilization + Immediate Delivery.

6. INVESTIGATIONS

Maternal:
• Urine: Dipstick (1+) -> PCR or 24h collection.
• Bloods: FBC (Platelets), U&E (Creatinine/Uric Acid), LFTs.
• Coagulation Profile (if platelets low).

Fetal:
• Ultrasound: Growth (IUGR risk) & Liquor (Oligohydramnios).
• Doppler: Umbilical Artery (High resistance/pulsatality).

Management & Protocols

DRUGS • MAGNESIUM SULFATE • DELIVERY TIMING **KMU - FINAL YEAR MBBS**

7. SEVERITY ASSESSMENT

Feature	Mild/Moderate PE	Severe PE
Blood Pressure	140/90 - 159/109	**≥ 160 / 110**
Proteinuria	+ to ++	+++ or > 5g/24h
Symptoms	None	Headache, Visual changes, Epigastric pain
Labs	Normal	High Creatinine, Low Platelets, High AST

8. PHARMACOLOGICAL MANAGEMENT

Acute Severe HTN (BP ≥ 160/110):
• **Goal:** Prevent Stroke. Lower MAP by 25% slowly.
1. **IV Labetalol:** First line. (Avoid in Asthma/Heart Failure).
2. **IV Hydralazine:** Vasodilator. (Watch for tachycardia).
3. **Oral Nifedipine:** Rapid acting.

Maintenance (Stable):
• **Methyldopa:** Central alpha-agonist. Safe. SE: Depression, Sedation.
• **Labetalol (Oral):** Alpha/Beta blocker.

9. MAGNESIUM SULFATE (MGSO4)

THE GOLD STANDARD
Indication: Prevention & Treatment of Eclamptic Seizures (Neuroprotection). Not for lowering BP.
Loading Dose: 4g IV over 10-15 mins.
Maintenance: 1g/hour infusion for 24h.

Signs of Toxicity (Monitor Hourly):
1. Loss of Patellar Reflex (First sign).
2. Respiratory Rate < 12/min.
3. Urine Output < 30ml/hr.

ANTIDOTE: Calcium Gluconate 10% IV.

10. DELIVERY (THE ONLY CURE)

Timing depends on Severity:
• **> 37 Weeks:** Deliver everyone with PE.
• **34 - 37 Weeks:** Deliver if Severe PE. Conservative if Mild.
• **< 34 Weeks:** Conservative management (Steroids + BP control) unless "Maternal Distress" or Fetal Distress.

Mode of Delivery:
• **Vaginal:** Preferred if stable. (Induction).
• **C-Section:** If < 32 weeks, severe fetal distress, or cervix unfavorable.

11. INTRAPARTUM CARE

• **Fluid Restriction:** Limit to 80 ml/hr. (High risk of Pulmonary Edema due to leaky capillaries).
• **Analgesia:** Epidural is excellent (helps lower BP).
• **3rd Stage: Avoid Ergometrine** (Syntometrine). Use Oxytocin.

12. POSTPARTUM CARE

Danger Zone: 44% of Eclampsia occurs **Postpartum**.
• Continue Antihypertensives (Labetalol/Nifedipine).
• Continue Magnesium Sulfate for 24 hours.
• **Avoid NSAIDs** (Renal impairment risk if low platelets/renal issues).
• Follow up BP until normal (usually 6-12 weeks).

13. PREDICTION & PREVENTION

High Risk Factors:
• Previous PE, CKD, Autoimmune (SLE/APS), Diabetes, Chronic HTN.
Prophylaxis:
• **Aspirin 150mg:** Start at 12 weeks (bedtime) until 36 weeks.
• Reduces risk by 50% in high-risk groups.

Eclampsia

SEIZURE MANAGEMENT • MAGNESIUM PROTOCOL • DELIVERY **KMU - FINAL YEAR MBBS**

1. DEFINITION & PRESENTATION

Definition: One or more generalized tonic-clonic seizures in a patient with Pre-Eclampsia (not caused by epilepsy/stroke).
Timing:
• Antepartum (38%).
• Intrapartum (18%).
• **Postpartum (44%):** *High Yield Trap!* Can occur up to 10 days post-delivery.

Prodromal Symptoms (Warning Signs):
• Severe Frontal Headache.
• Visual disturbances (Blurring/Scotomata).
• Epigastric Pain (Liver capsule stretch).
• Hyper-reflexia / Clonus.
Note: 25% of patients have NO warning signs before seizure.

2. IMMEDIATE MANAGEMENT (DRILL)

🚨 **ACTION PLAN**
1. Call for Help (Crash Team).
2. Airway/Breathing: Left Lateral Position (Prevent aspiration + improve placental flow). High flow Oxygen.
3. Circulation: Secure IV Access (Large bore).
4. Stop Seizure: Magnesium Sulfate (Drug of Choice).
5. Control BP: IV Labetalol or Hydralazine.
6. Deliver: Once stable.

3. WHY NOT DIAZEPAM?

• Diazepam causes **maternal apnea** and **fetal depression** (floppy baby). • It also increases the risk of aspiration. • **Only use Diazepam if:** Magnesium is unavailable or seizures continue despite MgSO4.

4. MAGNESIUM SULFATE PROTOCOL

Mechanism: Membrane stabilizer & Cerebral Vasodilator.

Regimen (Pritchard or Zhu):
• **Loading Dose:** 4g IV (slowly over 10-15 mins).
• **Maintenance:** 1g / hour IV infusion for 24 hours.
• **Recurrent Seizure:** Give additional 2g Bolus.

🚨 **MAGNESIUM TOXICITY MONITORING**
Magnesium has a narrow therapeutic index.
Monitor HOURLY:
1. Patellar Reflexes: (Loss is the FIRST sign of toxicity).
2. Respiratory Rate: Must be > 12/min.
3. Urine Output: Must be > 30ml/hr (Mg is excreted by kidneys).

ANTIDOTE: 10% Calcium Gluconate (10ml IV slowly).

5. DELIVERY TIMING

The Golden Rule:
• Delivery is the only cure.
• **DO NOT** rush to C-Section while mother is hypoxic or unstable.
• **Stabilize First:** Control Seizures + BP. Correct Hypoxia.
• **Then Deliver:** Usually by C-Section (unless labour is advanced/cervix fully dilated).

6. COMPLICATIONS

Maternal (CEREBRAL):
• **C**erebrovascular Hemorrhage (Stroke) - #1 Cause of Death.
• **E**dema (Pulmonary).
• **R**enal Failure.
• **E**mbolism (PE).
• **B**lindness (Cortical - temporary).
• **R**upture of Liver (HELLP).
• **A**bruption Placenta.
• **L**aryngeal Edema (Aspiration).

Fetal: Hypoxia (Bradycardia during seizure), IUGR, Death.

7. KMU SCENARIO BANK

Q1: Eclamptic patient on MgSO4. Nurse reports RR=8/min. Next step?
Action: Stop Magnesium -> Give Calcium Gluconate.

Q2: Patient had Eclampsia, delivered 2 days ago. Now complains of severe headache.
Dx: Postpartum Eclampsia risk / PDPH / CVT. Check BP immediately.