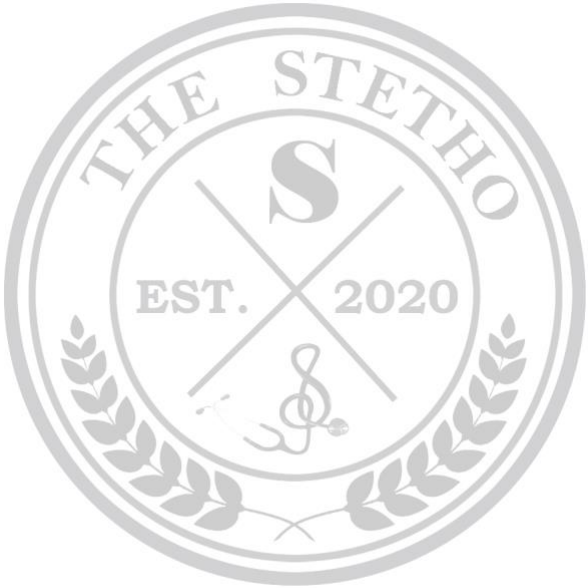
# 100 CLINICAL CASES ON COMMUNITY LEVEL




BY

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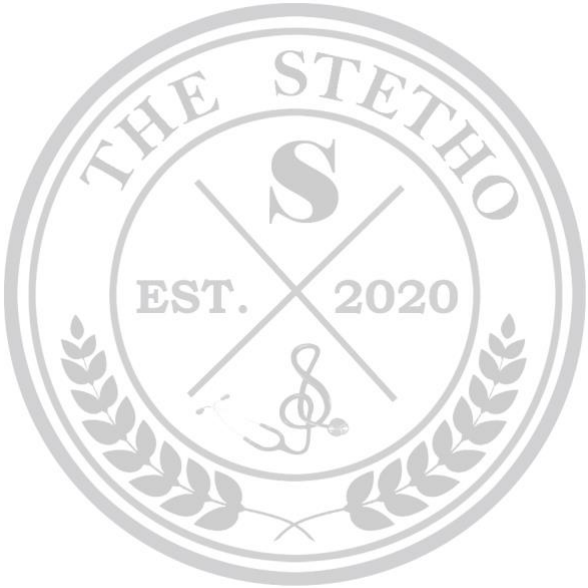
THE STETHO
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EST. 2020

## ACKNOWLEDGEMENT

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**Dr M. Aizaz Khan Mohmand & Dr. Hamza Khan Toru**

**"William Osler"**

“The good physician treats the disease; the great physician treats the patient who has the disease”

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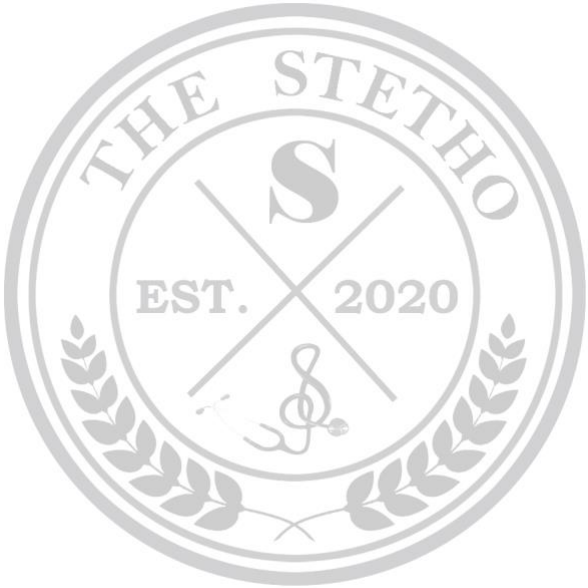
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# CASE 1

# A 24 YEARS OLD MAN WITH EAR WAX

## HISTORY

Patient will usually present with a feeling of fullness in the ear along with decreased hearing. Other possible symptoms include a sensation of ringing in the ears (tinnitus) along with dizziness and sometimes discharge from the ear. Some patients will give history of water entering the ear canal during a bath or swimming.

## PHYSICAL EXAM

- Dark brown mass in ear canal.
- Earache and decreased hearing due to blockage of ear.

## MANAGEMENT

- It is relieved by the clinician using mechanical removal, suction, or irrigation.
- Waxaid (Soda glycerine) ear drops 5 drops five times daily are prescribed for 3-5 days (to soften the impacted cerumen / wax). Later cleaning of ear with suction & clearance or irrigation. Irrigation should be performed only when the tympanic membrane is known to be intact.
- Following irrigation, the ear canal should thoroughly dried to avoid otitis externa. Tab Brufen / Inflamatax (Ibuprofen/Flurbiprofen) 400mg PO x SOS (for associated pain if present).

## REFERRAL

Specialty referral is indicated if impaction is frequently recurrent. If it has not responded to routine measures or if there is tympanic membrane perforation or chronic otitis media.

# CASE 2

# FOREIGN BODY IN EAR

## HISTORY

Patient will usually give a history of foreign body insertion / Mild pain present / Blocking sensation in ear.

## MANAGEMENT

- If foreign body is obvious & can be easily removed or non-living, it may be attempted.
- Aqueous irrigation should not be performed for organic foreign bodies (e.g., Bean, insects) because water may cause them to swell.
- Living insects are best immobilized before removal by filling the ear canal with lignocaine.
- If fail to remove it, try removing it under general anesthesia.

## REFERRAL

Better to refer the patient to ENT surgeon.

# CASE 3

# ACUTE SUPPURATIVE OTITIS MEDIA

Acute otitis media is a bacterial infection of the mucosally lined aircontaining spaces of the temporal bone (middle air). Acute otitis media is usually precipitated by a viral upper respiratory tract infection that causes eustachian tube obstruction.

This results in accumulation of fluid and mucus, which becomes secondarily infected by bacteria. The most common pathogens are Streptococcus pneumoniae, Haemophilus influenzae, and Streptococcus pyogenes.

## HISTORY

Patients usually complain of pain in the ear that may be mild or moderate to severe. There are associated systemic symptoms in the form of fever, irritability, decreased appetite, and sometimes vomiting.

Occasionally rupture of the tympanic membrane may occur which the patient may report as a sudden relief of pain along with discharge from the ear.

## PHYSICAL EXAM

- Severe pain in ear, often with an upper respiratory tract infection.
- Erythema and hypomobility of tympanic membrane.
- Eustachian tube remains blocked for a prolonged period.
- Resultant negative pressure results in transudation of fluid.
- Earache and decreased hearing due to blockage of ear.

## MANAGEMENT

- Dry mopping of ear with sterile cotton wick if discharge present and Keep ear dry (Keep cotton wool in ears while washing hairs)

- Tab Arinac forte (Ibuprofen + Pseudoephedrine) PO x TDS for 3 days then SOS + One of the following antibiotics for 5-7 days

1. Tab-Amoxil (Amoxicillin) Igm, PO x TDS
2. Tab-Augmentin / Amoxiclave/ Amclave (Coamoxiclav} 1gm, PO x BD.
3. TabZinacef / Zinnat (cefuroxime) 500mg PO x BD
4. Tab-Orelox (Cefpodoxime) 200mg PO x BD.

- Tympanocentesis is useful for otitis media in immunocompromised patients and when infection persists or recurs despite multiple courses of antibiotics.

- "Surgical drainage of the middle ear (myringotomy) is reserved for patients with severe otalgia or when complications of otitis (e.g., mastoiditis, meningitis) have occurred.

- Recurrent acute otitis media may be managed with long-term antibiotic prophylaxis. Single daily oral doses of sulfamethoxazole (S00 mg) or amoxicillin (250 or S00 mg) are given over a period of 1~3 months. Failure of this regimen to control infection is an indication for insertion of ventilating tubes.

# CASE 4

# CHRONIC SUPPURATIVE OTITIS MEDIA

## PHYSICAL EXAM

- Chronic Ear Discharge > 14 Days with or without earache.
- Recurrent mucoid or mucopurulent discharge onset with cold/moisture in ear. Non foul smelling, copious in amount.

## MANAGEMENT

Same as Acute

# CASE 5

# TYMPANIC MEMBRANE PERFORATION WITH CODUCTIVE HEARING LOSS

## MANAGEMENT

- The medical treatment of chronic otitis media includes regular removal of infected debris, use of earplugs to protect against water exposure.

- Topical antibiotic drops (ofloxacin 0.3% or ciprofloxacin with dexamethasone) for exacerbations: Kunoxy/ Otoflox / Oflocin Ear (ofloxacin) "OR" Cipotic-0/ Quniodex (topical ciprofloxicin + dexamethasone} ear drops, 2 drops thrice daily for 5 days.

- Oral ciprofloxacin, active against Pseudomonas, 500 mg twice a day for 1-6 weeks, may help dry a chronically discharging ear. TabCiprown/ Novidat / Cipval (ciprofloxicin) SOOmg PO x BO for 1-6 weeks.

- Tab Srufen / inflamatax (Ibuprofen / Flurbiprofen) 400 mg PO x SOS (for pain) Tab Lorin-NSA/Softin (Loratidine) 10mg PO x OD at night for a week if there is itching or other allergic symptoms.

## REFERRAL

If not responding Refer to ENT surgeon. Definitive management is surgical in most cases. Successful reconstruction of the tympanic membrane may be achieved in about 90% of cases, often with elimination of infection and significant improvement in hearing. When the mastoid air cells are involved by irreversible infection; they should be exenterated at the same time through a mastoidectomy.

# CASE 6

# VERTIGO

## HISTORY

Vertigo is the cardinal symptom of vestibular disease. Vertigo is typically experienced as a distinct "spinning" sensation or a sense of tumbling or of falling forward or backward. It should be distinguished from imbalance, light-headedness, and syncope, all of which are non-vestibular in origin.

## PHYSICAL EXAM

- Either a sensation of motion when there is no motion or an exaggerated sense of motion in response to movement.
- Duration of vertigo episodes and association with hearing loss are the keys to diagnosis.
- Must differentiate peripheral from central etiologies of vestibular dysfunction. Peripheral Vertigo: Onset is sudden; often associated with tinnitus and hearing loss; horizontal nystagmus may be present.

- Central Vertigo: Onset is gradual; no associated auditory symptoms.
- Evaluation includes audiogram and electronystagmography (ENG) or video nystagmography (VNG) and head MRI.

## MANAGEMENT

Treat the underlying cause.

- If medication is the likely cause: stop medication and reassess.
- BPPV: Epley and modified Epley maneuver.
- Vestibular neuritis and labrinthitis: vestibular suppressant medications and rehabilitation exercises.
- Meniere disease: low salt diet and diuretics.
- Peri lymphatic fistula: consult ENT surgery.
- Vascular ischemia: secondary prophylaxis through BP control, lipid lowering, smoking cessation, antiplatelet therapy, and anticoagulation.

- Vertiginous migraine: diet and life style modification, migraine prophylactic and abortive medications.
- Psychological: Benzodiazepine and SSRI. Supportive care with a single drug or any combination of the following for a month.
    1. Tab-Serc (betahistine) 16-24mg 1 tablet PO x TDS.
    2. Tab Stematil (prochlorperazine) 5-10mg, 1 tablet PO x TDS with meals.
    3. Tab-Novertigo/Stugeron/Cerebrin (cinnarizine) 25-75mg 1 tablet PO x TDS with meals.

# CASE 7

# ACUTE VIRAL RHINOSINUSITIS (COMMON COLD)

## HISTORY

- Associated malaise, headache, and cough.
- Symptoms are self-limited, lasting less than 4 weeks and typically less than 10 days.

## PHYSICAL EXAM

- Nasal congestion, clear rhinorrhea, and hyposmia.
- Erythematous, engorged nasal mucosa without intranasal purulence.

## MANAGEMENT

- CapFlimivir/ Tamiflu/ Ostavir-Flu (oseltamivir) 75mg PO x BD for 5 days (For high-risk patients only i.e., young children, pregnant women, and adults older than 65 years of age).
- Nasal irrigation with hypertonic saline (3-5%) Tab Fexet-D (Fexofenadine 60mg + pseudoephedrine 120mg) PO x BD for 5 days
- Xynosine (xylometazoline) nasal spray, 2 sprays in each nostril BD for 3 days.
- Withdrawal of the drug after prolonged use leads to rhinitis medicamentosa, an almost addictive need for continuous usage. Treatment of rhinitis medicamentosa requires mandatory cessation of the sprays, and this is often extremely frustrating for patients.

  Fluni / Tarisin (flunisolide) nasal spray, 2 sprays in each nostril twice daily.
  Atem (ipratropium 0.06%) nasal spray, 2-3 sprays every 8 hours as needed

  "OR"

  Tab Delta cortel (oral prednisone) 5mg, 3 tablets PO x BD for 7-10 days and then tapered.

## PREVENTION

Prevention of influenza virus infection by boosting the immune system using the annually created vaccine may be the most effective management strategy.

# CASE 8

# ACUTE BACTERIAL RHINOSINUSITIS (SINUSITIS)

## HISTORY

Acute bacterial rhinosinusitis is a clinical diagnosis, however, there is no specific sign or symptom that is sensitive enough to label a case as acute bacterial rhinosinusitis and therefore an understanding of its overall impression is necessary. Patients will usually complain of pain over the cheeks and forehead, especially increasing on bending down. There is occasionally redness, blocked or runny nose, postnasal drip, and cough.

## PHYSICAL EXAM

- Purulent yellow-green nasal discharge or expectoration.
- Facial pain or pressure over the affected sinus or sinuses.
- Nasal obstruction.
- Acute onset of symptoms (between 1- and 4-weeks' duration).
- Associated cough, malaise, fever, and headache.

## MANAGEMENT

- Tab Panadol (paracetamol!) 500mg two tablets or any other NSAID PO x SOS
- Tab Fexet D (Fexofenadine 60mg + pseudoephedrine 120mg) PO x BD for 5 days.
- Xynosine (xylometazoline) nasal spray, 2 sprays in each nostril BD for 3 days.

Severe Cases:

- Hivate (mometasone furoate) 5Omcg, nasal spray, 2-4 sprays in each nostril twice daily for 21 days.
- Antibiotic therapy should be reserved for complicated or protracted acute bacterial rhinosinusitis. Antibiotics may be considered when symptoms last more than 10 days or when symptoms (including fever, facial pain, and

swelling of the face) are severe or when cases are complicated (such as immunodeficiency). Selection of antibiotics is usually empiric and based on a number of factors, including regional patterns of antibiotic resistance, antibiotic allergy, cost, and patient tolerance. For adults younger than 65 years with mild to moderate acute bacterial rhinosinusitis: Tab Augmentin / Amoxiclave /Amclave /Calamox (amoxicillinclavulanate) 500 mg/125 mg PO TDS "OR" 875 mg/125mg PO x 8D for 5-7 days.

- In patients with severe sinusitis or a high risk for penicillin-resistant pneumoniae (age over 65 years, hospitalization in the prior 5 days, antibiotic use in the prior month, immunocompromised status, multiple comorbidities, or severe sinus infection), the recommended first-line therapy is Tab Augmentin / Amoxiclave /Amclave /Calamox (amoxicillin + clavulanate) 2000 mg/125 mg extended-release PO x BD for 7-10 days.

- For those with penicillin allergy or hepatic impairment: Cap Vibramycin / Contimycin (doxycycline) 100 mg PO x BD or 200mg PO x OD for 5-7 days

  "OR"

  Cap-Dalacin-C (clindamycin) 150-300 mg PO x QID plus Cap-Caricef / Cefim / Cefiget (cefixime) 400 mg PO x OD for 10 days

  "OR"

  Tab-Orelox (Cefpodoxime Proxetil) 200 mg PO x BD for 10 days.

# CASE 9

# PERITONSILLAR ABSCESS & CELLULITIS

## HISTORY

More often than not, the first presenting complaint of the patient would be sore throat, with further symptoms developing over the next few days. A patient may also complain of fever, chills, headache, or bad breath and tonsillitis.

## PHYSICAL EXAM

- Peritonsillar abscess (quinsy) and cellulitis present with severe sore throat, odynophagia, trismus, medial deviation of the soft palate and peritonsillar fold, and an abnormal muffled ("hot potato") voice.

- There is bulging of soft palate & deviation of uvula.

## MANAGEMENT

- Inj Augmentin/Calamox (Amoxicillin + Clavulanic Acid) 1.2gm IV x TDS "OR" Inj2sum / Q-Bact / Sulzone (Cefoperazone + Sulbactum) 2gm IV x BD for 5 days.
- In less severe cases and patients who are able to tolerate oral intake: Tab Augmentin/Calamox (Amoxicillin + Clavulanic Acid) 625mg TDS or 1gm BD "OR" Cap-Dalacin-C (clindamycin) 300mg PO x QID for 7-10 days
- Enziclor / Lasogen / Benzycol (Chlorhexidine) mouth wash 2-3 times a day for a week.
- Tab/Syp-Panadol 2 tab/TSF PO x SOS + fluids intake and Warm saline gargle.
- Go for incision and drainage if not responding to antibiotics.
- If still not responding / recurrent episodes, refer to ENT surgeon.

MANAGEMENT OF DENTAL ABSCESS

- Tab Augmentin / Amclave (Amoxicillin + Clavulanic acid) 625mg 1 tab PO x TDS for five days.

- If patient is allergic to penicillin, give Tab Erythrocin (Erythromycin) 500mg 1 tab PO x TDS for five days. if infection is severe or patient is unable to swallow, Inj Oxidil/Rocephin (Ceftriaxone) 1 gm IV x stat (ATD) then lV x OD for 5 days.
- Tab-Flagyl (metronidazole) 400mg 1 tab PO x TDS for five days.
- Tab-inflamatax (Flurbiprofen) 100mg or Brufen (Ibuprofen) 400mg or Ponstan forte (mefenamic acid) 500mg 1 tab PO x TDS. Incase abscess is large (deeper spaces are involved), go for Incision and drainage plus irrigation with 3% hydrogen peroxide followed by rinse with normal saline.

# CASE 10

# BRONCHIAL ASTHMA

Bronchial asthma is a chronic inflammatory disorder characterized by airways hyper-responsiveness and reversibility of airflow obstruction (either spontaneously or following bronchodilator therapy).

## HISTORY

The presentation of asthma varies greatly from person to person. For some it is only a minor inconvenience with occasional symptoms while others may have symptoms all the time. These may include shortness of breath, chest tightness, wheezing, coughing, and the associated disturbed sleep that occurs due to the symptoms.

## CLINICAL FEATURES

- Episodic or chronic symptoms of wheezing, dyspnea, or cough.
- Symptoms are frequently worse at night or in the early morning.
- On physical examination there is prolonged expiration and diffuse wheezes. There is limitation of airflow on pulmonary function testing or positive bronchial provocation challenge.
- Airflow obstruction is reversible, either spontaneously or following bronchodilator therapy.

## INVESTIGATIONS

- CBC (to look for leukocytosis)
- CXR (to look for consolidation)
- ABGs (to look for hypoxemia, respiratory acidosis / alkalosis or respiratory failure)
- Spirometry / methacholine challenge test to confirm the diagnosis of bronchial asthma.

## DIAGNOSIS

Exercise induced asthma: > 15% decrease in FEV1 after 6 minutes of exercise.

An increase of 12% or more and 200 mL in FEV1 or FVC after inhaling a short acting bronchodilator (albuterol).

Fall in FEV1 of 20% or more at exposure of a methacholine concentration of less than or equal to 8 mg/mL

## MANAGEMENT

Treatment and follow-up depend on the severity of the attack and the patient's response:

# CASE 11

# ACUTE EXACERBATION OF BRONCHIAL ASTHMA

### MILD TO MODERATE ATTACK OF BRONCHIAL ASTHMA

Reassure the patient; place him in a 1/2 sitting position (45°).
Ventolin / Salbo (albuterol aerosol) Evohaler, 2 to 4 puffs every 20 to 30 minutes, up to 10 puffs if necessary, during the first hour.
In patients not taking inhaled corticosteroids, start inhaled corticosteroids, Clenil (beclomethasone) nebulization or 2-4 puffs through MDI 6 hourly.
In patients already taking inhaled corticosteroids, give Tab-Deltacortel (prednisolone) 0.5-1 mg/kg/day for 1 week.
If the attack is completely resolved: observe the patient for 1 hour (4 hours if he lives far from the health center, then give outpatient treatment:
Salbo/ Ventolin inhaler 2 to 4 puffs every 4 to 6 hours depending on clinical evolution and Tab Deltacortel (prednisolone) PO (0.5-1 mg/kg/day) to complete 1 week of treatment.
If the attack Is only partially resolved: continue with 2 to 4 puffs of salbutamol every 3 to 4 hours if the attack is mild; 6 puffs every 1 to 2 hours if the attack is moderate, until symptoms subside. When the attack is completely resolved, proceed as above. If symptoms worsen or do not improve, treat as severe attack.

# CASE 12

## SEVERE ATTACK OF BRONCHIAL ASTHMA

This is said to occur when the person has no relief after using a quick relief inhaler, there is rapid worsening of shortness of breath, or there is shortness of breath with minimal physical activity.

Hospitalize the patient; place him in a 1/2 sitting position.

Administer Oxygen continuously, at least 5 liters/minute or maintain the 0, saturation between 94 and 98%.

Ventolin (Albuterol) Nebulization stat. 2.5-5 mg diluted in 5-10 ml normal saline; repeated after 30-60 minutes if necessary. Increase the interval between the doses to 6 hours, as the condition of patient improves.
Atem (ipratropium bromide) nebulization stat. 250 mcg diluted in 5-10 ml normal saline; repeated after 6 hours.
Inj Hyzonate/ Solucortef (hydrocortisone) 100mg IV x QID (5mg/kg/injection in children) until the patient can tolerate oral prednisolone.
If the attack is completely resolved, observe the patient for at least 4 hours. Continue the treatment with salbutamol for 24 to 48 hours {2 to 4 puffs every 4 hours) and prednisolone PO (1 to 2 mg/kg once daily) to complete 1 week of treatment.
Reassess after 10 days: consider long-term treatment if the asthma attacks have been occurring for several months. if the patient is already receiving long-term treatment, reassess the severity of the asthma and review compliance and correct use of medication and adjust treatment if necessary.

If symptoms worsen or do not improve, treat as life threatening attack of asthma.

# CASE 13

## LIFE-THREATENING ATTACK OF BRONCHIAL ASTHMA

Admit the patient to intensive care unit and pass IV line.

Administer oxygen continuously, at least 5 litres/minute or maintain the 0, saturation between 94 and 98%.
Clenil (salbutamol) + Atem (ipratropium) nebulization every 20. 30 minutes (Children 1 month to < 5 years: salbutamol 2.5mg+ ipratropium 0.25mg, Children 5 to < 12 years: Salbutamol 2.5 to 5 mg + ipratropium 0.25mg, Children >12 years and adults: Salbutamol 5mg + ipratropium 0.5mg). The two solutions can be mixed in the nebuliser reservoir. The solutions must be administered via an oxygen-driven nebuliser.
Inj Hyzonate/ Solucortef (hydrocortisone) 100mg IV x QD (Smg/kg/injection in children) until the patient can tolerate oral prednisolone.
If the attack is resolved after one hour: switch to salbutamol aerosol and continue prednisolone PO as for severe attack.
If symptoms do not improve after one hour:
Inj Ventolin (Albuterol) Smg (10 ampules) diluted in 500 ml! 5% dextrose or normal saline at the rate of Smcg/min (30 micro drops per minute) adjusted according to response and heart sate. “OR"
Inj Magnesium sulfate 1 2gm in iL N/Saline 0.9% over 20 minutes, monitoring blood pressure: (Children over 2 years: 40 mg/kg)

# CASE 14

If patient does not respond, add
Inj Aminophylline 250mg IV diluted in 20 mi normal saline in 20 minutes followed by 500mg/500mI as infusion at a rate of 0.9mg/kg/hour (half the dose in case of IHD or hepatic dysfunction).

Continue nebulization and corticosteroids, as above.
In pregnant women, treatment is the same as for adults. In mild or moderate asthma attacks, administering oxygen reduces the risk of fetal hypoxia. For all patients, irrespective of the severity of the asthma attack, look for underlying lung infection and treat accordingly.

Note: If a conventional spacer is not available, use a 500 ml plastic bottle: Insert the mouthpiece of the inhaler into a hole made in the bottom of the bottle (the seal should be as tight as possible). The child breathes from the mouth of the bottle in the same way as he/ she would with a spacer.

# CASE 15

## STEPWISE MANAGEMENT OF CHRONIC BRONCHIAL ASTHMA

Only patients with persistent asthma need long-term treatment. The mainstay of treatment is inhaled corticosteroids. Treatment is started at the step most appropriate to initial severity then, re-evaluated and adjusted according to clinical response. It aims to abolish symptoms with the lowest possible dose of inhaled corticosteroids. An imervening severe exacerbation or loss of control necessitates reassessment to re-evaluate treatment.

PROFFERED RELIEVER THERAPY
As-needed low dose ICS-Formoterol for patients prescribed maintenance and reliever therapy: Combivair / Easair (Budesonide + formoterol) 200/6 mcg, MDI 2 puffs x SOS "OR"

As needed SABA: Ventolin/ Salbo (Salbutamol) 100mcg evohaler; 2-4 puffs x SOS.

PROFFERED CONTROLLER THERAPY

- STEP-1: As-needed low dose ICS-Formoterol Combivair / Easair (Budesonide + formoterol) 200/6 mcg, MDI 2 puffs x SOS "OR" Ventolin/ Salbo (Salbutamol) 100mcg evohaler; 2-4 puffs PLUS Clenil (Beclomethasone) 250mcg, inhaler 1-2 puffs x SOS
- STEP-2; Daily Low dose inhaled corticosteroids (ICS). Clenil / Bekson (Beclomethasone 50mcg/puff) inhaler 2 puffs x TDS. Combivair / Easair (Budesonide + formoterol) 200/6 mcg, MDI 2 puffs x SOS
- STEP-3: Low dose ICS + long & acting beta agonists (LABA) "OR" low dose ICS + LTRA Combivair / Easair (Budesonide + formoterol) 200/6 mcg, MDI 2 puffs X BD OR Clenil / Bekson (Beclomethasone 50 mg/puff). Tab montika/ mon tiget (mo hart (Ntelukast) 19 mg, 1 tab PO x OD at night.
- STEP 4 (medium dose ICS + LABA) and STEP 5 (high dose ICS + LABA) are the same as Step-3, just increase the dose of inhaled Case the dose of inhaled corticosteroids & consider omalizumab for patients having allergies.

- STEP-6: Step-5 + oral corticosteroids Tab Deltacortel (Prednisolone) 5mg (0.5-1mg/Kg/day) PO in two divided doses. Tab Qalsan-D (Calcium + Cholecalciferol) 1 tab PO x OD for 1 month (to prevent corticosteroid induced mineral loss in long term administration).

# CASE 16

# PNEUMONIA

Pneumonia is the inflammation of the lung parenchyma. The most common causes of Pneumonia in children over 5 years and adults are viruses, pneumococcus, Mycoplasma pneumoniae, Chlamydia pneumoniae and Legionella pneumophila.

## HISTORY

Pneumonia can present with a wide array of features ranging from mild to life threatening. These include coughing, fever, chest pain, chills, headache, nausea and vomiting.

## PHYSICAL EXAM

Cough, with or without purulent sputum, fever, chest pain, tachypnea. On pulmonary auscultation: bronchial breath sounds, or inspiratory crackles. > There is parenchymal opacity on chest X-ray.
Severity of pneumonia is commonly assessed by the CURB-65 score.

## INVESTIGATIONS

X-ray chest (to look for consolidation), CBC (to Ic +k for leukocytosis in case of bacterial pneumonia or leukopenia in ca e of viral pneumonia), Sputum gram staining (for the identification of the causing organism.)

CURB-65 SCORE 0-1: Treat as
C: Confusion present (abbreviated outpatient. mental test score < 8/10)
Score 2: Admit to hospital.
U: Uremia (serum urea level > Score 3-5: often require care 7mmol/L) in the intensive care unit.
R: Respiratory rate> 30 breaths /min Mortality rate increase with increasing score.
B: systolic BP< 90 mm Hg, or diastolic increasing score.
BP < 60 mm Hg

65: age > 65 years
1 point for each of the above:

## MANAGEMENT

Ensure adequate hydration and give Oxygen inhalation x SOS.
Give Antipyretics for fever and analgesics for pleuritic chest pain.

OUT DOOR PATIENTS:
In young patients with no comorbidities (low severity)
Tab Amoxil (amoxicillin) 1gm, 1 tab PO x TDS "OR"
Tab Augmentin/Calamox/Amclave 625 mg 1 tab PO x TDS for 6 days
If allergic to penicillin, give
Tab Claritek/ Klaricid/ Rithmo (Clarithromycin) 500mg 1 tab PO x BD for 5S days "OR"
Tab Macrobac/ Azomax (Azithromycin) 500mg 1 tab PO x OD for 5 days "OR"
Cap Vibramycin/ Contimycin (Doxycycline) 100mg, 1 cap PO x BD for 5 days.

In older patients and patients with co-morbidities and those treated with antibiotics in the last 3 months use TabLeflox (Levofloxacin) 500 mg 1 tab PO x BD for 5-7 days "OR"

Tab Mofest (moxifloxacin) 400mg 1 tab PO x OD for 5-7 days.
If the condition Is improving: continue with the same antibiotic to complete treatment. if there Is no improvement after 3 days of correct administration: add
Tab Macrobac (Azithromycin) 500 mg 1 tab PO x OD for 5-7 days "OR"
Tab Claritek (Clarithromycin) 500 mg 1 tab PO x BD for 5-7 days.
If condition is deteriorating, hospitalize the patient and treat it as severe pneumonia.

FOR HOSPITALIZED PATIENTS
Inf Leflox (Levofloxacin) 100ml (5mg/ml) I/V x BD for 5 days.
"OR"
Inf Mofest (moxifloxacin) 250 ml I/V x OD for 5 days "OR"
Inj Oxidil (Ceftriaxone) 1 gm I/V x BD (ATD) for 5 days "OR"
Inj Augmentin/Calamox/Amclave 1.2 gm IV x TDS

18 Plus
Tab Azithmo/ Macrobac/ Azomax (Azithromycin) 500 mg } tab PO x OD for 5 days “OR”
Tab Claritek/ Klaricid (Clarithromycin) 500 mg 1 tab PO x Bp for 5 days.
For Pregnant Patients
Tab Augmentin (amoxicillin+clavulanic acid) 625 mg PO x T )$ for 5-7 days. “OR”
Inj Cefuroxime (Zinacef) 750 mg IV x BD for 3-4 days followed by Tab Cefuroxime (Zinacef/ Zinnat) 250 mg PO x BD for 10-14 days.

In patients not responding to therapy, consider atypical pneumonia, tuberculosis, pneumocystis (HIV infection and AIDS, etc). Bacteria responsible for atypical pneumonia are mainly Mycoplasma pneumoniae, legionella and Chlamydophila pneumonia etc. If suspected, one of the following antibiotics may be used:

First choice, Tab Claritek/ Klaricid/ Rithmo (Clarithromycin) 500mg 1 tab PO x BD for 5 days “OR”
Tab Macrobac/ Azomax (Azithromycin) 500mg 1 tab PO x OD for 5 days “OR”
If not available, give taberythromycin (erythromycin) 500mg 1 tab PO x BD for 5-7 days Or Cap Vibramycin/ Contimycin (Doxycycline) 1 cap PO x BD (except in children under 8 years and pregnant or lactating women) for 10 days.

Management according to British thoracic society guidelines.
If CURB-65 score is 0-1, use Cap Amoxil/ Ospamox (Amoxicillin) 500mg, 1 tab PO x TDS

If CURB-65 score is 2, use Inj Amoxil (Amoxicillin) 0.5-1 gm, IV x TDS + Inj Klaricid (Clarithromycin) 500mg IV x BD

If CURB-65 score is 3-5-1, use Inj Augmentin/ Amclave (Co-amoxiclav) 1.2 gm IV x TDS + Inj Klaricid (Clarithromycin) 500mg IV BD

NOTE: The treatment is given by parenteral route for at least 3 days then, if the clinical condition has improved and oral treatment can be | tolerated, switch to the oral route with amoxicillin PO to complete 7 to 10 days of treatment. Do not stop treatment until patient has been afebrile for 48 hours.

Improvement criteria: Fever reduction, diminished respiratory distress, improved $O^2$ saturation, improved appetite and/or activity.

Complications of Pneumonia: The major possible complications of pneumonia are pleural effusion, empyema, lung abscess, Pneumothorax, fibrosis of lung, collapse, adult respiratory distress syndrome, cryptogenic organizing pneumonia, sepsis and respiratory failure etc.

# CASE 17

# PLEURAL EFFUSION

## HISTORY

Fever, pleuritic pain (made worse on coughing or deep breathing), cough (pneumonia, TB), hemoptysis (associated parenchymal involvement in bronchogenic carcinoma or TB), shortness of breath (large effusions, cardiac failure), exposure to asbestos (mesothelioma) and nephrotic syndrome.

## PHYSICAL EXAM

Decreased movement on the affected side.
Tracheal deviation to the opposite side.
Stony dull note on the affected side.
Decreased vocal resonance and diminished breath sounds on the affected side.

## INVESTIGATIONS

Chest x ray to look for blunt costophrenic and cardio phrenic angles
CT thorax to look for any MASS
USG to rule out multi-septet / loculated effusion
Pleural fluid assessment for cellularity, protein, sugar, cultures, malignant cell, special tests.
Blood-Differential count, ESR, CRP to look for signs of infection,
Albumin, Urea/ electrolytes to rule out any renal disease, LFTs to rule out any liver disease
ECG and Echocardiography to rule out Pulmonary HTN/ cardiac decompensation
Markers for Autoimmune profile
Pleural biopsy in refractory cases

## MANAGEMENT

Therapeutic Pleural drainage if Symptomatic, infective (empyema).
Treatment of the underlying cause.
Decortication/ Intra pleural thrombolytic for multi loculated effusion.

# CASE 18

# TYPES OF PLEURAL EFFUSION

There are five major types of pleural effusion: exudate, transudate empyema, hemorrhagic pleural effusion or hemothorax and chylothorax.
How would you differentiate between an exudate and a transudate?
The protein content of an exudate is > 3gm/I. However, if this criterion alone is applied, about 10% of exudates and 15% of transudates will be wrongly classified. A more accurate diagnosis is made when light's criteria for an exudate is applied:
1) The ratio of pleural fluid to serum protein is greater than 0.5.
2) The ratio of pleural fluid to serum LDH is greater than 0.6.
3) Pleural fluid LDH is greater than two-thirds the upper normal limit of blood LDH.
The pleural fluid cholesterol level is < 600 mg/I in transudates. All malignant effusions have a pleural cholesterol level > 600 mg/l and therefore this test is useful to separate these two categories.
High pleural fluid ADA indicates tubercular pleural effusion.

## COMMON CAUSES OF PLEURAL EFFUSION

EXUDATIVE PLEURAL EFFUSION: Pulmonary tuberculosis, pneumonia, bronchogenic carcinoma, pulmonary infarction, collagen diseases (SLE & RA), lymphoma, mesothelioma

TRANSUDATIVE PLEURAL EFFUSION: Congestive cardiac failure, nephrotic syndrome, cirrhosis of liver, hypothyroidism and malnutrition.

RIGHT SIDED PLEURAL EFFUSION: Liver abscess, Meig's syndrome (ovarian fibroma, ascites and right sided pleural effusion), dengue hemorrhagic fever

LEFT SIDED PLEURAL EFFUSION: Acute pancreatitis, rheumatoid arthritis, Dressler's syndrome, esophageal rupture (Boerhaave syndrome)

# CASE 19

# EMPYEMA

Accumulation of pus in the pleural cavity is called empyema. Causes are 1) Tubercular 2) Non-tubercular: bacterial pneumonia, lung abscess, bronchiectasis, secondary infection after aspiration, rupture of sub-phrenic abscess or liver abscess, infected hemothorax. Symptoms: Persistent high-grade fever, malaise, weight loss and copious purulent sputum (if empyema ruptures into a bronchus.)

Signs: patient is toxic, emaciated, tachypneic and tachycardic. Clubbing may also be seen and aspiration of pleural fluid shows pus or purulent fluid.

TREATMENT: According to the cause:
1) Non-tuberculous empyema:
a. Drainage of the pus
b. Antibiotics for 2 to 6 weeks. IV co-amoxiclave or cefuroxime plus metronidazole. Adjust according to C/S when report become available.
c. If pus is thick or loculated: surgical intervention may be needed. 2) Tuberculous empyema:
a. Wide bore needle aspiration or intercostal tube drainage
b. ATT and sometimes surgical ablation of pleura.

# CASE 20

# TB

Pulmonary tuberculosis is a bacterial infection due to Mycobacterium tuberculosis, spread by airborne route. After contamination, M. tuberculosis multiplies slowly in the lungs: this represents the primary infection. In immunocompetent patients, the pulmonary lesion heals in 90% of cases, but in 10%, patients develop active tuberculosis.

Tuberculosis may also be extrapulmonary: tuberculous meningitis, disseminated tuberculosis, lymph node tuberculosis, spinal tuberculosis, etc.
Patients with HIV infection have an increased risk of developing active tuberculosis. In certain countries, up to 70% of patients with tuberculosis are co-infected with HIV.

**Multi-Drug resistant TB (MDR TB)** is a form of tuberculosis caused by bacteria that are resistant to treatment with at least two of the most powerful first line medications {isoniazid and rifampin). Some forms of tuberculosis are also resistant to fluoroquinolones and to any of three 2™-line injectable agents (amikacin, kanamycin & capreomycin) and are called extensively drug resistant (XDR) TB.

## CLINICAL FEATURES:

Fatigue, weight loss, fever, night sweats, and productive cough (> two weeks), Risk factors for acquisition of infection: household exposure, incarceration, drug use, travel to or residence in endemic area.

## Diagnostic Investigations:

Sputum smear microscopy; culture (sputum AFB).
Chest X-rays are useful for the diagnosis of smear negative tuberculosis and tuberculosis in children. CXR usually show pulmonary opacities, including nodular or cavitating.
Gene expert.

## MANAGEMENT OF TUBUERCULOSIS

The treatment is a combination of several of the following anti tuberculous drugs [isoniazid (H), rifampicin (R), pyrazinamide (2), ethambutol (E), streptomycin (S)]. The regimen is standardized and organized into 2 phases (initial phase and continuation phase).
The treatment of drug-sensitive tuberculosis lasts a minimum of 6 months. It takes significant investment to cure a TB patient, both from the patient and the medical team. Only uninterrupted treatment for several months may lead to cure and prevent the development of resistance, which complicates later treatment. It is essential that the patient understands the importance of treatment adherence and that he has access to correct case management until treatment is completed.

Tab-Myrin-P 4 tablets PO x OD for 2 months (Rough estimate 1 tablet / 15Kg weight of the patient)

TabVita-6 (Pyridoxine) 1 tab PO x OD throughout the treatment.
After 2 months give, Tab Rimactal INH (rifampicin + isoniazid) “OR” adjust treatment according to culture and sensitivity and continue irregularly for 4 months in case of pulmonary Tuberculosis, 10 months in case of Tubercular meningitis.

# CASE 21

## TB IN CHILDREN

Tab/Syp Rfamin-H (Rafampicin+isoniazid) 10-20mg/Kg PO x OO for 9 months
Tab/Syp PZA ciba (Pyrazinamide) 15-30 mg/kg PO x OD for 1st 2 months
Tab Abbutol 400mg, 15mg/Kg/day PO x OD for 1st 2 months 4 § Calpol Paracetamol 1 TSF PO x TDS for few da s then SOS.

# CASE 22

## TB IN PREGNANCY

MANAGEMENT OF PULMONARY TB IN PREGNANCY:
Tab Myrin/ Rifatol (Isoniazid + Rifampicin + Ethambutol) 4 tablets PO x OD for 2 months.
TabVita-6 (Pyridoxine) 1 tab PO x OD throughout the treatment.
After 2 months give,
Tab Rimactal INH "OR" adjust treatment according to culture and sensitivity and continue it regularly for 4-7 months.
NOTE: For Tubercular Pericarditis and tubercular meningitis, use steroids for 3 months along with anti-tubercular medications and refer" MDR cases to TB center.

Prevention: When BCG is correctly carried out, it confers protection that is not insignificant (probably over 50%). It has been proven that BCG protects against severe forms of the disease, in particular tuberculous meningitis and miliary tuberculosis. BCG vaccination does | not diminish transmission of tuberculosis.

# CASE 23

# HYPERTENSION

Hypertension is defined as a systolic blood pressure of 130 mm Hg or more or a diastolic blood pressure of 80 mm Hg or more, or taking antihypertensive medication.

CARE IN MEASURING BLOOD PRESSURE:

Measure sitting BP routinely, with additional standing BP (in elderly and diabetic patients) Support the arm at the level of the heart. Use a cuff of appropriate size (the bladder must encompass > two-thirds of the arm) small cuffs may give falsely high readings. Take two measurements at each visit, separated by 2 minutes. Hypertension should be confirmed in both arms, and the higher reading should be used.

NICE suggest offering ambulatory blood pressure or home blood pressure monitoring to any patient with a blood Pressure of greater than or equal to 140/90 mm hg.

# CASE 24

# HYPERTENSION GRADING

GRADING OF HYPERTENSION for office-based measurement (ACC/AHA) 2020 Normal <120/80 mmHg Prehypertension / 120-129/80 mmHg

Elevated BP

Stage 1 Hypertension 130-139/80-89 mmHg.

Stage 2 Hypertension >140/90 mmHg. Treatment should be started.

At stage 1, doctors are likely to advice life style changes and may consider adding BP medications based on risk of atherosclerotic cardiovascular disease.

AMBULATORY BLOOD PRESSURE MONITORING (ABPM): At least 2 measurements per hour during the person's usual waking hours (8am to 10pm) should be taken. Use the average value of at least 14 measurements. If ABPM is not tolerated or declined, home blood pressure monitoring should be offered.

HOME BLOOD PRESSURE MONITORING (HBPM): For each BP recording, two consecutive measurements should be taken, at least 1 minute apart and the person seated. BP should be recorded twice daily (morning and evening). BP should be recorded for 4-7 days Discard the measurements taken on the first day and use the average value of all the remaining measurements.

A 10 years cardiovascular risk > 20%.

ABPM / HBPM > 150 / 95 mmHg (stage 1 HTN): Treat if age < 80 years and any of the following apply
Target organ damage
Established cardiovascular disease
Renal disease.
ABPM / HBPM > 150 / 95 mmHg (stage-Il HTN): offer drug treatment regardless of age.

# CASE 25

# MANAGEMENT HYPERTENSION

Management of Hypertension: Objective Achieve and maintain the target BP. In most cases the target BP should be: systolic below 130 mmHg and diastolic below 80 mmHg.

Achieve target BP in special cases as: In diabetic patients and patient, with cardiac or renal impairment, target BP should be below 130/89 mmHg; Prevent and treat associated cardiovascular risks such as dyslipidemia and lifestyle modification.

Non pharmacological measures: Lifestyle modification

Weight Reduction: Maintain ideal body weight BMI 18.5 - 24.9kg/$m^2$
Adopt DASH (Dietary Appropriate to Stop Hypertension) eating plan: Consume a diet rich in fiber - fruits, vegetable, unrefined carbohydrate and low-fat dairy products with reduced content of saturated and total fat
Dietary Sodium: Reduce dietary sodium intake no more than 1000 mmol/I (2.4gm sodium or 6gm sodium chloride

Physical Activity: Engage in regular activity such as a brisk walking at feast 30min/day most days a week.
Avoid using all tobacco products Moderation of alcohol consumption: Limit consumption to no more than 2 drinks per day in men and no more than one drink per day in Women and light person.

DRUG THERAPY CONSIDERATIONS (Reference: 5 min Clinical Consult} Consider cost, pill burden and side effects Consider patients age, race and comorbidities. Avoid simultaneous use of ACEI, ARB or renin inhibitor. Avoid ACEI, ARB and renin inhibitor in pregnancy.

Start with 2 drugs (for newly diagnosed Hypertension) if BP > 20/10 mmHg above target.

# CASE 26

# PHARMACOLOGICAL TREATMENT OF HYPERTENSION

Stepwise Management of Hypertension.
1. ACE inhibitor/ARB or Calcium channel blocker
2. ACE inhibitor/ARB plus Calcium channel blocker
3. ACE inhibitor/ARB plus calcium channel blocker plus diuretic
4. ACE inhibitor/ARB plus calcium channel blocker plus diuretic plus alpha / beta blockers. Start with ACE inhibitors / ARBs (Age < 55 years & not black) "OR" Calcium Channel Blockers (age > 55 and black).

ACE Inhibitors:
Tab Ramipace/ Tritace (Ramipril) 2.5 mg| 5 mg| 10 mg| 1 tab PO x OD "OR"

Tab Zepres / Cardace (Enalapril) 5 mg | 10 mg] 1 tab PO x OD “OR”
Tab Zestril (Lisinopril) 5 mg| 10 mg| 20 mg| 1 tab PO x OD “OR”
Tab Capoten (Captopril) 25 mg| 50 mg] 1 tab PO x BD.

ARBs: TabA2A / Eziday / Losanta (Losartan) 25 mg [50 mg|100 mg| 1 tab PO x OD “OR”
Tab Misar / Tasmi (Telmisartan) 20 mg|40 mg|80 mg| 1 tab PO x OD “OR”
Tab Advant (Candesartan) 8 mg| 16 mg] 32 mg| 1 tab POx OD.

Calcium channel blockers: Tab Sofvasc/ Norvasc/ Zodip (Amlodipine) 5 mg|10 mg}, 1 tab PO x OD “OR” + TabHerbesser (Diltiazem) 60 mg| 1 tab PO x BD or TDS “OR”
Tab Adalat (Nifedipine) 30 mg| 60 mg| 1 tab PO x OD.

Combine Calcium channel blockers with ACEls / ARBs
TabSofvasc V/ Vaitec AM / Avsar / Biforge (amlodipine + valsartan) 5/80 mg| 5/160 mg| 10/160 mg| 1 tab PO x OD. ACEIS / ARBs and Calcium channel blockers are also available in combination with hydrochlorothiazide where indicated Co-Tritace (Ramipril + hydrochlorothiazide) 2.5/12.5 mg] 5/25 mg| 1 tab PO x OD “OR”
Tab-Co-Tasmi / Misar-H (Telmisartan + hydrochlorothiazide)


40/12.5 mg] 80/12.5 mg] 1 tab PO x OD.
If BP is not controlled with maximum dose of two drug combinations, add diuretic Tab Triforge / Co-Extor/ Avsar plus (amlodipine + hydrochlorothiazide + valsartan) 5/160/12.5 mg| 5/160/25 mg] 10/160/12.5 mg] 10/ 160 /25 mg| 1 tab PO x OD.

If BP is still not controlled add alpha blocker or beta blocker or both and seek expert advice.

Tab Tamsol/ Maxflow (tamsulosin) 0.4 mg, 1 tab PO x OD “OR”
Tab Blokium/Normitab (atenolol) 50 mg| 100 mg] 1tab PO x OD.

Note: Beta blockers are no longer routinely recommended as first line agents in hypertension because of an increased long-term risk of diabetes, particularly

when used with diuretics. However, when hypertension is accompanied by CAD, CCF, increased sympathetic activity and arrhythmia, beta blockers therapy could be beneficial.

# CASE 27

# HYPERTENSIVE URGENCYAND EMERGENCY

Hypertensive urgency: asymptomatic severe hypertension (systolic BP > 220 mmHg or diastolic BP > 125 mm hg that persists after a period of observation) and those with optic disk edema, progressive target organ complications and severe perioperative hypertension. BP must be reduced within a few hours. Parenteral drug therapy is not usually required and partial reduction of BP with relief of symptoms is the goal

Hypertensive emergency: severe hypertension with target organ damage. Hypertensive emergencies require substantial reduction of 6P with n 1 hour to avoid the risk of serious morbidity or death. Hypertensive emergencies include hypertensive encephalopathy (headache, irritability, confusion and altered mental status due to cerebrovascular spasm), hypertensive nephropathy (hematuria, proteinuria and AKI due to arteriolar necrosis and intimal hyperplasia of the interlobular arteries}, Intracranial hemorrhage, aortic dissection, preeclampsia-eclampsia, pulmonary edema, unstable angina or myocardial infarction. Parenteral therapy is indicated in most of emergencies, especially if encephalopathy is present. The initial goal in hypertensive emergency is to reduce the BP by no more than 25% (within minutes to 1 or 2 hours) and then toward a level of 160/100 mmHg within 2-6 hours. Excessive reduction in BP may precipitate coronary, cerebral or retinal ischemia. In that regard, the use of sublingual or oral fast-acting nifedipine preparations is best avoided.

Acute ischemic stroke is often associated with marked elevation in BP, which will fall spontaneously. In such cases, antihypertensives should only be used if the systolic BP exceeds 180200 mmHg and BP should be reduced cautiously by 10-15%.

If thrombolytics are to be given, BP should be maintained at less than 185/110 mm Hg during treatment and for 24 hours following treatment.

In hemorrhagic stroke, the aim is to minimize bleeding with a target mean arterial pressure of less than 130 mm Hg. Rapidly lowering of systolic BP below 140 mm Hg in acute stroke has been associated with harm and is not recommended.

In acute subarachnoid hemorrhage, BP goals depends upon the patient usual BP. In normotensive patient, the target should be a systolic BP of 110-120 mm Hg; in hypertensive patients, BP should be treated to 20% below baseline pressure.

# CASE 28

## ACUTE CORONARY SYNDROMES (ACS)

ACS is the term used to describe unstable angina, NSTEMI and STEMI. Rapidly ~ Myocardial + Myocardial worsening (coagulative) (coagulative) of angina. necrosis limited entire > Negative to the interior ventricular wall cardiac one-third of the from enzymes. left ventricular endocardium to > ST-segment wall). the epicardium. depression + Elevated cardiac • Elevated cardiac with / without enzymes. enzymes. T-wave + ST-segment •ST-segment inversion on depression with / elevation on ECG. without T-wave ECG. inversion on ECG.

ACS is characterized by typical chest pain, rise in cardiac biomarkers and ECG /ECHO changes.

ACS generally develops in patients who have ischemic heart disease, either known “OR” previously undetected.
In first 6 hours of chest pain onset, ECG is gold standard.
Myoglobin (rises first following Mi) is the most sensitive one.
CK-MB is useful to look for reinfarction after 2-3 days. rection as it returns to normal

# CASE 29

# ACUTE MYOCARDIAL INFARCTION (STEMI)

Classical STEMI present with triad of typical chest pain, ST-segment elevation or new onset LBBB on ECG and elevated cardiac biomarkers.

## HISTORY:

Patients will usually present with pressure or tightness in the chest, nausea, vomiting, sweating, anxiety, and severe pain in the chest that is radiating to the left jaw, left side of the neck and the left arm.

CLINICAL FEATURES: Prolonged (> 30 minutes) sub-sternal chest pain or discomfort (sometimes felt as gas or pressure) that may radiate to the jaw, left shoulder or arm. Dyspnea, nausea, diaphoresis or syncope may either accompany the chest discomfort or may be the only symptom of myocardial infarction.

## INVESTIGATIONS

All BLIs, ECG (to look for ischemic changes), CXR ST-segment (to look for cardiomegaly, pulmonary edema elevation or new etc.) cardiac biomarkers/enzymes (Troponin-| onset LBBB on ECG & T) Echocardiography (to look for regional wall with elevated abnormalities) coronary angiography. Exclude —_ cardiac biomarkers.
other causes of chest pain like pericarditis,
pulmonary embolus, fractured ribs, and Aortic dissection, esophageal spam.

## ACUTE MANAGEMENT OF STEMI

Patient should be hospitalized, maintained at bed rest or at very limited activity for 24 hours, monitored and given supplemental oxygen (2-4 L/min) to treat hypoxia (SPO2 < 92%), breathlessness or acute heart failure.

Antiplatelet Therapy
Tab Disprin (chewable aspirin) 300mg 1 tab PO x stat
Tab Noclot-LD (Clopidogrel) 300mg 1 tab PO x stat; 75mg if age > 75 years.
Analgesics to relieve pain
Inj Morphine (dilute 4-8 mg in to 10 mL N/S 0.9%) IV x Stat (12mg/min). “OR”

Inj Nalbin (Nalbuphine) 10-20mg + Gravinate (dimenhydrinate) IV x stat
Beta blockers (ACC/AHA guidelines): If hypertensive ar ongoing ischemia give beta blockers at the time of presentation, unless contraindicated.

Tab Carveda (Carvedilol) 6.25-25mg 1 tab PO x BD "OR"
Tab Merol (Metoprolol) 25-SOmg 1 tab PO x BO
Anticoagulation: Give anticoagulation until hosptital discharge (Minimum 48 hours, up to 8 days)

Inj Arixtra (Fondaparinux) 2.5-5mg S/C x OD (contraindicated in Renal disease) "OR" InjClexane (Enoxaparin) 60mg S/Cx BD for 3 days (OD dose in Renal diseases) Coronary reperfusion therapy

Primary Percutaneous Intervention (12 PCI) —Only in center where the 12 PCI, Coronary angioplasty/stenting can be performed and has been shown to have superior outcomes compared to thrombolytic therapy. Initiate reperfusion therapy to all eligible patients within 12 hours of symptoms onset; it remains beneficial up to at least 24 hours if there is evidence of ongoing ischemia.

Fibrinolytic Therapy (If PCI is not available): It is most useful if ischemic symptoms started within the past 12 hours and is reasonable choice b/w 12-24 hours if there is evidence of ongoing ischemia or a large area of myocardium at risk.

Inj Streptokinase 1.5 million units diluted in 100-200 mL pladex or N/S 0.9%, infused over 30-60 min.
NOTE: Before giving Angised (as it reduces blood pressure), make sure patient hasn't taken phosphodiesterase-5 inhibitor and is not in shock or hypotensive.

## MANAGEMENT AFTER STABILIZATION (HOME THERAPY):

Tab-Loprin / Ascard (Aspirin) 75/81mg 1 tab PO x OD (indefinitely). After PCI / Fibrinolytic therapy for ACS, give dual antiplatelet (Aspirin + Clopidogrel 75/75mg) therapy for 1 year.

Tab Rast (Rosuvastatin) 10-20mg 1 tab PO x OD at night (you can give any other statin).

For ongoing ischemic pain give
Tab Monis (Isosorbide Mononitrate) 10-40mg 1 tab PO x BD
Tab Angised (Glyceral Trinitrate) 0.5mg 1 tab S/L x SOS, can be repeated after 5-10 minutes, if pain not relieved.
Tab Carveda (Carvedilol) 6.25-25mg 1 tab PO x BD "OR" Tab Merol (Metoprolol) 25 mg 1 tab PO x BD
If B-blocker cannot be tolerated or Is contraindicated, consider giving calcium channel blocker, give Tab Sofvasc/Norvac (Amlodipine) 5-10mg 1 tab PO x OD.
Tab-Ramipace Tritace Rimipril 1.25-5m 1 tab PO x OD)

# CASE 30

# ORAL CANDIDIASIS (THRUSH)

## HISTORY:

Usually, patients will give a history of a creamy white lesion on the tongue, inner cheeks, and sometimes on the room of the mouth or tonsils. The appearance is usually described as a 'cottage cheese appearance'. There may even be a loss of taste and cotton like feeling in the mouth.

Characteristic features:
Fluctuating throat or mouth discomfort.
Systemic or local immunosuppression, such as recent corticosteroid, chemotherapy, or antibiotic use.
Erythema of the oral cavity or oropharynx with creamy-white, curd-like patches.
Rapid resolution of symptoms with appropriate treatment.

## MANAGEMENT

Cap Flucon / Diflucon (fluconazole) 100mg, OD y for 7 days "OR"
Tab Conaz (ketoconazole) 200-400mg, OD with breakfast for 714 days. "OR"
Nilstat (nystatin) mouth rinses 500,000 units [5 mL of 100,000 units/mL] held in the mouth before swallowing three times daily.

In patients with HIV infection, however, longer courses of therapy with fluconazole may be needed, and oral itraconazole (200 mg/day) may be indicated in fluconazole-refractory cases.

Local Treatment protocols used for resistant oral candidiasis:
Paste of Daktarin (miconazole) oral get + Nilstat (nystatin) oral drops + Betnesol (betamethasone) 0.5mg tablets + Doxycycline / Erythromycin is made and applied on effected part, three times daily for a week.

# CASE 31

# DYSPEPSIA

Epigastric pain or discomfort following meals, often accompanied by bloating, sensation of fullness and nausea. Dyspepsia is most commonly functional, linked with stress and not linked to the quantity of gastric acid (antiacids and antiulcer drugs are ineffective).

Resolution is usually spontaneous. Endoscopy is warranted in all patients age 60 years or older and selected younger patients with alarm features. In all other patients, testing for Helicobacter pylori is recommended; if positive, antibacterial treatment is given.

## MANAGEMENT

Most patients have mild, intermittent symptoms that respond to reassurance and lifestyle changes.
Alcohol and caffeine should be reduced or discontinued.
Patients with postprandial symptoms should be instructed to consume small, low-fat meals.
Functional dyspepsia refers to dyspepsia for which no organic etiology has been determined by endoscopy or other testing.

Pharmacological treatment:
If H. Pylori is positive: give H. Pylori eradication therapy

# CASE 32

## H. PYLORI DYSPEPSIA

If H. Pylori is Negative: Cap Risek / Ruling (omeprazole) 40mg (or any other PPI) PO x OD or 20mg PO x BD (or any other PPI) before meal for 4 weeks

Treatment of Functional dyspepsia: Give reassurance + advice lifestyle or dietary changes.
Tab Ganaton / Itp (Itopride) 50mg, 1 tab PO x TDS.
Tab Sensival (Nortriptyline) 25-50mg, 1 tablet PO x at night
Tab Metomide (metoclopramide) 5-10mg, 1 tablet PO x TDS "OR"
Tab Motilium (domperidone) 10mg, 1 tablet PO x TDS
Psychotherapy and hypnotherapy may be of benefit in selected motivated patients with functional dyspepsia.

# CASE 33

## GASTRO ESOPHAGEAL REFLUX DISEASE. (GERD)

Heartburn, fluid or food regurgitation; may be exacerbated by meals, bending, or recumbency. Symptoms for persistent disease may include odynophagia, dysphagia, weight loss, Gi bleeding, chest pain and anemia etc.

Typical uncomplicated cases do not require diagnostic studies.

Endoscopy demonstrates abnormalities in one-third of patients.

INVESTIGATIONS: Urea breath test, stool antigen test, 24-hours esophageal PH-metry and ECG (if old age or there are risk factors for coronary artery disease).

MANAGEMENT
General Measures: Life style (stop smoking, reduce weight etc.) and dietary changes (smaller meals and avoidance of acidic foods)

Avoid lying down directly after taking meal. Patients with nocturnal symptoms should elevate the head end of bed (about 6 inches)

Pharmacological treatment:

Tab-Polypep (Famotidine) 40mg 1 tab PO x BD before meal for 2

4 weeks. “OR” Cap Risek (omeprazole) 40 mg 1 cap PO x OD before meal for 2-4 weeks, if no response makes it twice daily dose.
Syp Gaviscon / Mucaine / Dijex MP, 2 TSF PO x TDS.

Patients’ not responsive to twice daily therapy should undergo endoscopy for detection of severe, inadequately treated reflux esophagitis and for other Gastroesophageal conditions (eosinophilic esophagitis and achalasia) that may mimic GERD.
Surgical intervention i.e., laparoscopic fundoplication is required if severe symptoms persist despite taking above measures.

If urea breath or stool antigen test is positive, go for H. Pylori eradication therapy.

# CASE 34

# PUD (PEPTIC ULCER DX)

History of dyspepsia present in 80-90% of patients with variable relationship to meals. Ulcer symptoms characterized by rhythmicity and periodicity.
Ulcer complications present without antecedent symptoms in 10-20% of patients.
Most NSAID-induced ulcers are asymptomatic. Upper endoscopy with gastric biopsy for H pylori is the diagnostic procedure of choice in most patients.
Gastric ulcer biopsy or documentation of complete healing necessary to exclude gastric malignancy.

## ETIOLOGY:

There are two major causes of peptic ulcer disease: NSAIDs and chronic H pylori infection.

## INVESTIGATIONS:

Upper endoscopy is the procedure of choice for the diagnosis of duodenal and gastric ulcers.

In patients in whom an ulcer is diagnosed by endoscopy, gastric mucosal biopsies should be obtained both for a rapid urease test and for histologic examination.
Noninvasive assessment for H pylori with fecal antigen assay or urea breath testing may be done in patients with a history of peptic ulcer disease to diagnose active infection or in patients following its treatment to confirm successful eradication.

Note: For rapid urease / stool antigen test PPIs and antibiotics should be stopped for 4 weeks before test.

## MANAGEMENT

Cap Risek / Ezomol (Omeprazole / Esomeprazole) 40mg PO x OD or 20mg PO x BD before meal.
Tab Polypep (Famotidine) 40mg, 1 tab PO x BD Syp Ulsanic / Sucfate (sucralfate) 2 TSF PO x QID
Treatment of the underlying cause i.e., H. Pylori eradication therapy.
Avoid NSAIDs and steroids.

**H. PYLORI ERADICATION THERAPY**

1. Treat with anti-pylori regimen for 14 days. Treatment options include
STANDARD BISMUTH QUADRUPLE REGIMEN THERAPY:
Cap Risek/Esso (OmeprazoleEsomeprazole) 40mg 1 cap PO x BD before meal.
Tab Bismol (bismuth subsalicylate) 265mg, PO x BD
Tab tetracycline 500mg, 1 cap PO x QID
Tab Flagyl (metronidazole) 400mg 1 tab PO x TDS. "OR"
Cap Risek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap PO x BD before meal.
Cap Pylera (Bismuth subcitrate potassium 140mg + metronidazole 125mg + tetracycline 125mg, three capsules PO x QID for 10 days)
STANDARD NON-BISMUTH QUADRUPLE THERAPY:
Tab-Ospamox (amoxycillin) Igm 1 tab PO x BD
Tab Claritek (Clarithromycin)500 mg 1 tab PO x BD
Cap Risek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap PO x BD before meal.
Tab Flagyl (metronidazole) 400mg, 1 tablet PO x TDS.

**STANDARD TRIPLE REGIMEN:** No longer recommended except in places where clarithromycin resistance is less than 15%.
Tab Ospamox (amoxycillin) 1gm 1 tab PO x BD
Tab Claritek (Clarithromycin)500 mg 1 tab PO x BD Cap Risek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap PO x BD before meal.

**LEVOFLOXACIN TRIPLE THERAPY** (Recommended after failed Previous treatment in a patient with clarithromycin and tetracycline allergy) Cap Risek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap PO x Bp before meal.
Tab Leflox (levofloxacin) 500 mg 1 tab PO x BD
Tab Ospamox (amoxycillin) 1gm 1 tab PO x BD

**SEQUENTIAL CLARITHROMYCIN THERAPY:**
TabOspamox (amoxycillin) 1gm 1 tab PO x BD PLUS Cap Risek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap PO x Bp before meal for 5-7 days followed by
Cap Risek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap PO x Bp before meal PLUS Tab Claritek (Clarithromycin) 500 mg 1 tab PO x BD PLUS TabFlagyl (metronidazole) 400mg, 1 tablet PO x TDS for r.2xt 5-7 days.
SEQUENTIAL LEVOFLOXACIN THERAPY:
Tab Ospamox (amoxycillin) 1gm 1 tab PO x BD PLUS CapRisek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap) x BD before meal for 5-7 days followed by CapRisek/Esso (Omeprazole/Esomeprazole) 40mg 1 cap PO x BD before meal PLUS TabLeflox (levofloxacin) 500 mg 1 tab PO x BD PLUS TabFlagyl (metronidazole) 400mg, 1 tablet PO x TDS for next 5-7 days.

2. After completion of course of H. Pylori eradication therapy, continue treatment with PPI once daily for 4-6 weeks, if ulcer is large (> 1cm) or complicated.

3. Confirm successful eradication of H. Pylori with urea breath test fecal antigen test, or endoscopy with biopsy at least 4 weeks after completion of antibiotic treatment and 1-2 weeks afte! complet on of PPI treatment.
Active ulcer not attributable to H. pylori Consider other causes: NSAIDs, Zollinger-Ellison syndrome, gastric malignancy.
Proton pump inhibitors: Uncomplicated duodenal ulcer: treat for 4 weeks
Uncomplicated gastric ulcer: Treat for 8 weeks H2-receptor antagonists

Uncomplicated Duodenal Ulcer: cimetidine 800 mg, nizatidine 300 mg, famotidine 40 mg, orally once daily at bedtime for 6 weeks o Uncomplicated gastric ulcer: cimetidine 400 mg, nizatidine 150 mg, famotidine 20 mg, orally twice daily for 8 weeks 4 Complicated ulcers: proton pump inhibitors are the preferred drugs ' PREVENTION OF ULCER RELAPSE

1. NSAID-induced ulcer: prophylactic therapy for high-risk patients (prior ulcer disease or ulcer complications, use of corticosteroids or anticoagulants, age > 60 years, serious comorbid illnesses). Treatment options: Proton pump inhibitor once daily
Celecoxib (contraindicated in patients with increased risk of cardiovascular disease)
Misoprostol 200 mcg orally 4 times daily Long-term "maintenance" therapy indicated in patients with recurrent ulcers who either are H pylori negative or who have failed attempts at eradication therapy: once-daily oral proton pump inhibitor.

**PPI TO BE USED IN H. PYLORI ERADICATION THERAPY:**
Oral proton pump inhibitors: omeprazole 40 mg, rabeprazole 20 mg, lansoprazole 30 mg, dexlansoprazole 30-60 mg, pantoprazole 40 mg, esomeprazole 40 mg. Proton pump inhibitors are administered 30 minutes before meals.

# CASE 35

# ACUTE DIARRHEA

Characteristic Features:
Diarrhea of less than 2 weeks' duration is most commonly caused by invasive or noninvasive pathogens and their enterotoxins.
Acute non-inflammatory diarrhea
Watery, non-bloody.
Usually mild, self-limited.
Caused by a virus or noninvasive bacteria. Diagnostic evaluation is limited to patients with diarrhea that is severe or persists beyond 7 days.
Acute inflammatory diarrhea

Blood or pus, fever. + Usually caused by an invasive or toxin-producing bacterium. Requires routine stool bacterial testing "E. Coli 157:H5 and 0157:H7) in all and testing as contraindicated for Clostridium difficile and parasites.

Approach to Acute Diarrhea
First assess for signs of dehydration. Then look for other signs:
Profuse watery diarrhea (cholera, enterotoxigenic E. coli),
Repeated vomiting (cholera)
Fever (salmonella, viral diarrhea)
Presence of red blood in stools.
In a patient over 5 years with severe and rapid onset of dehydration, suspect cholera.

**INDICATIONS OF ANTIBIOTICS IN DIARRHEA**
Give antibiotics in patient with diarrhea when there is Fever, Blood or mucus in stool, High TLC count, Fecal elastase is positive or negative. There is extreme of ages (children and old patients)

# CASE 36

# CHRONIC DIARRHEA

Characteristic Features:
Diarrhea present for longer than 4 weeks.
Before embarking on extensive workup, common causes should be excluded including medications, chronic infections, and irritable bowel syndrome

Investigations:
CBC, serum electrolytes LFTs, calcium, phosphorus, albumin, thyroid profile vitamin A and D levels, coagulation profile, ESR, and ORP should be obtained in most patients Serologic testing for celiac disease with an IgA transglutaminase (TG) test is recommended in the evaluation of most patients with chronic diarrhea even in the absence of signs of malabsorption.

Stool samples should be analyzed for ova and parasites, electrolytes (to calculate osmotic gap), qualitative staining for fat (Sudan stain), occult blood, and either

leukocytes or fecal calprotectin or lactoferrin. Parasitic infections (Giardia, E histolytica, Cryptosporidium, and Cyclospora) may be diagnosed with stool multiplex PCR assays that test for a panel of pathogens within 1-5 hours, or, where PCR is unavailable, by microscopy with special stains.

Endoscopic examination and mucosal biopsy:
Most patients with chronic persistent diarrhea undergo colonoscopy with mucosal biopsy to exclude IBD (including Crohn disease and ulcerative colitis), microscopic colitis, and colonic neoplasia. Upper endoscopy with small bowel biopsy is performed when a small intestinal malabsorptive disorder is suspected (celiac disease, Whipple disease) from abnormal laboratory studies or a positive fecal fat stain. It may also be done in patients with advanced AIDS to document Cryptosporidium, microsporidia, and M Avium Transcellular infection.

**TREATMENT OF CHRONIC DIARRHEA**
**HISTORY:**
Diarrhea that has lasted for more than 2 weeks is classified as chronic diarrhea.
Cap-lmodium (Loperamid) 2mg, 2 capsules PO x stat, then one capsule after each loose stool (maximum: 16 mg/day).

Tab Lomotil (Diphenoxylate 2.5mg + atropine 25mcg) one tablet PO x TDS or QID.
Inj Sandostatin (Octreotide) 50-250mcg, S/C x TDS. It is given for secretory diarrheas due to neuroendocrine tumors (VIPomas, carcinoid).
Bile salt binders: Cholestyramine or colestipol (2-4 g once to three times daily) or colesevelam (625 mg, 1-3 tablets once or twice daily) may be useful in patients with bile salt-induced diarrhea, which may be idiopathic or secondary to intestinal resection or ileal disease.

Treat the underlying cause.
Locally practiced treatment protocol for chronic diarrhea: + Tab Secnidal forte (secnidazole) 1gm, 2 tab PO x stat + TabNT-Tox (nitazoxanide) 500mg, 1 tab PO x BD with meal for 3 days. + Tab Oxytetracyclin 250-500m , 1 tab PO x QID for 3-5 days.

# CASE 37

# HEPATITIS A (JAUNDICE)

History: Not everyone with hepatitis A becomes symptomatic but those who do develop tiredness and weakness, a sudden onset of nausea, vomiting and diarrhea, clay colored stool with dark urine, abdominal pain or discomfort.

## CLINICAL FEATURES:

Prodrome of anorexia, nausea, vomiting, malaise, aversion to smoking.
Fever, enlarged and tender liver, jaundice. 2 Normal to low white cell count; markedly elevated aminotransferases.

## INVESTIGATIONS:

Serum bilirubin, ALT, AST, HBsAg, Anti-HAV, Anti HCV etc.

## MANAGEMENT

Treatment is mainly supportive.
Advice Bed rest and nutritious diet
Avoid hepatotoxic drugs

In case of dehydration;
Inf Dextrose 10% 1L, IV x BD (25ml/Kg in children)
Tab/SypHaptocam/ Hepa merz 1 tab / TSF PO x BD
Syp-Eplazyme 1 TSF PO x TDS

In case of nausea, vomiting: Tab/SypMaxolon (metoclopramide) 1 tab/1 TSF PO x SOS
In case of pain or fever: Tab/Syp Panadol 1 tab/1 TSF PO x TDS

Hepatitis A vaccination:
Inj Avaxim 80-160 units IM x stat, followed by booster doses 6 and 12 months later. Dose is 80 units for children of age 12 months to 15 years and 160 units for adults of age greater than 16 years (Recommended for particularly women of

child bearing age).

Note: Paracetamol dose should not exceed 3gm per day.

# CASE 38

# HEPATITIS B

## HISTORY:

This usually follows unprotected sexual intercourse, sharing needles, blood transfusions or needle prick injury. The signs and symptoms include abdominal pain, fever, joint pain, nausea and vomiting, weakness and fatigue.

HBV infection can be self-limited or chronic. No specific treatment is available for a person with acute hepatitis B. Treatment is mainly supportive. The primary treatment goals for patients with hepatitis B infection are to prevent progression of the disease, particularly to cirrhosis, liver failure, and hepatocellular carcinoma. Antiviral therapy is currently recommended for patients with evidence of chronic active hepatitis B disease.
Indications for antiviral therapy in chronic hepatitis B Parameters

HBeAg Positive
HBeAg Negative

HBV DNA levels > 20000 IU/ml >2000 iU/ml
ALT level Double of upper Upper normal limit normal limit Liver biopsy Show active liver Show active liver disease Patients of cirrhosis are treated if HBV DNA is detectable irrespective of its level or ALT level.

## MANAGEMENT OF CHRONIC HBV:

The ultimate goal of therapy Is "functional cure," characterized by loss of HBsAg, with or without appearance of anti-HBs, and
undetectable HBV DNA in serum. Tab Ecavir / Tacavir (Entecavir) 0.5-1mg, PO x OD. (0.5 mg orally for patients not resistant to lamivudine and 1 mg for patients who Previously became resistant to lamivudine) "OR" Tab Tenova/Tenofo-B

(Tenofovir disoproxil) 300mg PO x OD “OR» Tab Tenovir AF/ Tenofomide (tenofovir alafenamide) 25mg, 1 tab PO x OD. (Tenpfovir alafenamide is associated with lower rate of renal and bone toxicity then tenofovir disoproxil).

Duration of therapy: In HBeAg positive patient’s treatment can be stopped 24-48 weeks after HBe seroconversion. If patient fails to seroconvert and in HBeAg negative patients’ treatment | discontinuation can be considered after three consecutive DNA negative results 6 months apart.

Chronic HBV treatment with pegylated interferon:
Peginterferon alfa-2a is still an alternative to the oral agents in selected cases. A dose of 180 mcg subcutaneously once weekly for 48 weeks leads to sustained normalization of aminotransferase levels, disappearance of HBeAg and HBV DNA from serum, and appearance of anti-HBe in up to 40% of treated patients and results in improved survival.

A response is most likely in patients with a low baseline HBV DNA level and high aminotransferase levels and is more likely in those who are infected with HBV genotype A than with other genotypes {especially genotype D).

Monitoring of HBeAg positive patients:
HBV DNA should be monitored every 12-24 weeks.
HBeAg and subsequently anti-HBe antibodies once HBeAg becomes negative should be measured at intervals of 6-12 months, HBsAg should be checked at 6 months interval after HB seroconversion.

Monitoring of HBeAg negative patients:
HBV DNA should be monitored every 12-24 weeks.
Target is to achieve and maintain undetectable HBV DNA levels.
HBsAg should be checked once HBV DNA has been undetectable for more than one year.

# CASE 39

## COMPENSATED AND DECOMPENSATED CIRRHOSIS

Compensated cirrhosis: Potent oral antivirals (entecavir 0.5mg or tenofovir 300mg daily) should be given on long term basis and HBV DNA levels and ALT should be monitored. Viral resistance should be detected and treated.

Decompensated cirrhosis: It is usually managed symptomatically. Only those patients should be treated who are candidates for liver transplant. Objective is to suppress the virus to prevent posttransplant recurrence of hepatitis. Potent oral antivirals (entecavir 0.5mg or tenofovir 300mg daily) are used in specialized liver units as there is risk of sudden deterioration.

# CASE 40

## HEPATITIS B TREATMENT IN PREGNANCY

Telbivudine, tenofovir, and lamivudine have been shown to be safe in pregnant women.
Antiviral therapy has been recommended, beginning in the third trimester, when the mother's serum HBV DNA level is 200,000 international units/ml or higher to reduce levels at the time of delivery.

Objective is to reduce the risk of peri-natal transmission.
Treatment should be discontinued after delivery and restarted if indicated for the sake of mother after baby has been weaned off breast feeding.
Tab Tenova / Tenofo-B (Tenofovir) 300mg PO x Once Daily.

# CASE 41

# HEPATITIS B CO-INFECTIONS

CO-INFECTION WITH HEPATITIS B & HIV: In patients infected with both HBV and HIV, antiretroviral therapy, including two drugs active against both viruses (e.g., tenofovir plus lamivudine or emtricitabine), has been recommended when treatment of HIV infection is indicated.

CO-INFECTION WITH HEPATITIS B & D
In chronic hepatitis D, Peginterferon alfa-2b (1.5 mcg/kg/wk for 48 weeks) may lead to normalization of serum aminotransferase levels, histologic improvement, and elimination of HOV RNA from serum In 20-50% of patients, but relapse may occur and tolerance is poor.
Oral antivirals are generally not effective in treating chronic hepatitis D.

LIVER TRANSPLANTATION
When liver transplantation is carried out in end stage liver disease due to HBV, there is risk of HBV recurrence in new liver. Such patients may be treated with oral antivirals (entecavir 0.5mg or tenofovir 300mg daily) starting 4 weeks before surgery and then continuing afterwards.

ACUTE SEVERE HEPATITIS B
Patients with acute severe hepatitis are given oral potent antivirals (entecavir 0.5mg or tenofovir 300mg daily). Therapy should be continued for at least three months after seroconversion to anti-HBs or at least 6 months after HBe seroconversion.

PREVENTION OF HEPATITIS B: HBV vaccine is given for Hepatitis B prevention. The vaccine for HBV is available by the name Engirex and three IM injections of 1 ml are given at day 0, after 1 month and after 6 months. If person is exposed to HBV infection, he is given hyper immune serum globulin within 24 hours.

# CASE 42

# HEPATITIS C

## HISTORY:

This can be acquired in the same manner as for HBV. Patients often complain of clay-colored feces, dark urine, fever, fatigue, nausea and vomiting.

All patients (except children < 3 years of age and pregnant women) with virologic evidence of chronic HCV infection (i.e., detectable HCV viral level over a six-month period) should be considered for antiviral treatment. The goal is to eradicate HCV RNA, which Is associated with decreases in all-cause mortality, liver related death, need for liver transplantation, Hepatocellular carcinoma rates and liver related complications.

PRETREATMENT ASSESSMENT:

Educate the patient about administration of medications, adherence and prevention of re-infection.

Ultrasound Abdomen (conducted within the prior 6 months): Evaluate to exclude HCC and subclinical ascites. + Pre-treatment laboratory testing

## Investigations

Carried out prior to starting antiviral therapy include CBC, INR, LFTs, eGFR, Quantitative HCV PCR (Viral load), HIV antigen / antibody test, HBsAg, HCV genotype and pregnancy testing In married females of reproductive age.

## TREATMENT OF CHRONIC HEPATITIS C

Patients are first divided into those without cirrhosis and those with compensated cirrhosis, these groups are then divided into simplified and non-simplified treatment plans.

Pan-genotype regimen (genotype 1-6) with or without cirrhosis

Tab Mavyret (Glecaprevir 100mg + Pibrentasvir 40mg) 3 tablets (300/120mg) taken with food once daily for 8 weeks in treatment-naive, non-cirrhotic or compensated cirrhotic and treatment-

experienced non-cirrhotic patients, including those co-infected with HIV, and for 12 weeks in treatmentexperienced, compensated cirrhotic patients “OR”
Tab Hilvel/ Velpaget (Sofosbuvir 400mg + Velpatasvir 100mg) OD for 12 weeks in all non-cirrhotic and cirrhotic patients.

The combination of sofosbuvir 400mg, velpatasvir 100mg, and voxilaprevir 100mg once daily is recommended as “rescue” therapy in patients with non-response or relapse following treatment with an NSSA-containing regimen.

POST-TREATMENT ASSESSMENT OF CURE (SVR):
Assessment of quantitative HCV RNA (PCR) and LFTs are recommended 12 weeks or later following completion of therapy to confirm HCV RNA is undetectable (virologic cure) and transaminase normalization.

Assessment of other causes of liver diseases is recommended for patients with elevated transaminase levels after achieving SVR.

FOLLOW UP AFTER ACHIEVING VIROLOGIC CURE (SVR):
Ultrasound surveillance for HCC (with or without alpha fetoprotein) every 6 months is recommended for patients with cirrhosis in accordance with AASLD guidance.

Upper endoscopic surveillance for esophageal varices is recommended in accordance with AASLD guidance on portal hypertensive bleeding in cirrhosis.
Patients with ongoing risk of HCV infection (e.g. IV drug use or engaged in unprotected sex) should be counselled about risk.

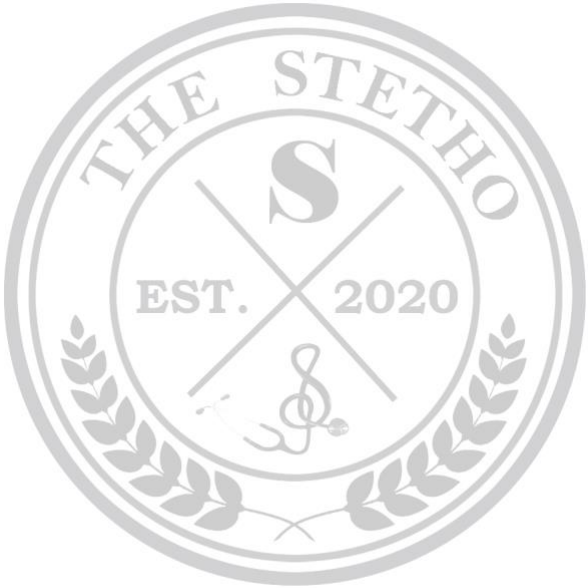
Reduction and tested for HCV RNA (PCR) annually and whenever they develop elevated ALT, AST or bilirubin.

Patients should abstain from alcohol to avoid progression of liver disease.

FOLLOW UP FOR PATIENTS WHO DO NOT ACHIEVE A VIROLOGIC CURE:
Patients in whom initial HCV treatment fails to achieve cure (SVR) should be evaluated for retreatment by a specialist in accordance with AASLD guidance.

Ultrasound surveillance for HCC (with or without alpha fetoprotein) every 6 months is recommended for patients with cirrhosis in accordance with AASLD guidance.

Assessment for disease progression ever 6 to 12 months with LFTs, CBC, creatinine and INR is recommended. + Patients should abstain from alcohol to avoid progression of liver disease.



# CASE 43

# DIABETES

Diabetes mellitus is a syndrome of chronic hyperglycemia due to relative insulin deficiency, resistance or both.

WHO DIAGNOSTIC CRITERIA FOR DIABETES MELLITUS
Fasting blood glucose > 7.0 mmol/L (126 mg/dL).
Random blood glucose > 11.1 mmol/L (200 mg/dL). One abnormal value is diagnostic in symptomatic individuals; two values are needed in asymptomatic people. The glucose tolerance test is required for borderline cases and for diagnosis of gestational diabetes.
HbA1c>6.5 (48 mmol/L).

Type 1 diabetes
Type 2 diabetes
Polyuria, polydipsia, + Many patients are over 40 years of and weight loss with age and are obese. random plasma + Polyuria and polydipsia. Ketonuria glucose of 200 mg/dL and weight loss are uncommon at (11.1 mmol/L). time of diagnosis. Candida vaginitis + Plasma glucose of 126 may be an initial manifestation. 126 mg/dL (7.0 mmol/L or Plasma glucose of126 mg/dL) after an overnight fast on more than one overnight fast, occasion. Two hours after 75 g oral documented on more glucose, diagnostic values are 200 than one occasion. mg/dL (11.1 mmol). + Ketonemia, ketonuria, + HbA1c2 6.5%. or both. + Hypertension, dyslipidemia, and + Islet autoantibodies atherosclerosis are often associates

Glycemic Index: The glycemic Index of a carbohydrate containing food ls determined by comparing the glucose excursions after consuming 50 g of test food with glucose excursions after consuming 50 g of reference food (white bread)

Eating low glycemic Index foods results In lower glucose levels after meals. Low glycemic index foods have values of 55 or less and include many fruits, vegetables, grainy breads, pasta, and legumes.

High glycemic index foods have values of 70 or greater and include baked potato, white bread, and white rice. Glycemic index is lowered by the presence of fats and protein when food is consumed in a mixed meal. Even though it may not be possible to accurately predict the glycemic index of a particular food in the context of a meal, it is reasonable to choose foods with low glycemic index.

## STEPS IN THE MANAGEMENT OF THE DIABETIC PATIENT

### DIAGNOSTIC EXAMINATION

An attempt should be made to characterize the diabetes as type 1 or type 2 or other specific types such as MODY, based on the clinical features present and on whether or not ketonuria accompanies the glycosuria.

Features that suggest end-organ insulin insensitivity to insulin, such as visceral obesity, acanthosis nigricans, or both, must be identified.
The family history should document not only the incidence of diabetes in other members of the family but also the age at onset, association with obesity, the need for insulin, and whether there were complications.

Many patients with newly diagnosed type 1 diabetes still have significant endogenous insulin production, and C peptide levels do not reliably distinguish between type 1 and type 2 diabetes.
Factors that increase cardiac risk, such as smoking history, presence of hypertension or hyperlipidemia, or oral contraceptive pill use, should be recorded.

Laboratory diagnosis of diabetes should document fasting plasma glucose levels above 126 mg/dL (7 mmol/L) or postprandial values consistently above 200 mg/dl (11.1 mmol/L) or HbA1c of at least 6.5% and whether ketonuria accompanies the glycosuria, An HbA1c measurement is also useful for assessing the effectiveness of future therapy.

Baseline values include fasting plasma triglycerides, total cholesterol and HDL cholesterol, electrocardiography, kidney function studies, peripheral pulses, and neurologic, podiatric. and ophthalmologic examinations to help guide future assessments

## PATIENT EDUCATION (Self-Management Training)

Since diabetes Is a lifelong disorder, education of the patient and the family is probably the most important obligation of the clinician who provides care. The best persons to manage a disease that is affected so markedly by daily fluctuations in environmental stress, exercise, diet, and infections are the patients themselves and their families.

The "teaching curriculum" should include explanations by the clinician or nurse of the nature of diabetes and its potential acute and chronic hazards and how they can be recognized early and prevented or treated. Self-monitoring of blood glucose should be emphasized, especially in insulin requiring diabetic patients, and instructions must be given on proper testing and recording of data.
Patients and Signs and symptoms of hypoglycemia: their families Dizziness, unceasing hunger, tremors, and tachycardia, pallor, sweating, lethargy, should be anxiety, blurred vision, headache, difficulty taught to speaking, confusion, irritability, convulsions, recognize signs and coma if not treated on time. and symptoms of hypoglycemia and how to treat low glucose reactions.

Strenuous exercise can precipitate hypoglycemia, and patients must therefore be taught to reduce their insulin dosage in anticipation of strenuous activity or to take supplemental carbohydrate.

Infections can cause insulin resistance, and patients should be instructed on how to manage the hyperglycemia with supplemental rapidly acting Insulin.
Advice on personal hygiene, including detailed Instructions on foot and dental care, should be provided.

## THERAPY:

Treatment must be individualized on the basis of the type of diabetes and specific needs of each patient. However, certain general principles of management can be outlined for hyperglycemic states of different types.

# CASE 44

# TYPE I DIABETES

TYPE 1 DIABETES:
A combination of rapidly acting insulin analogs and long acting insulin analogs allows for more physiologic insulin replacement.

Insulin glargine or insulin degludec is usually given once in the evening to provide 24-hour coverage.

There are occasional patients in whom insulin glargine does not last for 24 hours, and in such cases, it needs to be given twice a day.

Insulin detemir usually has to be given twice a day to get adequate 24-hour basal coverage. Alternatively, small doses of NPH (~3-4 units) can be given with each meal to provide daytime basal coverage with a larger dose at night.

The 24-hour basal dosage is usually based on age and body weight. An adolescent might need as much as 0.4 unit/kg/day; young adult (less than 25 years), 0.35 unit per/kg/day; and older adults, 0.25 unit/kg/day. For example, a 70-kg, 30-year-old person may require a basal rate of 0.7 unit per hour throughout the 24 hours with the exception of 3 am to 8 am, when 0.8 unit per hour might be appropriate (given the "dawn phenomenon" reduced tissue sensitivity to insulin between 5 am and 8 am).

The meal bolus varies based on the time of day and the person age. Adolescents and young adults usually require 1 unit for about 10 g of carbohydrate. Older adults usually require about 1 unit for 15 g of carbohydrate.

The correction factor—how much insulin is needed to lower glucose Levels by 50 mg/dL—can be calculated from the insulin-to-carbohydrate ratios. For example, if 1 unit is required for 15 g of carbohydrate, then 1 unit will lower glucose levels by 50 mg/dL. If 1.5 units of insulin are required for 15 g of carbohydrate (that is, 1 unit for 10 g Carbohydrate), then 1.5 units of insulin will lower glucose levels by 50 mg/dL (that Is, 1 unit will lower glucose level by 33

mg/dL). For a 70-kg 30-year-old person, bolus ratios of 1 unit for 12-15 g of carbohydrate plus 1 unit for SO mg/ dl of blood glucose over a target value of 120 mg/dL would be reasonable starting point. Further adjustments to basal and bolus dosages would depend on the results of blood glucose monitoring.

One of the more difficult therapeutic problems in managing patients with type 1 diabetes is determining the proper adjustment of insulin dose when the pre-breakfast blood glucose level is high. Occasionally, the pre-breakfast hyperglycemia is due to the Somogyi effect, in which nocturnal hypoglycemia leads to a surge of counter regulatory hormones to produce high blood glucose levels by 7 am. However, a more common cause for pre-breakfast hyperglycemia is the waning of circulating insulin levels by the morning.

The diagnosis of the cause of pre-breakfast hyperglycemia can be facilitated by self-monitoring of blood glucose at 3 a™ in addition to the usual bedtime and 7 am measurements or by analyzing data from the continuous glucose monitor. This is required for only a few nights, and when a particular pattern emerges from monitoring blood glucose levels overnight, appropriate therapeutic measures can be taken. The Somogyi effect can be treated by lowering the basal insulin dose at bedtime or by eating a snack at bedtime.

When a waning insulin level is the cause, then either increasing the evening basal insulin dose or shifting it from dinnertime to bedtime (or both) can be effective. If this fails, insulin pump therapy may be required. The currently available dosed loop systems enable patients to achieve close to normal glucose levels in the morning with a low risk of nocturnal hypoglycemia.

# CASE 45

## TYPE II DIABETES

The possibility that the individual patient has a specific etiologic cause for the r diabetes should always be considered, especially when the patient does not have a family history of type 2 diabetes or does not have any evidence of central obesity or insulin resistance. Such patients should be evaluated for other types of diabetes such as LADA or MODY

Patients with LADA should be prescribed insulin when the disease is diagnosed and treated like patients with type 1 diabetes.

It is also important to note that many patients with type 2 diabetes mellitus have a progressive loss of beta cell function and will require additional therapeutic interventions with time.

## WEIGHT REDUCTION:

One of the primary modes of therapy in the obese patient with type 2 diabetes is weight reduction. Normalization of glycemia can be achieved by weight loss and improvement in tissue sensitivity to insulin.
A combination of caloric restriction, increased exercise, and behavior modification is required if a weight reduction program is to be successful,
Understanding the risks associated with the diagnosis of diabetes may motivate the patient to lose weight.

For selected patients, medical or surgical options for weight loss should be considered. Orlistat, phentermine/ topiramate, lorcaserin, naltrexone/extended-release bupropion, and high dose liraglutide (3 mg daily) are weight loss medications approved for use in combination with diet and exercise.

Non-obese patients with type 2 diabetes frequently have increased visceral adiposity—the so-called metabolically obese normal weight patient. There is less emphasis on weight loss, but exercise remains an important aspect of treatment.

## GLUCOSE-LOWERING AGENTS:

The current recommendation is to start metformin therapy at diagnosis and not wait to see whether the patient can achieve target glycemic control with weight management and exercise.

When diabetes is not well controlled with Initial therapy (usually metformin), then a second agent should be added. Presence of cardiovascular or kidney disease, or both, will determine the choice of the second agent.

# CASE 45

# HYPOGLYCEMIA

## HISTORY:

This is when your blood sugar levels become too low. The symptoms include shakiness, pale skin, headache, sweating, hunger, fatigue, dizziness and light headedness.

Hypoglycemia is an abnormally low concentration of blood glucose. severe hypoglycemia can be fatal or lead to irreversible neurological damage. Blood glucose levels should be measured whenever possible jn patients presenting symptoms of hypoglycemia. If hypoglycaemia js suspected but blood glucose measurement is not available, glucose (or another available sugar) should be given empirically. Always consider hypoglycemia in patients presenting impaired consciousness (lethargy, coma) or seizures.
Clinical features: Rapid onset of non

specific signs, mild to severe depending on the degree of the hypoglycemia: sensation of hunger and fatigue, tremors, tachycardia, pallor, sweats, anxiety, blurred vision, difficulty speaking, confusion, convulsions, lethargy, coma.

## DIAGNOSIS:

Capillary blood glucose concentration (reagent strip test): Non-diabetic patients: Hypoglycaemia :< 3.3 mmol/litre (< 60 mg/dl) Severe hypoglycaemia :< 2.2 mmol/litre (< 40 mg/dl)

Diabetic patients on home treatment: < 3.9 mmol/litre (< 70 mg/dl) tf blood glucose measurement is not available, diagnosis is confirmed when symptoms resolve after the administration of sugar or glucose.

## MANAGEMENT OF HYPOGLYCEMIA:

Conscious patients:

Children: a teaspoon of powdered sugar in a few ml of water or 50 mi of fruit juice, maternal or therapeutic milk or 10 mi/kg of 10% glucose by oral route or nasogastric tube.

Adults: 15 to 20 g of sugar (3 or 4 cubes) or sugar water, fruit juice, Soda, etc. Symptoms improve approximately 15 minutes after taking sugar by Oral route, Patients with impaired consciousness or prolonged convulsions:

Children: 5 mi/kg of 10% glucose by IV route (2 to 3 minutes) or infusion

Adults: 1 mi/kg of 50% glucose by slow IV (3 to S minutes). Neurological symptoms improve a few minutes after the injection.

Check blood glucose after 15 minutes. If it is still low, readminister glucose by IV route or sugar by oral route according to the patient's clinical condition.

If there is no clinical Improvement, differential diagnoses should be considered: e.g., serious infection (severe malaria, meningitis, etc.}, epilepsy.

In all cases, after stabilization, give a meal or snack rich in complex carbohydrates and monitor the patients for a few hours.

If patient does not return to full alertness after an episode of severe hypoglycemia, monitor blood glucose levels regularly.

For the treatment of hypoglycemia in a person with impaired consciousness and no established IV access, immediate administration of glucagon is suggested, rather than waiting to establish IV access. Administration of glucagon (subcutaneous, intramuscular or nasal) will usually lead to recovery of consciousness within 15 minutes, although it may be followed by marked nausea or even vomiting. Dose of glucagon is I mg IM / \V/ SC and 3mg (nasal); May repeat in 15 minutes as needed.

Last but not the least, underlying cause of hypoglycemia should be treated.

Causes other than diabetes: Treat severe malnutrition, neonatal sepsis, severe malaria, acute alcohol intoxication, etc.

End prolonged fast.

Replace drugs inducing hypoglycemia (e.g. quinine IV, pentamidine, ciprofloxacin, enalapril, beta-blockers, high-dose aspirin, tramadol), or anticipate hypoglycemia (e.g. administer quinine {V in a glucose infusion).

In diabetes patients:
Avoid missing meals, Increase intake of carbohydrates, if necessary,
Adjust dosage of insulin according to blood glucose levels and physical activity.
Adjust dosage of oral anti-diabetics, taking into account possible drug interactions.

# CASE 47

# DIABETIC KETOACIDOSIS (DKA)

CAUSES: DKA results from insulin insufficiency with a relative or absolute increase in glucagon and may be caused by insufficient or interrupted insulin therapy, infections (pneumonia, urinary tract infection, gastroenteritis, sepsis), infarction (cerebral, coronary, mesenteric, peripheral), emotional stress, excessive alcohol intake, surgery, pregnancy and trauma, and certain drugs such as steroids, cocaine etc.

CLINICAL FEATURES: Polydipsia, polyuria, anorexia, nausea or vomiting, abdominal pain, rapid breathing (kussmaul respiration), fruity breath odor of acetone, fever, tachycardia, hypotension, signs of dehydration (dry skin and mucous membranes and poor skin turgor) and mental status change ranging from altered conscious level to coma.

INVESTIGATIONS: Urgent RBS (RBS > 250 mg/dL), Serum ketones, Urine for Ketones, Serum electrolytes, Serum bicarbonates (>10 mmol/L} and ABGs. Also advise ECG, CXR, urine, sputum and blood cultures.

DIAGNOSIS CONFIRMATION: Elevated blood sugar (RBS > 250), serum/urinary ketones, metabolic acidosis-low serum bicarbonate (< 15) and low blood PH (< 7.3).

MANAGEMENT: (ADA 2009, AAFP 2013 Guidelines) Admit the patient to ICU for frequent monitoring and pass large bore (/V line
1 Fluid therapy:

Inf 1 Liter per hour of 0.9% Normal saline over 1-2 hours. After 2 Utre of fluid have been given, the intravenous infusion should be at the rate of 300 400 ml/hr.

Use 0.9% saline the serum sodium is greater than 150 mEq/l, when 045 saine (half normal) saline solution should be used. (CMDT 2022) In our setup for adults usually of L of 0 9% N/S Is given in 1st 30 minutes 4 BP low) 2nd L of 0.9% N/S is given in two-hour and 3rd L of 0.9% N/S is given in four hours. 4th L of 0 9% N/S is given in 8 hours and 5th L of 0 9% N/S is given in 16 hours. Switch to 5% dextrose and 0 45% saline at 150-250 mi/hour when plasma glucose reaches 250 mg/dL.

Monitor labs, urine output, hemodynamics, state of hydration and physical exam to determine adequacy of hydration.

Avoid fluid overload in renal and cardiac patients (Give controlled lV fluids at the rate of 80-100mL/hr).
Excessive fluid replacement (more than 5L in 8 hours) may contribute to acute respiratory distress syndrome or cerebral edema.

2. Insulin therapy:
Inj insulin Regular IV (0.1 units/kg) stat, then Inj-insulin Regular IV 0.1 units/kg per hour by continuous IV infusion (a bolus dose is not required if patients are given hourly insulin at 0.14 units/ Kg).
If the plasma glucose level fails to fall at least 10% in the first hour, a repeat loading dose (0.1 or 0.14 unit/Kg) is recommended.
The insulin dosage should be adjusted to lower the glucose concentration by about 5—70mg/dL/hr.

If clinical circumstance prevents the use of an insulin infusion, then the insulin can be given intramuscularly. An initial dose 0.15 unit/Kg of regular insulin is given intravenously and at the same time, the same dose is given intramuscularly. Subsequently regular insulin is given IM hourly at a dose of 0.1 unit/Kg until the

blood glucose falls to around 250mg/dL, when the insulin can be given subcutaneously.

If initial serum potassium is < 3.5 mEq/L, do not administer insulin until the potassium is corrected to > 3.5 mEq/L.

3. Assess the patient: What precipitated the episode (noncompliance, infection, trauma, Infarction, cocaine)? Initiate appropriate workup for precipitating event (cultures, chest x-ray, ECG). The agent or event that precipitated DKA should be aggressively treated. Give IV antibiotics in case of infection. If the patient is vomiting or has altered mental status, a nasogastric tube should be inserted to prevent aspiration of the gastric contents.

4. Measure random blood glucose 1 hourly, measure electrolytes (especially K+, bicarbonate, phosphate and magnesium) and anion gap 2 hourly for first 24 hrs.

5.Monitor blood pressure, pulse, respiration, mental status, fluid intake and output every 1-4 hours.

6. Electrolytes repletion: If the potassium > 6mEq/L, don't give potassium. If the Potassium level is 4.5-6 mEq/L, give 10mEq/hr of KCI. If the potassium level is 3-4.5, give 20 mEq/hr of KCI. Goal is to keep potassium levels at 45 mEq/L. Potassium can be given as follow: two thirds as KCI and one third as KPO4. If pH<6.9, give 100ml of 1.4% sodium bicarbonate (2 amp) in 400 mL sterile water (isotonic solution) with 20 mEq KCI at a rate of 200 mL/h for 2 hours until venous pH is >7.0; if necessary, repeat every 2 hours until pH >7.0 (AAFP 2013recommends > 6.9)

In DKA, replace phosphate if any of the following: Cardiac dysfunction, anemia, respiratory depression, or phosphate levels <1.0 mEq/dL, or symptoms of hypophosphatemia (there are no Studies on phosphate repletion in HHS). The average deficit of 4050 mmol of phosphate should be replaced intravenously at a rate No greater than 3-4 mmol/hr in a 60 to 70-Kg person.

7. Continue above until patient is stable: once glucose goal level is achieved (150-250 mg/dL) and acidosis is resolved. Insulin infusion may be decreased to 0.05-

0.1 units/kg per hour. When the patient become stable, calculate the dosage of insulin according to the units of short acting insulin given in the last hours.

8. Administer intermediate or long-acting Insulin as soon as patient is eating. Allow for overlap in insulin Infusion and SC insulin injection.

9. Transition to Subcutaneous Insulin Regimen: Once the DKA is controlled and the patient is awake and able to eat, subcutaneous Insulin therapy can be initiated.

HYPERGLYCEMIC HYPEROSMOLAR STATE (HHS) - It is also known as hyperosmolar non-ketotic state (HONK). It is characterized by severe hyperglycemia (> 600mg/ dL) Serum osmolality greater than 310 m Osm/kg
No acidosis; blood PH > 7.3
Serum bicarbonate greater than 15 mEq/L. Normal anion gap (less than 14 mEq/L).
Serum Osmolality = 2 x Na + BUN / 2.8 + glucose /18 (BUN = 2.14 x Blood urea)

Treatment for HHS remain the same as for DKA except
1. Fluid therapy:
If hypovolemia is present as evidenced by hypotension and oliguria, fluid therapy should be initiated with 0.9% saline. In all other cases, 0.45% saline appears to be preferable as the initial replacement solution because the body fluids of these patients are markedly hyperosmolar.

As much as 4-6 L of fluid may be required in the first 8-10 hours.
Careful monitoring of the patient is required for proper sodium and water replacement. An important end point of fluid therapy is to restore urinary output to 50 mL/h or more. Once blood glucose reaches 250 mg/dl (13.9 mmol/L), fluid replacement should include 5% dextrose in either water, 0.45% saline solution, or 0.9% saline solution, The rate of dextrose infusion should be adjusted to maintain glycemic levels of 250 300 mg/dL (13.9-16.7mmol/L) in order to reduce the risk of cerebral edema.

2. Insulin therapy: Less insulin may be required to reduce the hyperglycemia in nonketotic patients as compared to those with diabetic ketoacidotic coma. In fact, fluid replacement alone can reduce hyperglycemia considerably by correcting the

hypovolemia, which then increases both glomerular filtration and renal excretion of glucose. Insulin treatment should therefore be delayed unless the patient has significant Ketonemia (beta-hydroxybutyrate more than 1 mmol/L).

Start the insulin infusion rate at 0.05 unit/kg/h (bolus is not needed) and titrate to lower blood glucose levels by 50-70 mg/dl per hour (2.8-3.9 mmol/L/h). Once the patient has stabilized and the blood glucose fails to around 250 mg/dL (13.9 mmol/L), insulin can be given subcutaneously.

3. Electrolytes replacement:
With the absence of acidosis, there may be no initial hyperkalemia unless associated end-stage chronic kidney disease is present. This results in less severe total potassium depletion than in DKA, and less potassium replacement is therefore needed.

Potassium chloride (10 mEq/L) can be added to the initial infusion of fluids administered if the patient's serum potassium is not elevated.

If severe hypophosphatemia (serum phosphate less than 1 mg/dL [0.32 mmol/L]) develops during insulin therapy, phosphate replacement can be given as described for ketoacidotic patients (at 3 mmol/h).

# CASE 48

# HYPOTHYROIDISM AND MYXOEDEMA

Autoimmune (Hashimoto) thyroiditis is the most common cause of hypothyroidism.
Fatigue, cold intolerance, constipation, weight change, depression, menorrhagia, hoarseness.
Dry skin, bradycardia, and delayed return of deep tendon reflexes.
FT4 level is usually low
TSH elevated in primary hypothyroidism.
Investigations: All BLIS, ECG, TFTS, Serum calcium, CXR, and anti-thyroid peroxidase antibody.

MANAGEMENT

Before beginning therapy with thyroid hormone, hypothyroid patient requires clinical assessment for adrenal insufficiency and angina.The presence of either condition requires further evaluation and management.

**TREATMENT OF HYPOTHYROIDISM:**

Otherwise, healthy young and middle-aged adults with hypothyroidism may be treated initially with levothyroxine in average doses of about 1.6 mcg/kg/day.
Tab Levothyroxine 50-200 ig (1.6mcg/kg) 1 tab PO x OD.

# CASE 49

## HYPOTHYROIDISM AND PREGNANCY

Pregnant women with overt hypothyroidism or myxedema should be treated immediately with levothyroxine at full replacement doses of 1.6 mcg/kg/day

Tab Levothyroxine 100-150 mcg 1 tab PO x OD.
Patients with stable coronary artery disease or those who are over age 60 years are treated with smaller initial doses of levothyroxine, 25-50 mcg orally daily.
Tab Levothyroxine 25-50 mcg 1 tab PO x OD. The dose can be increased by 25 mcg every 1-3 weeks until the patient is euthyroid.

Dose after delivery.
Measure TSH after 2 months of Levothyroxine or if dose change symptoms relieve at 3 to 6 months after normal TSH.

# CASE 50

## MYXEDEMA CRISIS

TREATMENT OF MYXEDEMA CRISIS:

Myxedema crisis is a medical emergency and need ICU admission for close monitoring.

Airway management and mechanical ventilation should be instituted for respiratory failure (Patients with hypercapnia).
The hypothermic patient is warmed only with blankets, since faster warming can precipitate cardiovascular collapse. Hypoglycemic patients are given 5% dextrose intravenously.

Hyponatremic patients with a serum sodium 120-130 mEq/mL are administered 0.9% NaCl intravenously, while patients with a serum sodium below 120 mEq/mL are treated with boluses of 100 mL of 3% NaCl intravenously with Inj-Lasix (furosemide) 20-40 mg IV x BD (to promote water diuresis).

Patients in whom concomitant adrenal insufficiency is suspected are treated with hydrocortisone, inj Solucortef (hydrocortisone) 100 mg IV x stat, then 25-SO mg Vx QID.

Myxedema crisis requires larger initial doses of levothyroxine intravenously, since myxedema itself can interfere with intestinal absorption of oral levothyroxine.

IV T4: initial dose of 300-S00mcg, followed by daily |V doses of 50-100mcg until the patient can take oral T4. If there is n? improvement within 24~48h, add IV T3 (Tropstat 10mcg) IV x TDS for the first 48 hours, Infections must be detected and treated aggressively with broad spectrum antibiotics accordingly.

NOTE:
Always start with low dose and adjust according to TSH levels: Dose may be doubled during pregnancy and returned to normal.

Follow up TSH at 2nd and 3rd year once TSH levels are normal.

# CASE 51

# HYPERTHYROIDISM (THYROTOXICOSIS)

Characteristic Features: Sweating, weight loss or gain, anxiety, palpitations, loose stools, heat intolerance, menstrual irregularity.
Tachycardia; warm, moist skin; stare; tremor.

Graves' disease: most common cause of hyperthyroidism; palpable goiter (sometimes with bruit) in most patients; ophthalmopathy also common.
Suppressed TSH in primary hyperthyroidism; usually increased T4, FT4, T3, and FT3.

## MANAGEMENT

Tab Inderal (Propranolol) 40mg, 1-3 tablets PO x QID "OR" 0.5-2 mg IV every four hours. Use cautiously in the presence of heart failure. weeks then 1 tab BD or TDS for 6-18 months "OR"
Tab Procarbizole (prophyithiouracil) SOmg, 2-3 tablets PO x QID (300-600mg/day in 4 divided doses). During pregnancy the dose of prophylthiouracil is kept below 200 mg/day to avoid goitrous hypothyroidism in the infant.

In-case.of Thyrotoxicosis, also: Use iodized salt and Schiller's iodine 2 drops (460 micrograms) once daily for one year. Response may be obtained within 6 months "OR" Lugol's solution 3 drops (21mg) once each month for up to one year until the patient become euthyroid.

CAUTION: Carbimazole may induce bone marrow suppression, Patients should be told to report any type of infection. The drug should be stop ed immediatel if there is neutropenia. Tab Neo-mercazole (Carbimazole) 5mg, 2-4 tablets PO x TDS

Symptomatic therapy for other complaints and treatment of the Definitive surgery with radioactive iodine or surgery is delayed

# CASE 52

# IMPOTENCE / ERECTILE DYSFUNCTION

Erectile dysfunction can have organic and psychogenic etiologies, and the two frequently overlap.
Organic erectile dysfunction may be an early sign of cardiovascular disease and requires evaluation.

Peyronie disease is a common, benign fibrotic disorder of the penis that causes pain, penile deformity, and sexual dysfunction.

MANAGEMENT
Life style modification and reduction of cardiovascular risk factors are important components of any treatment plan. This should potentially include Smoking cessation, reduction of alcohol intake, diet, exercise, and treatment of diabetes, dyslipidemia, and hypertension.
Hormone replacement therapy.
Counselling and anti-depressants i.e Tab Everlong (Dapoxetine) 60mg, 1 tab PO 3 hours before activity) 50-100mg, 1 tab PO x OD for 3 months.
Tab Freedep (Sertraline)
Tab Viagra (sildenafil) 25-100mg, 1 tab PO 30min before activity
Vacuum erection devices and penile prosthetic surgery.

# CASE 53

## COMMONLY USED MEDICATIONS IN ENDOCRINOLOGY UNIT

Drug Brands Gliclazide Tab. Diamicron MR 30, 60mg Carbimazole Tab. Neomercazole 5 mg Maint. Dose: 5-15 mg daily Tab. Daonil 5 mg Glibenclamide Tab. Euglucon S mg Gliclazide Tab. Diamicron 80 mg Glimepiride Tab. Getryl 1,2,3,4 mg Tab. Evopride 1,2,3,4 meg Tab. Evopride Plus Glimepiride + 1/500, 2/500 mg Metformin Tab. Getformin 1/500, 2/500 mg Hydrocortisone Inj. Solu-Cortef 100,250,500 mg Tab. Glucophage Metformin 250,500,850 mg,1g Tab. Piozer 15,30,45 mg Pioglitazone Tab. Glitos 15,30,45 mg Pioglitazone+ Tab, Piozer Plus 15/500, Metformin 15/850 mg Prednisolone Tab. Deltacortil 5 mg Tab. Prednisolone 5mg re tthiouracil Tab. Procarbizole 59 mg yroxine

# CASE 54

## MIGRAINE HEADACHES

### CLINICAL FEATURES:

Headache, usually pulsatile, lasting 4-72 hours.
Pain is typically, but not always, unilateral.
Nausea, vomiting, photophobia, and phonophobia are common accompaniments.
An aura of transient neurologic symptoms (commonly visual) may: precede headache
Triggers includes Cheese, sleep disturbance, caffeine and menstruation and oral contraception.

### MANAGEMENT

Management of migraine consists of avoidance of any precipitating factors, together with prophylactic or symptomatic pharmacologic treatment if necessary.
o Tab Nuberol forte or Diagesic P, 1 tab PO x stat then SOS

Tab Migril (caffeine + ergotamine + Cyclizine) 1 tab PO x SOS, followed by one tablet every 30 minutes, if necessary, up to six tablets per attack and no more than 10 days per month "OR"
Tab Sumatec (sumatriptan) 50mg, 1 tab PO x SOS "OR"
Tab Zomig 2.5-5 mg 1 tab PO x SOS. If there is no response, repeat the dose "OR" Inj / Tab — Stemetil (prochlorperazine) 5-10 stat then SOS.

PROPHYLACTIC THERAPY: Preventive treatment may be necessary if migraine headaches occur more frequently than four times a month, headache that lasts Longer than 12 hours or significant disability is associated with attacks. Avoidance of triggers and maintenance of homeostasis with regular sleep, meals, and hydration should not be Neglected; a headache diary may be useful to identify triggers. Use any one or two of the following medications.

Tab Inderal (Propranolol) 80-240 mg/ day (divided twice to four times daily)
Tab Hitop (topiramate) 25mg, 1 tab PO x OD for one week, then 25mg 1 tab PO x BD for next week, then gradually increase the dose to 50mg PO x 8D
Tab Amitryp (amitriptyline) 25mg 1 tab PO x OD at night.
Tab Epival (Na Valproate) S00 mg 1 tab PO x BD. Increase the dose up to 2000mg if no response.

Note: Once medication has been found to help, it should be continued for several months. If the patient remains. headache free the dose may be tapered and the medication eventually withdrawn.

## MIGRAINE PROPHYLAXIS, CHOICE OF DRUGS-UNDERLYING COMORBIDITY DISORDER MEDICATIONS

Migraine + hypertension: Beta blockers
Migraine + angina: Calcium channel / beta blockers
Migraine + stress / anxiety: Beta blockers, Tricyclics
Migraine + insomnia, depression: Tricyclics, Fluoxetine
Migraine + underweight: Tricyclics, Pizotifen
Migraine + Overweight: Topiramate
Migraine + epilepsy: Valproate, topiramate, Gabapentin
Migraine + mania / mood. disorder: Valproate and lamotrigine

# CASE 55

# CLUSTER HEADACHE

## CLINICAL FEATURES:

Cluster headache affects predominantly middle-aged men.
Episodes of severe unilateral periorbital pain occur daily for several weeks and are often accompanied by one or more of the following: ipsilateral nasal congestion, rhinorrhea, lacrimation, redness of the eye, and Horner syndrome (ptosis, pupillary meiosis, and facial anhidrosis or hypohidrosis).

During attacks, patients are often restless and agitated. Episodes typically occur at night, awaken the patient, and last between 15 minutes and 3 hours. Spontaneous remission then occurs, and the patient remains well for weeks or months before another bout of closely spaced attacks.

## MANAGEMENT OF ACUTE ATTACK

Inhalation of 100% oxygen (12-15 L/min for 15 minutes)
Inj Imigran (sumatriptan) 6mg S/C x stat "OR" intranasal (20 mg/spray) stat "OR"
Lignocaine (Viscous lidocaine) 1 mg of 4-6% solution intranasally.
Prophylactic therapy:
Tab Deltacortel (prednisolone) 5mg, 4 tablets PO x TDS for 5 days followed by gradual withdrawal over 7-10 days.
Tab Calan / Isoptin (verapamil) 240mg, 1 tablet PO x OD (increase by 80 mg every 2 weeks to 960 mg daily, with routine ECG to monitor the PR interval) "OR"
Tab-Hitop (topiramate) 100mg, 1 tablet PO x OD.

If there is no response to above medications go for Electrical stimulation of the vagus nerve at headache onset Successfully aborts pain in 30-50% of attacks, and twice daily prophylactic stimulation reduces attack number in chronic Cluster headache.

# CASE 56

# STROKE

A stroke or cerebrovascular accident (CVA) is defined as an abrupt onset of a neurologic deficit that is attributable to a focal vascular cause. Stroke has occurred if the neurologic signs and symptoms lasts for > 24 hours or brain infarction is demonstrated.

## CLINICAL FEATURES

Loss of sensory and/or motor other causes of sudden onset function on one side of the body, neurologic symptoms that may change in vision, gait or ability to mimic stroke include seizure, speak or understand; or a sudden intracranial tumor, migraine and severe headache. metabolic encephalopathy.

## MANAGEMENT

Attend to the patient's airway, breathing and circulation (ABC's) and treat hypoglycemia or hyperglycemia if identified.
Perform an emergency non-contrast head CT scan to differentiate between ischemic and hemorrhagic stroke.
Other investigations include CBC (to look for polycythemia or active infection), RBS (to look for hypo or hyperglycemia), triglycerides and cholesterol (to look for hyperlipidemia), ESR & immunological tests such as ANCA (to look for vasculitis), ECG & echocardiography (to look for abnormalities that may cause cardiac embolism) and Carotid Doppler in case of ischemic CVA (to look for atherosclerosis).
Oxygen inhalation if patient is unable to maintain saturation (Sa02< 90%), patient is in respiratory distress (R/R > 24/min) or there is hypotension (systolic BP < 100 mmHg)
Pass Nasogastric tube (if gap reflex is not intact i.e., patient is unable to take orally).

Preferably Keep NPO for first 24 hrs., then swallow assessment.
Twice daily cleaning of mouth
Catheterize the patient.

IV fluids; Inf-Normal Saline 1L IV x BD (avoid D/W and R/L)
Stress ulcer prophylaxis; Inj-Risek 40mg, IV x OD.

Physiotherapy:
Thrice daily chest physiotherapy
6 hourly passive movements of affected side at each joint (30-40 times per session)

Prevention of Bed sores: A. 2 hourly posture changes B. Keep the skin clean and moist (with application of olive oil, Vaseline) C. Regular change of clothing/diapers when soiled

Counsel patient (if conscious) and family member about:
A. Current state of disease, cause and probable risk factors
B. Counsel about possible deterioration in initial 3-5 days due to re-stroke, cerebral edema or hospital acquired infection
C. Counsel that the patient is expected to be admitted for 3 days on average, and recovery (depending upon extent disease) can take 6-8 months and may be incomplete

ISCHEMIC STROKE:
Thrombolytic therapy can be given up to 4.5 hours after symptoms onset. Intravenous thrombolytic therapy with recombinant tissue plasminogen activator (rtPA; 0.9 mg/kg toa maximum of 90 mg, with 10% given as a bolus over 1 minute and the remainder over 1 hour) improves the chance of recovery without significant disability at 90 days from 26% to 39% if given within 3 hours from stroke onset; it is still effective up to 4.5 hours from stroke onset.
If tPA is given to a patient, repeat CT brain after 24 hours. When hemorrhage is excluded then start antiplatelets.

Tab Disprin (chewable aspirin) 325mg 1 tab PO x Stat (within first 48 hours)
Tab Ascard (aspirin) 75-300 mg, 1 tab PO x OD for 14 days (then adjust accordingly).
Consider low dose ACE Inhibitors (after 48 hours)
Tab Ramipace/ Tritace (Ramipiril) 1.25-2.5 mg PO 1x OD.

Consider DVT Prophylaxis, Inj Clexane (Enoxaparin) 60mg S/C x OD HEMORRHAGIC STROKE: + Inf Mannitol 150-250mL IV x TDS (For mass effect and edema).
Consider Neurosurgical Consultation if: Posterior fossa bleed or
Massive Intracerebral bleed or Hydrocephalus
SAH
If Sub-arachnoid Hemorrhage add the following:
Tab. NIMOTOP / Bredin (Nimodipine) 30mg 2 tab PO x 4 hourly for 21 days. li. Analgesia (e.g. Tramadol + Gravinate) itl. Anti-emetics (Gravinate and/or Motilium) IV.

Laxatives to avoid constipation
If blood pressure is high (BP should be less than 140/90 mmHg) Inj Labetalol 10-20mg IV x stat over 2 minutes (can be repeated at 10 minute intervals, Maximum dose is 300 mg).Infusion dose is 0.5-2mg/min.

If patient is irritable, Inj Serinase (haloperidol) IV x stat "OR"
Dosik (haloperidol) drops 1.5 cc PO x SOS DISCHARGE ADVICE:
Replace TabAscard / Loprin (aspirin) with TabLowplat (Clopidogrel) 75 mg x OD daily after 2 weeks of ischemic stroke

Speech therapy & Dietary advice
Advice regarding use of NG tube (prop-up before each feed, 100-200 cc feed every 3 hours, followed by 50 cc plain water and keep propped up for 30 minutes after feed) Regular monitoring for BP

Follow up with physiotherapist
Care for bed sores (posture changes, regular cleaning of skin, keeping skin moist, use of ripple mattress)

Regular follow up with local doctor FOR Change of Foley's after 10 days and NG tube after 3 weeks

NOTE: Fever is detrimental and should be treated with antipyretics surface cooling. Blood glucose should be monitored and kept at <10mmol/L (180 mg/dL) using an insulin infusion if necessary.

Note: For other complaints give symptomatic therapy and treat complications of stroke accordingly.

TRANSIENT ISCHEMIC ATTACK (TIA): TIAs are same like stroke but symptoms last less than 24 hours and resolves completely. TIAs are always either due to thrombosis or emboli never hemorrhagic. Hemorrhage does not resolve in 24 hours. Emboli usually originate from the heart (due to atrial fibrillation, valvular heart disease or a DVT)

# CASE 57

# BELL'S PALSY MANAGEMENT

Characteristic Features:
Sudden onset of lower motor neuron facial palsy.
Hyperacusis or impaired taste may occur. No other neurological abnormalities.

MANAGEMENT
Tab Deltacortel (prednisolone) 5mg, 5+5 tab for 10 days "OR" 6+6 for 5 days 5+5 on day 6 4+4 on day 7 3+3 on day 8 2+2 on day 9 1+1 on day 10.
Tab Acylex (acyclovir) 200-400mg, 1-tab po x QID for 10 days (when there is evidence of herpetic vesicles in the external ear canal).
Use Tear plus eye drops (2 drops QID) during the day in the effected eye and apply Chloramphenicol ointment at night to the affected eye at night.
Tab Becefol 1 tab PO x OD for 1 month.
Advise physiotherapy.

# CASE 58

# POST TRAUMATIC STRESS DISORDER

Post-traumatic stress disorder (PTSD) is a syndrome characterized by "re-experiencing" a traumatic event (sexual assault, severe burns, military combat) and decreased responsiveness and avoidance of current events associated with the trauma.

PTSD usually develop in the response to exposure or witnessing a catastrophizing stressful incident.

It is characterized by hyper-vigilance, insomnia, re-experiencing of event, avoidance, flash back and sever somatic symptoms of anxiety like sweating, palpitations etc.

## MANAGEMENT

Psychotherapy should be initiated after the diagnosis Of PTSD has been established and should be brief (typically 8-12 sessions), once the individual is in a safe environment.
Cognitive behavioral therapy
Tab Inderal (propranolol) 40mg, one tablet PO x BD (may lessen the peripheral symptoms of anxiety e.g., tremors, palpitations}. if there is sleep disturbance, go for benzodiazepines

Tab Xanax / Alp (Alprazolam) 0.25-0.5mg, 1 tab PO x OD at night "OR"
Tab Ativan (Lorazepam) 1mg, 1 tab PO x OD at night.
if there is agitation, go for
Tab Qusel (quetiapine) 50mg, one tablet PO x OD. Increase the dose to 300 mg/day depending upon the response.
Tab Reline / Freedep (sertraline) 50-100mg, 1 tab PO x OD "OR" Tab Seroxate CR (peroxaetine) 20mg, % tab PO x OD for § days than 1 tab PO x OD for 3-6 months.

Note:
Benzodiazepines, such as clonazepam, are generally thought to be contraindicated in the treatment of PTSD.
Always refer such patients to Psychiatrist if available.

# CASE 59

# ANXIETY DISORDERS

The principal components of anxiety are psychological (tension, fears, difficulty in concentration, apprehension) and somatic (Tachycardia, hyperventilation, shortness of breath, palpitations, tremor, sweating).

## GENERALIZED ANXIETY DISORDER

Psychiatric disorder characterized by sense of generalize worry and apprehension most of the days for a duration of at least six months or more in the absence of any organic cause and | substance abuse.

Signs and symptoms of generalized anxiety disorder include apprehension, excessive worries, hypervigilance, sleep disturbance, attention and concentration problems, memory problems, irritability, restlessness, agitations, palpitation, tremors, increased thirst, increased urine frequency, constipation, abdominal pain and muscle spasm etc.

## MANAGEMENT

Education about the nature of anxiety. Psychotherapy + Training in strategies for controlling anxiety and reducing stress. Cognitive behavioral therapy Benzodiazepines for short term relief and tolerance of SSRIs

Tab Lexotanil (bromazepam) 1.5-3mg 1 tab PO x BD “OR”

Tab Alp / Relaxin (alprazolam) 0.5 mg 1 tab PO x OD at night for 2-4 weeks then taper it gradually.

SSRis and SNRis according to its safety and efficacy in specific groups of patient

Tab Citanew / Morcet (Escitalopram) 10mg PO x OD “OR”

Tab Seroxate CR (paroxetine) 20mg, % tab PO x OD for S days than 1 tab PO x OD for 3-6 months “OR”

Tab Relaxine / Venla (Venlafaxine) 75mg, half tablet once daily for a week then 1 tab PO x OD with meals “OR”

Tab Reline / Freedep (sertraline) S0-100mg, 1 tab PO x OD for 3-6 months.

# CASE 60

## SOCIAL ANXIETY DISORDER

Signs and symptoms of anxiety are mostly somatic type in the social condition like palpitations, sweating, chest pain, shortness of breath, dizziness, loss of control etc. for duration of at least six months.

MANAGEMENT

Almost same as that of generalized anxiety disorders
Usually, beta blocker is added for somatic symptoms
Tab Inderal (propranolol) 40mg, one tablet PO x BD.

# CASE 61

## PANIC DISORDER

Panic attacks are recurrent, unpredictable episodes of surges of anxiety accompanied by marked physiologic manifestations. Agoraphobia, fear of being in places where escape is difficult, such as open spaces or public places where one cannot easily hide, may be present and may lead the individual to confine his or her life to home.

Panic disorder is diagnosed when panic attacks are accompanied by a chronic fear of the recurrence of an attack or a maladaptive change in behavior to try to avoid potential triggers of the panic attack.

MANAGEMENT

Cognitive behavioral therapy
Peer support groups are particularly helpful.

Pharmacological treatment:
Tab Alp / Relaxin (alprazolam) 0.5 mg 1 tab PO x OD at night “OR”

Tab Rivotril (clonazepam) 0.5mg, 1 tab PO TDS for 2-4 weeks then taper it gradually.
Tab Flux / Prozac (fluoxetine) 10mg, 1 tab PO x OD (the dose can be increased to 20mg after a week if tolerated) "OR"
Tab Seroxate CR (paroxetine) 20mg, % tab PO x OD for 5 days than 1 tab PO x OD "OR"
TabRelaxine / Venla (Venlafaxine) 75mg, half tablet once daily for a week then 1 tab PO x OD with meals for 3-6 months.

# CASE 62

# PHOBIC DISORDER

Simple phobias are fears of a specific object or situation (eg, spiders, height) that are out of proportion to the danger posed, and they tend to be chronic.
Social phobias are global or specific.

In the former, all social situations are poorly tolerated, while the latter group includes performance anxiety (eg, fear of public speaking).

MANAGEMENT
Always refer to psychiatrist for proper management and treatment if available Rule out other causes of anxiety Non pharmacological treatment options (Psychotherapy and cognitive behavioral therapy) are the mainstay of treatment. Pharmacological treatment (if needed) is same as that of generalized anxiety disorders.

# CASE 63

# INSOMNIA AND SLEEP DISORDER

Treat the underlying cause if any. TabXanax / Alp (Alprazolam) 0.25-0.5mg, 1 tab PO x OD at night "OR" TabAtivan (Lorazepam) img, 1 tab PO x OD at night "OR" TabZolp (zolpidem) 10mg 1 tab PO x

OD at night “OR” TabRivotril (Clonazepam) 5mg, 1 tab PO x OD at night for 7-14 days. Benzodiazepines cause addiction so never ever prescribe for more than 3 weeks.

# CASE 64

# DEPRESSIVE DISORDER

Depressive disorder is mood disorder characterized by at least five of the following symptoms for a duration more than 14 days in the absence of any organic or substance abuse.
Low mood / diurnal mood variation.
Sleep disturbance.
Low energy
Loss of interest and lack of concentration.
Anhedonia (inability to feel pleasure in normally pleasurable activities).
Guilt.
Low memory.
Loss of appetite.
Decreased libido.
Lack of self-confidence.
Pessimistic thoughts (tending to see the worst aspects of things). Self-harm and suicidal thoughts.
General principles:
Always rule out organic causes

Milder forms of depression usually do not require medication therapy and can be managed by psychotherapy and the passage of time.
In severe cases—particularly when vegetative signs are significant and symptoms have persisted for more than a few weeks antidepressant medication therapy is often effective. Medication therapy is also suggested by a family history of major depression in first degree relatives or a past history of prior episodes.
SSRIs and CBT is the first line treatment

Always start from minimal effective dose, initially start from half dose for 5-7 days than titrate gradually.

If there is agitation and sleep disturbance add Benzodiazepine for 7-14 days (Benzodiazepines cause addiction so never ever prescribe for more than 3 weeks).
In pregnant and lactating mothers, prefer Sertraline (due to safety profile)
Always add non pharmacological treatment options in management plan
Asses patient for mania and hypomania symptoms in past.

Note: Always refer the patient to Psychiatrist for proper management if there is tendency to self-harm or suicidal thoughts.

MANAGEMENT OF DEPRESSIVE DISORDERS

Start from Effective psychotherapy.
If sleep impaired add Tab Alp (alprazolam) or Ativan (lorazepam) 0.25-0.5 mg 1 tab PO x OD at night for 7 to 14 days.
First line Antidepressants: SSRIs
Tab Citanew/ Estar (escitalopram) 10mg PO x OD "OR"
Tab Reline / Freedep (sertraline) 50-100mg, 1tabPOxOD "OR" Mm
Tab Seroxate CR (paroxetine) 20mg, % tab PO x OD for 5 days than 1 tab PO x OD "OR"
Tab Prozac/ Depricap (fluoxetene) 20mg, 1 tab PO x OD.
In case of associated headache add tricyclic antidepressants +
Tab Amyline / Tryptanol (amitriptyline) 25mg 1 tab PO x OD "OR"
Tab Sensival (nortryptaline) 25mg OR Prothiaden (dothiepin) 2575 mg, 1 tab PO x OD at night.

In Pregnancy patients, prescribe
Tab Reline / Freedep (sertraline) 50-100mg, 1 tab PO x OD "OR"
Tab Prozac/ Depricap (fluoxetine) 20mg, 1 tab PO x OD.
In lactating mothers, safe antidepressant is
Tab-Reline / Freedep (sertraline) S50-100mg, 1 tab PO x OD.
In children (age 8-18 years), go for
Tab Prozac/ Depricap (fluoxetine) 10-20mg, 1 tab PO x OD.
In case of HTN, DM, Ischemic heart disease or elderly patient prefer
Tab Reline / Freedep (sertraline) 50-100mg, 1 tab PO x OD.

Note:
Duration of treatment is usually 3-6 months.

If no response to one SSRI like escitalopram for 4-6 weeks, then try another SSRI like fluoxetine or paroxetine and withdraw previous SSRI. If still no response to second SSRI, then try combination therapy, in which SSRI like escitalopram given in morning and TCA like Amyline (amitriptyline) "OR" Sensival (nortryptaline) OR Protheidine (dothepine) is given at night.

If still no response, then refer to Psychiatrist for ECT with counseling like CBT.

# CASE 65

# SCHIZOPHRENIA

Schizophrenia is a chronic psychiatric disorder characterized by positive, negative and behavior symptoms for the duration of more than 1 month (ICD 11) or 6 months (DSM 5) in the absence of any organic cause or substance abuse.

Positive Symptoms: Hallucinations, delusions etc.
Negative symptoms: Apathy, social withdrawal, anhedonia, decrease self-care etc.
Behavioral symptoms: anger, self-harm, disorganized behavior etc.

## MANAGEMENT

General principles:
Always need Specialist care and treatment.
Start on antipsychotics preferably atypical antipsychotic from minimal effective dose
Monitor and follow the patient every two weeks for any improvement
If there is no improvement, asses the patient again and change the treatment accordingly. Always add non pharmacological treatment in the management plan.

Tab Olanzia (Olanzapine) 5mg, 1 tab PO x OD at night "OR"
Tab Arizote / Aripip (Aripiprazole) 10mg, 1 tab PO x OD at night OR"
Tab Quse! (quetiapine) 150mg, half tablet once daily on day 1, half tablet twice daily on day 2 and then 1 tab PO x BD.

If there is agitation, add Tab Ativan (Lorazepam) 1-2mg, 1 tab PO x BD or TDS for 1-2 weeks.

# CASE 66

## UTI

Urinary tract infection (UTI) is an infection in any part of the urinary tract. Pyelonephritis (Kidneys), cystitis (urinary bladder) urethritis (urethra), Vaginitis (vagina) and prostatitis (prostate gland) are different types of UTI.

### CLINICAL FEATURES:

Patient may complain of fever, flank pain, supra pubic pain, burning micturition (dysuria) blood in urine (hematuria) urinary frequency, urgency etc.

### INVESTIGATIONS:

Urine R/E, US abdomen (KUB), urine for C/S (in case of recurrent UTI)

### MANAGEMENT

Supportive Care: (Almost same for all type of UTIs).
Encourage oral fluids.
Ask to take care of personal hygiene. + Syp Citralka (Na Acid citrate) 2 TSF dissolved in a glass of water "OR"
Crane berry / Crane max sachet PO x TDS (to alkalinize the urine and relieve the burning micturition).
Tab Voltral SR (Diclofenac) 100mg, 1 tablet PO x TDS "OR"
Tab Urilef / Pyridine (phenazopyridine) 200mg, 1 tab PO x TDS. 4 Empiric (antibiotic) therapy for different UTIs are given below

# CASE 67

## ACUTE CYSTITIS

1st line therapy:

Tab Septran DS (Trimethoprim-Sulfamethoxazole) 160/800 mg, 1 tab PO x BO for 3 days “OR”
Tab Furadantin / Uriston (nitrofurantin) 100mg, 1 tab PO x BD for 5-7 days “OR”
Focin Ultra (fosfom cin sachet 3 m PO x stat. 2 fine therapy:
Tab Ciproxin / Novidat (ciprofloxacin) 250 500 mg, 1 tab PO x BD for 3-5 days
Tab Leflox (levofloxacin 250-500 mg 1 tab PO x BD for 3-5 days
Postmenopausal women with recurrent cystitis can be treated with Estradiol vaginal (estrogen) cream 0.5 g daily at night for 2 weeks and then twice weekly thereafter.

# CASE 68

## PYELONEPHRITIS

Hospitalized patients:
Inj Amplus (ampicillin) 1gm IV x QID (ATD) PLUS
Inj Gentamicin img/kg IV x TDS “OR”
Inj Oxidil/ Rocephin (ceftriaxone) 1-2gm !V x OD “OR” i
Inf-Novidat (Ciprofloxacin) 400mg IV x BD continued for 24 hours after the fever resolves, and oral antibiotics are then given to complete a 14-day course of therapy.
Non-hospitalized patients:
Inj Oxidil/ Rocephin (ceftriaxone) 1gm IV x stat “OR”
Inf-Novidat (Ciprofloxacin) 400mg IV x stat followed by Tab Ciproxin/ Novidat (ciprofloxacin) 500mg 1 tab PO x BD for 7 days “OR” Tab Leflox (levofloxacin) 750, 1 tab PO x OD for 7 days “OR”
Tab Septran DS (Trimethoprim-Sulfamethoxazole) 160/800 mg 1 tab PO x BD for 10-14 days

# CASE 69

## BACTERIAL PROSTATITIS

Acute Bacterial Prostatitis:
lnj Amplus (ampicillin) 1gm IV x QID (ATD) PLUS

Inj Gentamicin mg/kg IV x TDS until the patient become afebrile followed by Tab Septran DS (Trimethoprim-Sulfamethoxazole) 160/800mg, 1 tab PO x BD "OR"
Tab Ciproxin/ Novidat (ciprofloxacin) 500mg 1 tab PO x BD for 3 Weeks
Chronic bacterial prostitis:
Tab Ciproxin/ Novidat (ciprofloxacin) 500mg 1 tab PO x BD "OR"
Tab Leflox levofloxacin 750, 1 tab PO x OD for 1-3 months

# CASE 70

# EPIDIDYMITIS

ACUTE EPIDIDYMITIS
Sexually transmitted:
Inj Oxidil/ Rocephin (ceftriaxone) 250mg
IM x stat PLUS
Cap Vibramycin (doxycyclin) 100m 1ca PO x BD for 10 days.
Non-sexuallytransmitted:
Tab Leflox (ievofloxacin) 500m = 1 cap PO x OD for 10 days.

UTI IN PREGNANCY
Tab Furadantin / Uriston (nitrofurantin) 100mg, 1 tab PO x Bp "oR"
Tab-Augmentin/ Amoxiclave/ Calamox, 625mg PO x BD "OR"
Tab Ceporex (cephalexin) 250mg, 1 tab PO x QID for 4—7 days.
In case of recurrent UTI during pregnancy: use prophylactic antibiotics;
Tab Amoxil (amoxicillin) 500 PO x OD throughout pregnancy or after each intercourse.

Note: In diabetics, elderly and women using diaphragm pre. treatment culture should be sent and treatment should be given for a week at least.

# CASE 71

# KIDNEY STONE

Clinical Features: Sudden onset of acute colic, localized to the flank, causing the patient to move constantly. Nausea and vomiting referred pain to the scrotum or labium on the same side as the stone moves down the ureter.

Investigations:
CBC, Urine analysis, X-ray KUB (except in pregnancy), Ultrasound KUB and CT KUB.

MANAGEMENT
Ensure adequate hydration.
Manage acute urinary retention due to bladder or urethral stones by urethral catheterization or supra-pubic cystostomy respectively.
Kidney stones less than 8mm are usually managed conservatively as follow.

Cap Rowatinex 1 cap PO x BD
Tab/injVoren (Diclofenac) 50/75mg PO/IM x SOS
Inj/TabNospa (Drotaverine) IV x stat then SOS
Tab Novidat (Ciprofloxacin) 500mg 1 tab PO x BD for 5 days
Syp Citralka (citric acid) 2 TSF dissolved in a glass of water PO * TOS
Tab Tamsol (Tamsulosin) 0.4mg 1 tab PO x OD at night.
Other alternatives particularly for stones of larges sizes include uroscopy, extracorporeal shock wave lithotripsy, percutaneous nephrostomy, and surgical removal of stones. Better to refer to urologist if the stone size is greater than 6 mm.

# CASE 72

# BENIGN PROSTATIC HYPERTROPHY

Obstructive or irritative voiding symptoms.
May have enlarged prostate on rectal examination.
Absence of urinary tract infection, neurologic disorder, stricture disease, prostatic or bladder malignancy.

Investigations: Urine analysis, PSA and US Abdomen and pelvis
(Especially for prostate size).

MANAGEMENT

Tab Tamsol (Tamsulosin) 0.4 mg 1 tab PO x OD at night continuous "OR" Cap Minipress/ Prazin (Prazosin) 1-5mg 1 tab PO x OD at night continuous
If there is no response and PSA is high add
Tab Genesis (Finasteride) 1 tab PO x OD + If there is still no relieve, refer the patient to Urologist.

# CASE 73

# CKD

FEATURES:

Decline in the GFR over months to years. Persistent proteinuria or abnormal renal morphology may be present. Hypertension in most cases.
Symptoms and signs of uremia when nearing end-stage disease.
Bilateral small or echogenic kidneys on ultrasound in advanced disease.
It is often recognized by: fluid overload, decreased or no urine Output, nausea, vomiting, loss of appetite, shortness of breath.

Investigations: Same as for acute renal failure (anemia), Serum ferritin (before giving erythropoietin) Echocardiography for HF

MANAGEMENT

**GENERAL MEASURES:**

Cessation of smoking
Avoid NSAIDs and herbal medications
Strict fluid input and output record (daily intake should be daily urinary output + 600mL) + Restrict salt and potassium containing foods like banana, orange, coconut etc.
Restrict dietary proteins intake (< 0.8-1 gm/Kg proteins/day)
Measure weight daily

**PHARMACOLOGICAL TREATMENT:**

If fluid overloaded: stop all fluids and give Inj Lasix (furosemide) 40-120mg IV x BD slowly (1mg/Kg in children) if BP allows

For hyperkalemia, Inj Regular insulin 10 units in 50-100mL dextrose 25% inj Calcium gluconate 10-20mL IV over 2-5 minutes inj Sodium bicarbonate 8% 44mEq IV over 5 minutes if still not corrected go for hemodialysis.

For HTN and proteinuria use ACE inhibitors, ARBs or Calcium channel blockers Control blood sugar level in case of diabetes.

Tab Bisleri F/ Ibret folic (iron+folic acid), 1 tab PO x OD.
For Anemia; Inj Espogen (Recombinant Human erythropoietin, 20001U/40001U) initial dose: 50-100 units/Kg $/C x Thrice a week (then adjusted according to the response)
Avoid Blood transfusion to prevent iron overload.
Bleeding tendencies can be corrected by FFPs and desmopressin nasal spray
Inj-Cyanocobal img, iM every alternate day for 2 weeks then img every 3 months
Cap/Tab Bon-one (Alfacalcidol) 0.25-1 micrograms 1 Tab/Cap PO «x OD.
Tab Lophas (Calcium acetate) 667mg, 1 tab PO x TOS (monitor serum calaum regularly) if calcium is high, use Renawel (Sevelamer HCl) 400mg 1 tab PO * TDS.
For hyperlipidemia use Rast 10m (or any other statin) 1 tab PO X OD at night.

Symptomatic therapy for other complaints. In severe cases go for definitive treatment options including hemodialysis, hemofiltration, peritoneal dialysis and renal transplantation

# CASE 74

## ANIMAL & HUMAN BITE WOUNDS

Cat and human bites have higher rates of infection than dog bites.
Hand bites are particularly concerning for the possibility of closed-space infection.

Antibiotic prophylaxis indicated for non-infected bites of the hand and hospitalization required for infected hand bites.

All infected wounds need to be cultured to direct therapy.

Treatment:
A. Local Care:
Vigorous cleansing and irrigation of the wound as well as debridement of necrotic material are the most important factors in decreasing the incidence of infections. Radiographs should be obtained to look for fractures and the presence of foreign bodies.
Careful examination to assess the extent of the injury (tendon laceration, joint space penetration) is critical to appropriate care.

B. Suturing:
If wounds require closure for cosmetic or mechanical reasons, suturing can be done. However, one should never suture an infected wound, and wounds of the hand should generally not be sutured since a closed-space infection of the hand can result in loss of function.

C prophylactic Antibiotics: Prophylaxis is indicated in high-risk bites and in high-risk patients. Cat bites in any location and hand bites by any animal, including humans, should receive prophylaxis.

Tab Amoxiclave / Augmentin (Amoxicillin-clavulanate) 625mg, PO x TDS for 6 days.
For patients with serious allergy to penicillin, go for Cap Dalacin-C (clindamycin) 300mg, 1 tablet PO x TDS, PLUS one of the following for 5-7 days:
Cap Vibramycin (doxycycline) 100mg, 1 capsule PO x BD.
Tab Ciproxin / Novidat (ciprofloxacin) 500mg, 1 tablet PO x BD.

Tab Leflox (levofloxacin) 500-750mg, 1 tablet PO x OD.
Tab Moxiget (Moxifloxacin) 400mg, 1 tablet PO x OD.

Agents such as dicloxacillin, cephalexin, macrolides, and clindamycin should not be used alone because they lack activity against Pasteurella species.

Because the risk of HIV transmission is so low following a bite, routine post exposure prophylaxis Is not recommended. Each case should be evaluated individually and consideration for prophylaxis should be given to those who present within 72 hours of the incident, the source is known to be HIV infected, and the exposure is high risk.

D. Antibiotics for Documented Infection:
Inj Unasyn (ampicillin-sulbactam), 1.5-3.0gm, IV x TDS

# CASE 75

## MALARIA

FEATURES:

Exposure to anopheline mosquitoes in a malaria-endemic area.
Intermittent attacks of chills, fever, and sweating.
Headache, myalgia, vomiting, splenomegaly; anemia, thrombocytopenia.
Intra-erythrocytic parasites identified in thick or thin blood smears or positive rapid diagnostic tests.
Falciparum malaria complications: cerebral malaria, severe anemia, hypotension, pulmonary edema, acute kidney injury, hypoglycemia, acidosis, and hemolysis.

INVESTIGATIONS:

CBC with peripheral smear, LDH levels, Blood thick and thin smear for malarial parasites, G6PD level. If capillary blood (ear lobule) is taken from the patient during fever spike, there are more chances of malarial parasite to be seen.

MANAGEMENT

Chloroquine-sensitive Plasmodium falciparum and Plasmodium malariae infections:
Tab Nivaquin P/ Resochin (Chloroquine) 250mg, 4 tablets (1000mg) PO x stat, then 2 tablets (500 mg) after 6 hours, 24 hours and 48 hours.

Plasmodium vivax and Plasmodium ovale infections:

Chloroquine (as above), then (if G6EPD normal) go for Tab Primaquine, 15mg, 2 tablets (30mg) PO x OD for 14 days.

Uncomplicated infections with chloroquine resistant P falciparum:
Tab Gen-M / Artem plus (Arthemeter/Lumefantrine) 80/420, 1 tab PO x BD for 3 days "OR"
Tab Zafquin (quinine sulfate) 650mg, 1 tab PO x TDS for 3-7 days PLUS one of the following (when quinine given for < 7 days)
Cap Vibramycin / Contimycin (doxycycline) 100 mg, 1 cap PO x BD for 7 days "OR"
Cap Dalacin C / Klinda (clindamycin) 300 mg, 2 capsules PO x BD for 7 days.
Severe or complicated infection with P. falciparum:
Inj Gen-M (artesunate) 2.4mg/Kg IV x BD for day 1, then once daily until the patient become able to tolerate oral antimalarial therapy "OR"
Inj Zafquin (Quinine dihydrochloride) 20 mg/kg diluted in 500 mL dextrose saline IV over 4 hours, then 10 mg/kg IV x TDS till patient can tolerate oral antimalarial therapy to complete the 7 days course PLUS

Cap Vibramycin / Contimycin (doxycycline) 100 mg, 1 cap PO x BD for 7 days.
Supportive care for other complaints

Transfuse Blood if Hb is less than 7 gm/dL.

Inj Valium or Phenobarb for convulsions.

Malaria Prophylaxis for Travelers: 1-2 weeks prior to travel and 2 weeks after leaving.

# CASE 76

# TYPHOID/ENTERIC FEVER

FEATURES:

Gradual onset of malaise, headache, nausea, vomiting, abdominal pain. On examination there may be coated tongue (75% cases), rose spots, relative bradycardia, splenomegaly, and abdominal distention and tenderness.

Slow (stepladder) rise of fever to maximum and then slow return to normal.

Leukopenia; blood, stool, and urine cultures are positive for Salmonella.

## DIAGNOSIS:

The culture of S. Typhi can be done from many body fluids such as blood, bone marrow, urine, rose spot biopsy extract, duodenal aspirates and stool while the blood culture remains the mairistay of diagnosis.
Positive serological tests (such as widal and Typhidot) are not recommended for the diagnosis of enteric fever.
Other tests include CBC (to see thrombocytopenia and relative leucopenia), LFTs (to differentiate it from viral hepatitis), serum electrolytes (to look for hyponatremia and hypokalemia) and chest X-ray (to rule out pneumonia), dengue serology (to exclude dengue fever) and blood thick and thin smear for malaria.

## MANAGEMENT

Keep intake / output record and check B.P + temperature every 6 hourly
If the patient is febrile do cold / Tepid sponging
Tab/SypPanadol/ Calpol (Paracetamol) 1 Tab/ TSF PO x TDS.
Inf Ringolact-D 500ml, IV x TDS (Plabolyte-M, 25 ml/kg in children)
Choice of antibiotic (in case of uncomplicated enteric fever)
Cap Caricef/ Cefim (cefixime) 400mg PO 1 x BD "OR"
Tab Novidat / Hiflox (Ciprofloxicin) 750mg PO x BD "OR" 9
Tab Leflox / Levo (levofloxacin) SOOmg, 1 tab PO x 8D for 10 14 days
If there are no signs of improvement after 5 days of treatment or there Is any sign of complication, switch oral antibiotics to IV Ceftriaxone.
Inj Rocepin/ Oxidil (Ceftriaxone) 1gm IV x BD (ATD) for 7 days

Once the results of blood culture are available, modify antibiotic regimen based on final antibiotic sensitivity results.

In case of multi-drug resistant typhoid give one of the following
Antibiotic to which the isolate is susceptible in vitro "OR"
Inj Rocepin/ Oxidil (Ceftriaxone) 2gm IV x BD (ATD) for 10-14 days "OR" M
Inj Azithma / Zezot 500mg (diluted in250 mL N/saline) IV x OD for 7-14 days

Treatment of carriers:

Tab Novidat / Hiflox (Ciprofloxicin) 750mg PO x BD for 4 weeks | Cholecystectomy may also achieve this goal.

# CASE 77

# LIESHMANIASIS

## FEATURES:

Sand fly bite in an endemic area.
Visceral leishmaniasis: irregular fever, progressive hepatosplenomegaly, pancytopenia, wasting.

Cutaneous leishmaniasis: chronic, painless, moist ulcers or dry nodules. Mucocutaneous leishmaniasis: destructive nasopharyngeal lesions.

Amastigotes in macrophages in aspirates, touch preparations, or biopsies.
Positive culture, serologic tests, PCR, or skin test.

## MANAGEMENT

Inj Glucantime Base (Meglumine antimoniate) 20-30mg/kg at the site of lesion or IM for 20 days for cutaneous and 30 days for visceral Leishmaniasis. Maximum dose is 850mg per day. "OR" Inj pentamidine isethionate 4mg/kg IM every 48 hours for a total of 10 injections

In case of hypotensive reaction, lay down the patient and injAdrenaline.
Cap Fosine (Miltefosine) SOmg (2.5/kg/day) PO x OD for 28 days.
Apply Polyfax (Bacitracin + Polymyxin B) ointment twice daily for secondary bacterial infection.

Give supplements to malnourished individuals and treat concurrent systemic illnesses (T.B, HIV etc.)

Provide supportive care to patients with visceral Leishmaniasis oF severe mucocutaneous Leishmaniasis.

# CASE 78

# DENGUE FEVER

## FEATURES

Sudden onset of high-grade fever with rigors and chills, nausea, vomiting, petechiae, generalized body aches

(Headache, retroorbital pain, arthralgia), positive tourniquet test.
Positive Tourniquet test: Inflate a BP cuff on the upper arm to a point midway b/w the systolic and diastolic pressure for 5 minutes. The test is positive when 20 or more petechiae per 2.5 cm square are observed.
Severe dengue is defined by the presence of plasma leakage, hemorrhage or organ involvement.
Signs of hemorrhage such as ecchymoses, gastrointestinal bleeding and epistaxis appear later in the disease.

## MANAGEMENT:

If fever plus any of the above 2 symptoms are present, order malaria test and CBC.
If malaria is negative or there is elevated hematocrit, low platelets or any warning sign (abdominal pain, persistent vomiting, mucosal bleeding, Hepatomegaly, agitation or lethargy, shock), go for Dengue NS1 test and treat as per clinical guidelines

GROUP A:
DENGUE WITH NO WARNING SIGNS
Treat as outpatients
Tab Panadol (Paracetamol) 500mg 2 tab PO x TDS
Avoid NSAIDS and intramuscular injections.
Seek medical attention if no improvement, persistent vomiting, cold extremities, agitation, lethargy, breathing difficulties or absence of urine output

Group B: DENGUE WITH WARNING SIGNS OR DEHYDRATION
Hospitalize the patient
Measure hematocrit (1) and baseline platelet count

Inf Ringer lactate S 7 mi/kg/hr for 12 hrs
Re-evaluate the clinical signs after an hour and measure hematocrit (2)

If hematocrit 2 is identical to hematocrit 1 or minimally increased
Inf R/L 2-3 mi/ka/hr for 2-4 hours

If hematocrit 2 is increased relative to hematocrit 1 and / or tachycardia and / or hypotension, give Inf Ringer lactate 5-19 mi/kg/hr for 1-2 hours.
Re-evaluate the clinical signs after an hour and measure hematocrit (3)
If hematocrit Is stable, reduce the rate of IV fluids administration to infR/L 2-3 mi/kg/hr for 2-4 hrs
lf hematocrit is increased or patient is vitally unstable, continue the IV fluids with the same rate (Inf R/L 5-10, ml/kg/hr for 2-4 hrs) and re-evaluate as above
If still there is no improvement, treat as Group C patient.
If the condition of patient improves, gradually reduce the rate of IV fluid administration. Duration of IV fluid is 2448 hours.

Group C: DENGUE WITH SHOCK
Hospitalize the patient
Give oxygen to maintain oxygen saturation > 92%
Measure hematocrit (1) and baseline platelet count
Inf Ringer lactate IV x stat 10-20 ml/kg/hr for 1 hour
Re-evaluate the clinical signs after an hour
If here es clinical improvement and no signs of shock, reduce the rate of IV fluids inf Ringer lactate 5-7 mi/kg/hr for 1-2 hours, then 3-5 mi/kg/hr for next 2 hours and then 2-3 ml/kg/hr for next 4 hours.
If there is no clinical improvement, measure hematocrit (2)
If hematocrit increases or stay elevated Give 2nd bolus of inf Ringer lactate IV x stat, 10-20 mi/kg/hr or go for plasma substitute
If hematocrit decreases, look for signs of severe hemorrhage
If there is hemorrhages transfuse fresh whole blood also. If there no hemorrhage evaluates for the need of blood transfusion.
Re-evaluate the patient after an hour
If there is improvement, reduce the dose of IV fluids.
If there is no improvement, check signs of shock, measure hematocrit 3) and continue as above.

NOTE;
Reduce the rate of IV fluids when pulse and BP normalize.
Always check for signs of fluid overload
Continue IV fluids for 24-36 hours (less if per oral hydration is tolerated). Supplemental boluses of crystalloids or colloids may be necessary in the next 24 hours.
Do not administer IV fluids for more than 48 hours.

# CASE 79

# CHOLERA

## FEATURES:

History of travel in endemic area or contact with infected person. 4 Voluminous diarrhea (up to 15 L/day). 4 Characteristic "rice water stool."
Rapid development of marked dehydration. Positive stool cultures and agglutination of vibrios with specifiic sera.

## INVESTIGATIONS:

CBC, RFTs, Stool R/E and Culture, Serum electrolytes.

## MANAGEMENT

For mild cases encourage oral fluids like ORS intake.
For moderate to severe cases, give IV fluids i.e. InfR/L or Plabolyte-M + KCI + glucose IV x Stat then according to Status of dehydration.

Tab - Panadol (Paracetamol) 2 Tab PO x TDS.
Tab/Cap Azomax /Macrobac (azithromycin) 2 tablets ¢ capsules PO x stat "OR"
Cap Vibramycin / Contimycin (doxycycline) 100mg, 3 capsules PQ X stat "OR"
Tab Septran DS (Sulphamethoxazole + Trimethoprim) 800/160mg, 1 tablet PO x BD "OR"
Tab Novidat / Hiflox (Ciprofloxicin) 500mg, 1 tablet PO x BD for 5 days.

# CASE 80

# RABIES

History of animal bite.
Paresthesia's, hydrophobia, rage alternating with calm. 4 Convulsions, paralysis, thick tenacious saliva.

## MANAGEMENT

Management requires intensive care with attention to the airway, maintenance of oxygenation, and control of seizures. Universal precautions are essential.
lf post exposure prophylaxis (discussed below) is given expediently, before clinical signs develop, it is nearly 100% successful
in prevention of disease. Once the symptoms have appeared, death almost inevitably occurs after 7 days, usually from respiratory failure.

## Prevention:

Immunization of household dogs and cats and active immunization of persons with significant animal exposure (e.g., veterinarians) are important.

**Local Treatment of Animal Bites and Scratches:** Local wound therapy -wash wound thoroughly with water and soap and repeat process with 10% Povidone iodine to prevent secondary bacterial infection.

## Post-exposure Immunization:

The decision to treat should be based on the circumstances of the bite, including the extent and location of the wound, the biting animal, the history of prior vaccination, and the local epidemiology of rabies.

Any contact or suspect contact with a bat, skunk, or raccoon is usually deemed a sufficient indication to warrant prophylaxis for patients who had not received rabies vaccination prior ta Possible exposure, the optimal form of passive immunization & human rabies immune globulin (HRIG; 20 international units/kg), administered once. Inj-Hyperab (anti rabies immune globulin) 201U/Kg IM x stat % (half the dose should be infiltrated around the wound).

There are several postexposure prophylaxis strategies. The most Commonly used one is the "abbreviated Essen" strategy, where Vaccine is given as four Intramuscular injections of 1 mg in the deltoid or, in small children, into the anterolateral thigh muscle on days 0, 3, 7, and 14 after exposure. (The fifth dose at 28 day, after exposure is no longer recommended except among immunosuppressed patients.)

## Pre-exposure Immunization:

Pre-exposure prophylaxis with three injections of human diploig cell (Immovax) vaccine intramuscularly (1 mL on days 0, 7, and 2) or 28) is recommended for persons at high risk for exposure:

Conservative management for other complaints like seizures ete:
Inj Diazepam 10mg IV x QID
In Largactil (Chloropromazine) 50/100 mg IV x stat/SOS

# CASE 81

# HIV/AIDS

## FEATURES

Modes of transmission: sexual contact with an infected person, parenteral exposure to infected blood (transfusion or needle sharing), perinatal exposure. Prominent systemic complaints: sweats, diarrhea, weight loss, and wasting. Opportunistic infections due to diminished cellular immunity often life threatening. + Aggressive cancers, particularly non-Hodgkin lymphoma. Neurologic manifestations, including dementia, aseptic meningitis and neuropathy.

## MANAGEMENT

Recommended regimens for initiating treatment before resistance testing results are available include
1. Dolutegravir/ TAF or TOF/emtricitabine (or lamivudine) "OR"

2 Bictegravir/ TAF/emtricitabine, “OR” 3 Boosted darunavir/TAF or TOF/ emtricitabine (or lamivudine). in our setup usually a combination of two Nucleotide Reverse
Transcriptase inhibitors (NRTis) and one Non-nucleoside Reverse
Transcriptase inhibitors (NNRTI) is given;
Tab Telura/ Symfi-Lo (Lamivudine 300mg, Efavirenz 600mg, Tenofovir 300mg) PO x OD
Supportive care for other complaints.

# CASE 82

## SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2019

**Characteristic Features:**
Wide spectrum of symptoms. Asymptomatic in at least 20-35%.
Upper respiratory tract illness with fever and cough most often when symptomatic.
The clinical triad of cough, fever, and dyspnea is infrequent (less than 15%).
Advanced pulmonary complications (pneumonia, acute respiratory distress syndrome [ARDS]) with fulminant disease
High predilection for the elderly, the immunocompromised, those with chronic diseases, and those living in crowded conditions.

**General Considerations:** In late 2019, a novel coronavirus emerged, Spreading quickly from its origin in China across the globe. The CDC recommended terminology for the virus is SARS-CoV-2, and the illness caused by this virus is called “Coronavirus Disease 2019” or COVID-19

**Public Health Concerns:** Three factors that are complicating the control of this epidemic virus are
1 its known infectivity of health care workers,
2. Its spread by infected individuals during an early asymptomatic phase of illness, and
3 Difficulty accessing testing.

## Clinical Findings

### A. Symptoms and Signs

Many infected individuals are asymptomatic, although the ratio of asymptomatic to symptomatic infection remains unclear and changes as more individuals are tested.

People with COVID-19 can manifest a wide range of symptoms from mild to severe illness that begin 2-14 days (the mean is 5 days) after exposure to SARS-CoV-2.

The CDC reports that symptomatic patients may have any of the following: cough, fever, chills/rigors, or myalgias. Dyspnea is present in variable numbers and is especially infrequent in children.

No one symptom should be used as a discriminant for disease. Less common symptoms include rhinitis; pharyngitis; abdominal symptoms, including nausea and diarrhea; headaches; anosmia; and ageusia.

It appears that 15-20% of people with COVID-19 require hospitalization and 3-5% require critical care. COVID-19 infection is particularly serious in the elderly and in those with immunocompromising conditions (including post-organ transplant) or chronic diseases (diabetes; hypertension; chronic heart, lung, or kidney disease; and prior stroke).

### B. Laboratory Findings

Hematologic and blood chemistry findings include neutrophilia, absolute lymphocytosis (using 400 cells/mclL as a cutoff), increased absolute LDH level, deranged LFTs, elevated D-dimer and fibrin/fibrinogen degradation products; The PT, APTT and platelet counts are usually unaffected initially.

The entity, referred to as COVID-19-associated coagulopathy, has laboratory findings that differ from DIC. In COVID-19associated coagulopathy, fibrinogen levels are higher and platelets levels a' more often normal than with DIC.

## Diagnostic Studies

COVID-19 diagnosis is established using nucleic acid testing. The sensitivity of nucleic acid tests from oral swabs is deemed low (35%); nasopharyngeal swabs (63%) or the more invasive bronchoalveolar lavage fluids (91%) are preferred specimens. Sputum is preferred over oropharyngeal specimens, and the virus may be detectable longer in sputum than in other upper respiratory tract samples.

A CRISPR-Casl2 lateral flow real-time polymerase chain reaction (RT-PCR) assay using respiratory specimens that is reported to be 100% sensitive and 95% specific is being developed; when marketed, this test will be faster than most currently available PCR tests but the volume of assays that can be carried out is limited.

Currently, an unstandardized combination of clinical findings in conjunction with nucleic acid tests are used to make the diagnosis of COVID-19, recognizing that the wide spectrum of clinical findings and the false reassurance of assays are not fully sensitive or specific.
Well standardized serologic assays, when combined with PCR, have the potential to improve sensitivity and accuracy.

## D. Imaging

Early in the disease, neither chest radiographs nor chest CT scans provide diagnostic utility, since both may be normal. Later in the disease course, nonspecific diffuse ground glass opacities and/or Multilobular infiltrates (which often progress to consolidation) may appear.

Differential Diagnosis

The key element in the differential diagnosis is seasonal influenza infection, which can usually be ruled out by a nasl swab. Concomitant infection with influenza or other respiratory pathogens is possible. Prominent musculoskeletal manifestations, sinusitis, and a sudden onset favor influenza infection, while a more insidious presentation with cough, weakness, malaise, and a gradual worsening of pulmonary symptoms favor SARS-Cov-2 infection.

## Complications

Most patients recover without sequelae.
A clinical risk score calculator to predict critical illness in hospitalized patients with COVID-19 called COVIDGRAM has recently been validated predictors of clinical deterioration include presence of chest film abnormalities, older age, positive cancer history, increased number of comorbidities, presence of certain signs and symptoms (hemoptysis, dyspnea, and decreased consciousness), and presence of certain laboratory abnormalities (increased neutrophil to lymphocyte ratio, increased lactate dehydrogenase, and increased direct bilirubin).

Some patients progress to ARDS the care of which requires the involvement of intensivists who can provide guidelines for respiratory support, including appropriate oxygen flow and ventilatory parameters, prone positioning, and hydration status.

Reported neurologic complications include acute stroke, impaired cognition, and encephalopathy. Neither isolation of the virus from the CNS nor frank meningitis, however, has been reported, while Guillain-Barre syndrome and acute hemorrhagic necrotizing encephalopathy have been reported. Acute musculoskeletal pain is reported in nearly 20%.

Hepatic and biliary injury, often acute, and DIC in advanced cases are reported from China. Conjunctivitis is reported from China in about one-third of cases.
The serious psychological sequelae of potentially dying alone, of restricted or impaired access to family or friends (especially in nursing homes), and limited funeral services are all relevant issues with which society is grappling.

## Prevention:

Prevention and treatment recommendations are evolving. The usual precautions include hand washing with soap and water for a least 20 seconds, avoiding touching the face, wearing a cloth face Covering in public (and, for healthcare workers, wearing a permeable mask [e.g., N95 mask] if exposure to patients with cough is anticipated), and isolating cases (in particular, removing infected Patients from long-term living/care facilities, such as nursing homes, end transportation structures, such as cruise ships).

Social distancing is an important determinant for control of the disease, Other essential public health priorities should be improving SARS-CoV-2 testing, management and control in Populations with inadequate access to health care (e.g., homeless, Migrants, and undocumented) as well as in disadvantaged Communities across the globe where social distancing is not possible, Last but not the least is COVID vaccination where available.

## Treatment:

Most infections are mild and require no treatment or only supportive therapy. Because of the biphasic nature of advanced cases, the early course should be managed with antiviral agents, as they become available, and the later cytokine

storm phase with anti-inflammatory agents. Several agents are being evaluated in clinical trials. Perhaps the most promising is remdesivir (a viral RNA-dependent RNA polymerase [RdRp] inhibitor).

Supportive treatments targeting the SARS-CoV-2induced immune response, such as IL-6 inhibitors (e.g., tocilizumab and sarilumab), are being used based on anecdotal evidence for severe pneumonia, Convalescent plasma (i.e., plasma from the blood of patients who have recovered from COVID-19) is being used for the critically ill in some centers.

Hydroxychloroquine was initially prescribed widely for COVID-19. Its mode of action is probably anti-inflammatory, and preliminary studies suggest its role in the management of COVID-19 infection is limited. Its use with azithromycin is potentially dangerous because of the untoward development of cardiac arrhythmias in patients with prolonged QT syndromes, optic neuritis gastrointestinal intolerance, and anemia.
Corticosteroids are generally contraindicated for management of coronavirus infections, including for pneumonia, even when their customary use is beneficial, such as for septic shock; the Infectious Disease Society of America (IDSA) cautions against their use.

The IDSA recommends that all the above therapies, including remdesivir, be administered only as a part of a clinical trial at a facility with the ability to carry out appropriate investigative activities, although given recent data, remdesivir may soon become the standard of care for hospitalized COVID-19 patients. VTE prophylaxis for COVID-19 patients is indicated and numerous guidelines are being published to assist with full anticoagulation.

# CASE 82

# IRON DEFECIENCY ANEMIA

Characteristic Features:
Iron deficiency: serum ferritin is less than 12 ng/ml (27 pmol/L) or jess than 30 ng/mL (67 pmol/L) if also anemic.
Caused by bleeding unless proved otherwise.
Responds to iron therapy.

IVESTIGATIONS: CBC, serum ferritin.

DIAGNOSIS can be made by laboratory confirmation of an iron5 deficient state or by evaluating the response to a therapeutic trial of jon replacement. Since the anemia itself is rarely life-threatening, the most important part of management is identification of the cause especially a source of occult blood loss.

MANAGEMENT
Oral tron: Tab Ferfate (ferrous sulfate) 200mg, 1 tablet PO x BD on an empty stomach for 3-6 months (Ideally 325mg once daily or every other day).

An appropriate response to oral iron is a return of the hematocrit level halfway toward normal within 3 weeks with full return to baseline after 2 months. Iron therapy should continue for 3-6 months after restoration of normal hematologic values to replenish iron stores. Failure of response to iron therapy is usually due to noncompliance and malabsorption occasionally.

Other reasons for failure to respond include incorrect diagnosis (anemia of chronic disease, thalassemia), celiac disease, and Ongoing blood loss that exceeds the rate of new erythropoiesis, Treatment of H. pylori infection, in appropriate cases, can improve oral iron absorption.

Parenteral Iron: The indications are intolerance of or refractoriness to oral iron (including those with iron-refractory ‘iron deficiency anemia), gastrointestinal disease (usually inflammatory bowel disease) precluding the use of oral iron, and

Continued blood joss that cannot be corrected, such as chronic hemodialysis. Ferric pyrophosphate citrate (Triferic) Is an FDA approved additive to the dialysate designed to replace the 5-7 mg of iron that patients with chronic kidney disease tend to lose during hemodialysis treatment.

# CASE 84

# THALASSEMIA

## Characteristic Features:

Microcytosis disproportionate to the degree of anemia.
Positive family history.
Lifelong personal history of microcytic anemia.
Normal or elevated red blood cell count.
Abnormal red blood cell morphology with microcytes, hypochromia, acanthocytes, and target cells.
In beta-thalassemia, elevated levels of hemoglobin A2 or F.

## MANAGEMENT

Patients with mild thalassemia (alpha-thalassemia trait or beta thalassemia minor) require no treatment and should be identified so that they will not be subjected to repeated evaluations and treatment for iron deficiency.

Patients with hemoglobin H disease should take folic acid supplementation (1 mg/day orally) and avoid medicinal iron and oxidative drugs such as sulfonamides.

Patients with severe thalassemia are maintained on a regular transfusion schedule (in part to suppress endogenous erythropoiesis and therefore bone marrow expansion) and receive folic acid supplementation.

Splenectomy is performed if hypersplenism causes a marked increase in the transfusion requirement or refractory symptoms.

Patients with regular transfusion requirements should be taken with iron chelation (oral or parenteral) in order to delay life limiting organ damage from iron overload,

Tab Ferinil (Deferiprone) 500mg 1 tab PO x TDS + Inj Desferoxamine S/C twice weekly.

Promote fitness and use healthy diet

Tab Folic acid Smg 1 tab PO x OD or alternate day Symptomatic therapy for other complaints. Allogeneic stem cell transplantation is the treatment of choice tor beta thalassemia major and the only available cure. Children who have not yet experienced organ damage from Iron overload do well, with long term survival in more than 80% of cases.

# CASE 85

# B-12 DEFICIENCY

## HISTORY:

Patients with Vitamin B12 deficiency will often present with non-specific symptoms such as weakness, tiredness, headaches, and loss of appetite.
The associated anemia may result in the development of symptoms such as pale skin, depression, irritability, pins and needles sensations. Furthermore, some patients may even present with diarrhea and muscle weakness due to the often co existing folate deficiency.

## Characteristic Features:

Macrocytic anemia.
Megaloblastic blood smear (macro-ovalocytes and hypersegmented neutrophils).
Low serum vitamin B12 level.

## MANAGEMENT

Inj Cyanocobal/ Aktis (Cyanocobalamin)

100-1000 mcg, IM x OD for 7 days, weekly for the next month and then monthly for life time.
Tab Folic acid 5mg, 1 tab PO x OD for 3 weeks, then 1 tab PO once weekly for 4 months.

Patients respond to therapy with an immediate improvement in their sense of well-being. Hypokalemia may complicate the first several days of therapy, particularly if the anemia is severe.

A brisk reticulocytosis occurs in 5-7 days, and the hematologic picture normalizes in 2 months. Central nervous system symptoms and signs are potentially reversible if they have been present for less than 6 months.

Red blood cell transfusions are rarely needed despite the severity of anemia, but when given, diuretics are also recommended to avoid heart failure because this anemia develops slowly and the plasma volume is increased at the time of diagnosis.

# CASE 86

# G6PD DEFICIENCY ANEMIA

## HISTORY:

Most of the patients who present with this order are males as this in an X-linked recessive disorder. The patients are usually asymptomatic unless they experience a hemolytic episode due to any stress such as in infection. In that case, patients usually present with anemia, jaundice, tiredness, breathlessness, pale skin, and dark urine.

## Characteristic Features:

X-linked recessive disorder seen commonly in American black men. Episodic hemolysis in response to oxidant drugs or infection.
Bite cells and blister cells on the peripheral blood smear.
Reduced levels of glucose-6-phosphate dehydrogenase between hemolytic episodes.

## MANAGEMENT

Avoid Analgesics like aspirin, phenacetin, Anti-malarial like primaquine, Pyrimethamine, quinine, chloroquine, primaquine, Anti-bacterial like sulfonamides, nitrofurantoin, chloramphenicol, quinolones and some other drugs including dapsone, vitamin K, probenecid, Quinidine, Dimercaprol, Phenyl hydrazine, Methylene blue and ingestion of fava beans

Treat the underlying infection.
Transfuse blood if anemia is severe.
If there is no response consult Hematology Unit.

# CASE 87

# SICKLE CELL ANEMIA

## HISTORY:

Usually, patients with this condition will present at around 6 months of age. The symptoms vary greatly between different individuals but generally they can include pale skin, tiredness, breathlessness, periodic episodes of extreme pain which are a major symptom of sickle cell anemia, swelling of the hands and feet, and frequent and recurring infections.

## Characteristic Features:

Recurrent pain episodes.
Positive family history and lifelong history of hemolytic anemia.
Irreversibly sickled cells on peripheral blood smear.
Hemoglobin S is the major hemoglobin seen on electrophoresis.

## MANAGEMENT

Avoid common precipitating causes of crises such as exposure to extremes of weather.
Encourage fluids intake to prevent dehydration
Maintain a good nutritional state
Promptly treat infections like malaria and pneumonia.
Genetic counseling and parental education are necessary.
Oxygen inhalation by mask and strong analgesics when required

Tab Folic acid 5 mg 1 tab PO x OD
Tab Hydra (Hydroxyurea) 500-750mg, Po x OD.
Zinc sulphate dressings are usually used to treat leg ulcers.
Pneumococcal vaccination is also recommended.
Symptomatic treatment of the complications.
Transfuse blood if anemia is severe.
If there is no response consult Hematology Unit.

# CASE 88

# PRIMARY DYSMENORRHEA

Primary dysmenorrhea is menstrual pain associated with menstrual cycles in the absence of pathologic findings.
Primary dysmenorrhea pain usually begins within 1-2 years after the menarche and may become progressively more severe. The frequency of cases increases up to age 20 and then decreases with both increasing age and parity.

Management:
Tab brufen (ibuprofen) 200-600mg 1 tab PO x TDS "OR"
Tab Ponstan (mefenamic acid) 500mg 1 tab PO x TDS (should be started 1-2 days before expected menses)
Symptoms can be suppressed with use of combined hormonal contraceptives, DMPA, levonorgestrel subdermal implant (Nexplanon), or the levonorgestrel releasing IUD.

For women who do not wish to use hormonal contraception, other therapies that have shown at least some benefit include local heat; thiamine, 100 mg/day orally; vitamin E, 200 units/day orally from 2 days prior to and for the first 3 days of menses; and high-frequency transcutaneous electrical nerve stimulation.

Note: women with regular complaints can easily detect length of use during their periods.

# CASE 89

# TYPHOID FEVER IN PREGNANCY

Typhoid fever can cause major complications both for the mother (gastrointestinal perforation, peritonitis, and septicemia) and the fetus (spontaneous abortion, preterm birth, intrauterine death).

MANAGEMENT:

Admit to inpatient department.
In the absence of drug resistance, go for
Cap-Amoxil / Ospamox (amoxicillin) 1gm, 1 cap/tab PO x TDS for 14 days
In cases of drug resistance or severe infection, go for
Inj Rocephin / Oxidil (ceftriaxone) 2-4 gm IV x OD for 10 to 14 days.
Supportive care for other complaints.

Fever persists 4 to 5 days after starting treatment, even when treatment is effective. It is essential to treat the fever and to monitor for maternal and foetal complications.

# CASE 90

# VOMITING OF PREGNANCY & HYPEREMESIS GRAVIDARUM

Persistent, severe vomiting.
Weight loss, dehydration, hypochloremia hypokalemia.
May have transient elevation of liver enzymes.
Appears related to high or rising serum hCG.
More common with multi-fetal hydatidiform mole.

Management:

A. Mild Nausea and Vomiting of Pregnancy
In most instances, only reassurance and dietary advice are required, Ask the patient to take care of diet i.e., Eat small frequent meals, eat when hungry, avoid fatty and spicy foods and emetogenic foods and smell, eliminate pills with iron,

increase consumption of carbonated drinks, use herbal teas like peppermint and ginger and frozen desserts. Because of possible teratogenicity, drugs used during the first half of pregnancy should be restricted to those of major importance to life and health.

Tab Femiroz/ Pregnova (doxylamine + pyridoxine) 10/10mg, 2 tab PO x OD at bed time "OR"
Tab Navidoxine (meclizine + pyridoxine) 25/5O0mg, 1 tab PO x OD at night bed time.
Antiemetics, antihistamines, and antispasmodics are generally unnecessary to treat nausea of pregnancy.

Hyperemesis Gravidarum
With more severe nausea and vomiting, it may become necessary to hospitalize the patient. In this case, a private room with limited activity is preferred.
It is recommended to give nothing by mouth until the patient is improving, and maintain hydration and electrolyte balance by giving appropriate parenteral fluids and vitamin supplements as indicated.

Inj / SypPhenergan (promethazine) 25mg orally, rectally, or IV x QID "OR" + Inj/ TabMaxolon / Metomide (metoclopramide) 5-10 mg orally or IV x QID "OR"
Inj / Tab Onset (ondansetron) 4-8 mg orally or IV x TDS.
As soon as possible, the patient should be placed on a dry diet consisting of six small feedings daily.
Antiemetics may be continued orally as needed.
After in-patient stabilization, the patient can be maintained at home even if she requires intravenous fluids in addition to her oral intake.

# CASE 91

# URINARY TRACT INFECTION DURING PREGNANCY

## CYSTITIS AND ASYMPTOMATIC BACTERIURIA:

Cystitis is defined by functional urinary symptoms (frequent, painful urination) and leukocytes and/or nitrites In urine on dipstick.
Asymptomatic bacteriuria Is defined by leukocytes and nitrites in urine % dipstick. If only leukocytes are detected in urine, repeat the test after vulval toilet with soap and water. if still leukocytes present, treat it as asymptomatic bacteriuria.

## Management:

Increase fluid intake: at least 1.5 liters per day.
Antibiotic therapy for cystitis or asymptomatic bacteriuria: Focin Ultra sachet (fosfomycin) 3 gm PO x stat as a single dose "OR"
Cap Cefiget/Cefim (cefixime) 200mg, 1 cap PO x BD fors days "OR"
Tab (nitrofurantoin) 100mg, 1 tab PO x TDS for 5 to 7 days
Inform the patient that cystitis symptoms should disappear within 2 to 3 days. If not, she should consult again.

## PYELONEPHRITIS:

Admit the patient and advise bed rest (risk of preterm delivery).
Increase fluid intake: at least 1.5 litres per day.
Antibiotic therapy in uncomplicated pyelonephritis:
Inj Oxidil/Rocephin (ceftriaxone) 1gm IM x OD for at least 3 days, then tab Cefiget (cefixime) 200mg, 1 tab PO x BD to complete 14 days of treatment.
Antibiotic therapy in uncomplicated pyelonephritis: (e.g., patient in an advanced stage of infection, with sepsis or in poor clinical condition, vomiting) or treatment failure after 48 hours:
Inj Oxidil/Rocephin (ceftriaxone) 1gm IM or IV slowly x 0D for at least 3 days.
Inj Delgenta (gentamicin) 3-5mg/kg, IM or IV (slowly over3 minutes) once daily for the first 3 days of treatment.
Cap Cefiget/Cefim (cefixime) 200mg, 1 cap PO x BD complete 14 days of treatment.
In the event of uterine contractions before 37 weeks LMP, give:
Tab Adalat (nifedipine) or, If not available, Salbutamol (Albuterol for 48 hours
In case of recurrent UTI during pregnancy: use prophylactic antibiotics
Tab Amoxcil (amoxicillin) 500 PO x OD throughout pregnancy after each intercourse.

# CASE 92

# HTN DURING PREGNANCY

It refers to BP> 140/90 mmHg before the chronic start of pregnancy or before 20 weeks of gestation.

It refers to HTN occurring after 20 weeks of gestation in the absence of proteinuria. HTN in pregnancy is defined as Systolic > 140mmHg or diastolic > 90 mmHg "OR" Increase above booking reading of > 30mmHg systolic or >15mmHg diastolic

Treatment:
Tab Aldomate/ (methyldopa) 250mg tab PO x BD "OR"
Tab Labetolol 100/200 mg 1 tab PO x OD "OR"
Tab Hydralazine 25mg 1 tab PO x BD

Pre-Eclampsia + It refers to pregnancy induced HTN in the presence of 300mg protein in 24-hour urine collection

Nice guidelines:
Women who are at high risk of developing pre-eclampsia should take aspirin 75mg —OD from 12 weeks until the birth of baby
High risk group patients include: HTN during previous pregnancy CKD, DM, Autoimmune disorders such as SLE or Anti-phospholipid syndrome

Eclampsia is defined as grand mal convulsion occurring in a woman with established preeclampsia, in the absence of any other neurological or metabolic cause

Treatment: IV magnesium — sulfate, antihypertensives, immediate delivery

HELLP syndrome
It is combination of Hemolysis, Elevated Liver enzymes, and Low Platelets A manifestation of severe preeclampsia
Treatment: immediate delivery.

PRE-ECLAMPSIA:
Preeclampsia is defined as the presence of newly elevated blood pressure and proteinuria during pregnancy.
Blood pressure of 140 mm Hg or higher systolic or 90 mm Hg or higher diastolic after 20 weeks of gestation.
Proteinuria of 0.3 g or more in 24 hours. * Historically, the presence of three elements was required for the diagnosis of Pre-eclampsia: hypertension, proteinuria, and edema.

Preeclampsia with severe features
Blood pressure of 160 mm Hg or higher systolic or 110 mm Hg or higher diastolic
Progressive kidney injury.
Thrombocytopenia.
Hemolysis, elevated liver enzymes, low platelets (HELLP). Pulmonary edema.
Vision changes or headache.
When hypertension is present with severe features of preeclampsia, seizure prophylaxis could be beneficial.

ECLAMPSIA
Eclampsia is diagnosed when seizures develop in a patient with evidence of preeclampsia.

TREATMENT
Teb-Ascard (aspirin) 5 mg, 1 tablet PO x OD [initiated between 12 weeks' and 28 weeks' gestation for women at increased risk for preeclampsia; risk factors include a history of preeclampsia, multifetal gestation, chronic hypertension, diabetes mellitus, kidney disease, or autoimmune diseases


such as systemic lupus erythematosus or antiphospholipid syndrome).
Clinicians may also consider low-dose aspirin (81 mg orally daily) if more than one of the following moderate risk factors are present: nulliparity, obesity, family history of preeclampsia, African American race, low socioeconomic status, age greater than 35 years, and personal history factors (e.g., mother having a previous baby with low birth weight).
The only cure is delivery of the fetus at a time as favorable as possible for its survival.

PRE-ECLAMPSIA

The critical factors are the gestational age of the fetus, fetal pulmonary maturity, and the severity of maternal disease.

Preeclampsia-eclampsia at term is managed by delivery. Prior to term, severe preeclampsia eclampsia requires delivery with very few exceptions.

Epigastric pain, seizures, severe range blood pressures, thrombocytopenia, and visual disturbances are strong indications for delivery of the fetus.

Marked proteinuria alone can be managed more conservatively.

Home management—Home management may be attempted for patients with preeclampsia without severe features and a stable home situation. This requires assistance at home, rapid access to the hospital, a reliable patient, and the ability to obtain frequent pressure readings. A home health nurse can often provide frequent home visits and assessments. Hospital care—Hospitalization Is required for women with Preeclampsia with severe features or those with unreliable home visits and assessments.

Regular assessments of blood pressure, urine protein, and fetal heart tones and activity are required.

A CBC with platelet count, electrolyte panel, and liver enzymes Should be checked regularly, with frequency dependent on Severity.

A 24-hour urine collection for total protein and creatinine " clearance should be obtained on admission and repeated a. indicated.

Magnesium sulfate is not used until the diagnosis of severe preeclampsia is made and delivery planned (see Eclampsia, below).

Fetal evaluation should be obtained as part of the workup.

If the patient is being admitted to the hospital, fetal testing should be performed on the same day to assess fetal wellbeing. This may be done by fetal heart rate testing with nonstress testing or by biophysical profile.

A regular schedule of fetal surveillance must then be followed.

Daily fetal kick counts can be recorded by the patient herself.

If the fetus is less than 34 weeks' gestation, corticosteroids can be administered to the mother.

Inj Betnesol (betamethasone) 12mg, IM x OD for two days "OR" Inj Decadron (dexamethasone) 6mg, IM x BD for two days.

However, when a woman clearly has unstable severe preeclampsia, delivery should not be delayed for fetal lung

maturation or administration of corticosteroids.
In women with gestational hypertension or preeclampsia without severe features at or beyond 37 weeks' gestation, delivery rather than expectant management upon diagnosis is recommended.

The method of delivery is determined by the maternal and fetal status. A vaginal delivery is preferred because it has less blood loss than a cesarean section and requires less coagulation factors. Cesarean section is reserved for the usual fetal indications.
For mild preeclampsia, delivery should take place at term.

B. ECLAMPSIA
Emergency care: If the patient is convulsing, she is turned on her side to preve" aspiration and to improve blood flow to the placenta.
Inj Lorazepam 2-4mg IV x slow (over 4 minutes or until the seizure stops) "OR"

Inj Valium (diazepam) 10mg, IV x stat (diluted) "OR"
Magnesium sulfate 4-6gm (diluted) IV over 15-20 minutes. A continuous intravenous infusion of magnesium sulfate is then started at a rate of 2-3 gm/hr unless the patient is known to have significantly reduced kidney function.
Magnesium blood levels are then checked every 4-6 hours and the infusion rate adjusted to maintain a therapeutic blood level (4-7 mEq/L).
Urinary output is checked hourly and the patient assessed for signs of possible magnesium toxicity such as loss of deep tendon reflexes or decrease in respiratory rate and depth, which can be reversed with calcium gluconate, 1 g intravenously over 2 minutes.

2 General care
In patients who have preeclampsia with severe features, magnesium sulfate should be given intravenously, 4to 6-gm load over 15-20 minutes followed by 2-3 gm/hr maintenance, for seizure prophylaxis.

The occurrence of eclampsia necessitates delivery once the patient is stabilized. It is important, however, that assessment of the status of the patient and fetus take place first.
Continuous fetal monitoring must be performed and maternal blood typed and cross-matched quickly.

A urinary catheter is inserted to monitor urinary output, and a CBC with platelets, electrolytes, creatinine, and liver enzymes are obtained.

If hypertension is present with systolic values of 160 mm Hg or higher or diastolic values 110 mm Hg or higher, antihypertensive medications should be administered to reduce the blood pressure to 140-150/90-100 mm Hg. Lower blood pressures than this may induce placental insufficiency through reduced perfusion. Antihypertensive most often used are
Inj-Hydralazine, S-10mg IV every 20 minutes "OR*
Inj-Labetalol, 10-20 mg IV every 20 minutes a5 needed. The 2017 ACOG guidelines for treatment of emergency hypertension include the use of immediate-release oral.

# CASE 93

# ANEMIA IN PREGNANCY

Anemia is defined as a hemoglobin level below 11 g/di during the first and third trimester and below 10.5 g/dl during the second trimester Pregnancy aggravates pre-existing anemia due, for example to nutritional deficiency of malaria. Anemia increases the risk of intrauterine growth retardation and preterm birth. it increases vulnerability in the event of hemorrhage, particularly postpartum hemorrhage

## Diagnosis:

Pallor of the conjunctivae, mucous Membranes, palms, and soles of the feet, fatigue dizziness, tachycardia, heart murmur, Signs of serious illness intense pallor, lethargy, dyspne4 hemoglobin below 7 g/dl
Measure hemoglobin level.

Tab Ferrous sulfate/folic acid (co-formulated tablet containing 200 mg ferrous sulfate equivalent to 65 mg elemental iron + 400 micrograms folic acid) PO: 2 to 3 tablets/day in 2 or 3 divided doses until hemoglobin level rises to normal, then change to preventive treatment (200 mg ferrous sulfate (65 mg elemental iron) + 400 micrograms folic acid tablets may be replaced by 185 mg ferrous fumarate (60 mg elemental iron) + 400 micrograms folic acid tablets).

Addition of vitamin C PO (500 mg/day) improves iron absorption.

For severe anemia in the third trimester:
Arrange for delivery in an established facility.
Ensure active management of third stage of labor and if required, uterine exploration/manual removal in case of postpartum hemorrhage, or possible transfusion.
Given the risk of hemorrhage and rapid decompensation during delivery, be prepared for transfusion for any woman whose hemoglobin is below 7 g/dl, even if anemia is relatively well-tolerated.

Note: the World Health Organization recommends 30 to 60 mg of elemental iron daily however, a dose of 60 mg of elemental iron daily & preferred over a dose of 30 mg daily in settings where prevalence of anemia in pregnant women is high (2 40%).

# CASE 94

# ANTIPHOSPHOLIPID SYNDROME

The antiphospholipid syndrome (APS) is characterized by the Presence of specific autoantibodies in association with certain Cinical conditions, most notably arterial and venous thrombosis and adverse pregnancy outcomes.

## HISTORY:

This condition can have a variety of presentations such as pain and swelling in the legs due to DVT, repeated miscarriages and still births, transient ischemic attack, stroke, and rash.

Clinically, the diagnosis can be suspected after any of the following outcomes an episode of thrombosis, three or more Unexplained consecutive spontaneous abortions prior to 10 Weeks' gestation, one or more unexplained deaths of a morphologically normal fetus after 10 weeks' gestation, or a Preterm delivery at less than 34 weeks due to preeclampsia or Placental insufficiency.

In addition to these clinical features, laboratory criteria include the identification of at least one of the following three antiphospholipid antibodies

1 Anticardiolipin antibodies,
2. Anti-beta-2-glycoprotein | antibodies, or 3. Lupus anticoagulant.

Management:

The optimal treatment for APS in pregnancy is unclear but generally, involves administration of a heparin compound and low dose aspirin.
Inj Heparin 5000-10,000 units $/C x BD "OR"
Inj Clexane (enoxaparin) 40mg S/C x OD © Tab Ascard (aspirin) 81 mg, 1 tablet PO x OD.

Although anticoagulation is particularly prudent in women with a history of thrombosis, there is also evidence that this management reduces the risk for spontaneous abortion in women with recurrent pregnancy loss from APS.

It is not clear whether continuation of therapy beyond the first trimester decreases the risk for stillbirth or placental dysfunction; however, treatment is typically continued through pregnancy and the early postpartum period for thromboprophylaxis.

Either prophylactic or therapeutic dosing strategies may be appropriate depending on the patient's history and clinical risk factors.
The use of corticosteroids and intravenous immunoglobulin is of unclear benefit in these patients, and neither treatment is recommended.

If infection is present, with or without labor, regardless of the duration of the rupture:

Inj Penbritin (ampicillin) 2 g IV x QID

Inf Flagyl (metronidazole) 500mg IV x
Inj Delgenta (gentamicin) 3-S5mg/kg IM once daily

Continue IV administration for 48 hours after fever disappears then, change to Amoxcil (amoxicillin) 500mg or Augmentin (Amoxicillin + clavulanic acid) 625mg + TabFlagyi/Klint (metronidazole) 400mg 1 tab PO x TDS (to complete 10 days of treatment)

If there are uterine contractions: Before 34 weeks LMP: tocolytic agent, except if there are signs of amniotic infection. After 34 weeks LMP, the risk of infection is greater than the risk of preterm birth: do not administer tocolytics.
Induction of labor: In case of infection, induce labor immediately. If there is no infection, consider induction as of 34 weeks LMP if the due date is certain, better as of 37 weeks LMP.

For ruptures occurring in the seventh and eighth month, transfer the mother, if possible, to a facility where the preterm infant can receive intensive care.
Prepare the fetus for preterm birth: After 26 weeks LMP and before 34 weeks LMP, help lung maturation with dexamethasone IM: 6 mg every 12 hours for 48 hours. In case of severe maternal infection, start antibiotic therapy prior to dexamethasone.

# CASE 95

# BLEEDING DURING PREGNANCY

The two diagnoses to firstly consider are ectopic pregnancy and Abortion.
In all cases of bleeding in pregnancy rapidly assess the severity of bleeding. +
In the event of heavy hemorrhage or shock or if a surgical intervention (laparotomy etc.) Is required:
Start an IV infusion of Ringer lactate; monitor vital signs (pulse, BP).

Prepare for a possible blood transfusion (determine patient's blood group, identify potential donors).

In the event of referral to a surgical facility, difficult transport conditions might aggravate the hemorrhage: the patient shoulg be infused and accompanied by family members who are potential blood donors.
Prevent or treat anaemia (measure hemoglobin if possible).

**BLEEDING DURING THE SECOND HALF OF PREGNANCY**

Three conditions placenta Previa, abruptio placentae, and uterine rupture—can quickly become life-threatening to both mother and child. These conditions must be referred to surgical facilities. When no cause for the bleeding is found, consider the possibility of premature labor.

**Placenta previa:** Placenta that covers either entirely or partially the internal os of the cervix. Placenta praevia may give rise to bleeding during the third trimester and carries a high risk of hemorrhage during delivery.
Clinical features and diagnosis:
Sudden, painless, slight or significant bright red bleeding.
The vaginal exam must be done with extreme care to avoid triggering massive bleeding: uterus is soft; the exam may reveal displacement of the cervix and deformation of the lower uterine segment by the placenta previa; if the cervix is dilated, the placenta can be felt in the cervix. Do not repeat the examination.
If ultrasound is available, vaginal examination can be avoided. Management:
If labor has not yet started and bleeding is light: advice bed rest and monitoring.
If labor has started and/or bleeding is heavy: refer to surgical facility,

**Abruptio placenta:** Hematoma that forms between the placenta and the uterine wall as a result of separation of the placenta, prior to foetal expulsion.

Clinical features:
Dark slight bleeding, sometimes absent, or shock not alway5 consistent with the external blood loss as bleeding is internal.
Sudden, severe, continuous abdominal pain.

Tightly contracted uterus; often, foetal heart sounds absent (foetal death).
Often occurs in a context of pre-eclampsia. Management: Refer to surgical facility.

**Uterine rupture:** Tear in the uterine wall, in most cases during labor, often related to inappropriate use of oxytocin.

Clinical features:

Impending -rupture: prolonged labor, agitation, alteration of the general state, poor uterine relaxation, continuous abdominal pain, more severe than the contractions.

**Rupture:** disappearance of uterine contractions, shock; sometimes, palpation of the dead fetus expelled into the maternal abdomen.
**Management:** Refer to surgical facility for emergency laparotomy

## SPONTANEOUS ABORTION

Characteristic features:

Intrauterine pregnancy at less than 20 weeks.
Low or falling levels of hCG.
Bleeding, midline cramping pain
Open cervical os.
Complete or partial expulsion of products of conception.

Management:

Look for foreign bodies or vaginal wound consistent with induced abortion; remove foreign bodies, clean the wound; update tetanus immunization.
Treat pain: TabPanadol (paracetamol) or antispasmodics, 1 tab PO x SOS.
Inj RhoGAM (Rho (D) immune globulin) Is given to Rh(-ive) mothers to avoid sensitization to Rh(+ive) fetal blood.

**Depending on the stage of pregnancy:**
Before 10 weeks of pregnancy: abortion Is likely to be complete.
Monitor, only intervene in the event of heavy bleeding (aspiration).
Between 10 and 12/14 weeks of pregnancy: uterine evacuation is often necessary.

Instrumental method: manual vacuum aspiration is the method of choice (easier to perform, less traumatic and less painful than curettage).

Medical method: the use of misoprostol as a single dose (409 micrograms sublingually or 600 micrograms PO) may avoig instrumental procedure. There is, however, a risk of failure that increases as the pregnancy progresses. Treatment success (that is, an empty uterus) must be verified in the days after the drug is taken. If the medical method fails, the use of an instrumental method is unavoidable.

After 12/14 weeks of pregnancy: labor should be allowed to progress, do not rupture the membranes. The placenta is usually evacuated with the fetus. {f evacuation is incomplete or in the event of hemorrhage, perform manual removal immediately after the expulsion, before the uterus retracts or the cervix closes. If manual removal is delayed, curettage must be performed which carries a high risk of uterine perforation.

In the event of post-abortion infection (pelvic pain, uterine tenderness, foul-smelling vaginal discharge): treat with antibiotics.

# CASE 96

# ECTOPIC PREGNANCY

Pregnancy that develops outside the uterus, very often in a fallopian tube. Ectopic pregnancy should be suspected in any woman of reproductive age with pelvic pain and/or metrorrhagia. There are many possible clinical presentations and these can mislead diagnosis towards appendicitis, intestinal obstruction, salpingitis or abortion The major risk of ectopic pregnancy is rupture, leading to intra-abdominal hemorrhage.

## HISTORY:

Ectopic pregnancy may behave as a normal pregnancy in the start with a positive pregnancy test and a missed period. However, usually one of the first warning of an ectopic pregnancy is light vaginal bleeding and pelvic pain. If not treated on time, it can grow and eventually rupture with resultant massive bleeding into the abdomen which can then present as shock, lightheadedness, severe abdominal pain, and fainting.

## Clinical Features and Diagnosis:

Amenorrhea or irregular bleeding and spotting.
Pelvic pain, usually adnexal,
Adnexal mass by clinical examination or ultrasound.
Failure of serum beta-hCG to double every 48 hours.
No intrauterine pregnancy on transvaginal ultrasound with serum beta-hCG greater than 2000 milli-units/mL

**Management:** If in doubt (negative urinary pregnancy test, no sign of rupture and stable hemodynamic conditions), hospitalize the patient for surveillance, if possible, in a surgical facility. Otherwise, refer immediately for emergency laparotomy.

## Treatment:

Patients must be warned about the complications of an ectopic pregnancy and monitored closely.
In a stable patient with normal liver and renal function tests, methotrexate (50 mg/m2) intramuscularly—given as single or multiple doses—is acceptable medical therapy for early ectopic pregnancy. Favorable criteria are that the pregnancy should be less than 3.5 cm in largest dimension and unruptured, with no active bleeding and no fetal heart tones.
When a patient with an ectopic pregnancy is unstable or when surgical therapy is planned, the patient is hospitalized.
Blood is typed and cross-matched. The goal is to diagnose and operate before there is frank rupture of the tube and intraabdominal hemorrhage.
The use of methotrexate in an unstable patient is absolutely contraindicated.
Surgical treatment is definitive. In most patients, diagnostic laparoscopy is the initial surgical procedure performed. Depending on the size of the ectopic pregnancy and whether or not it has ruptured, salpingostomy with removal of the ectopic pregnancy or a partial or complete salpingectomy can usually be performed.
Clinical conditions permitting, patency of the contralateral tube can be established by injection of indigo carmine into the uterine cavity and flow through the contralateral tube confirmed visually by the surgeon;
Iron therapy for anemia may be necessary during convalescence.
Rh (0) immune globulin (300 mcg) should be given to Rh-negative patients.

# CASE 97

# PREMATURE LABOUR

Clinical Features: Cervical changes (effacement and dilatation) ang regular uterine contractions before 37 weeks LMP. Metrorrhagia are not always present in premature labor. If present, blood loss is Usually minimal.
Preterm regular uterine contractions approximately 5 minutes apart.
Cervical dilatation, effacement, or both.

Management:
Advice Strict bed rest.
Allow labor to progress in the following cases: gestation is more than 37 weeks; the cervix is more than 3-4 cm dilated; there is significant bleeding; the fetus is distressed or dead; there is amnionitis or pre-eclampsia.

Otherwise, tocolysis: Give, CapAdalat (nifedipine)10mg, 1 cap PO x stat, to he repeated every 15 minutes if uterine contractions persist (maximum 4 doses or 40 mg), then 20 mg every 6 hours for 48 hours.

Do not administer by sublingual route (risk of placental hypo perfusion, foetal death), always by oral route. If not available, give inf Salbutamol (Albuterol) Smg (10 ampoules of 0.5 mg) in 500 ml of 5% glucose or 0.9% sodium chloride to obtain a solution of 10 micrograms/ml for 48 hours maximum. Start infusion at the rate of 15 to 20 micrograms/minute (30 to 40 drops/minute). Do not combine nifedipine and salbutamol.

If contractions persist, increase the rate by 10 to 20 drops/minute every 30 minutes until uterine contractions cease. Do not exceed 45 micrograms/minute (90 drops/minute), Continue for one hour after contractions have ceased, then reduce the rate by half every 6 hours.

Monitor maternal pulse regularly, decrease the infusion rate in the event of maternal tachycardia (> 120/minute).

If tocolysis is effective and contractions cease or diminish: in bo the cases, do not prolong treatment over 48 hours. Bed rest until the end of pregnancy. If tocolysis is not effective, contractions persist and labor begins: take necessary steps for a premature birth.

# CASE 98

# POST-PARTUM HAEMORRHAGE

Hemorrhage, exceeding the usual 500 mi of a normal placental delivery that occurs in the first 24 hours (usually immediately) following the delivery of the child. Postpartum hemorrhage is mainly due to placental retention and uterine atonia, but may also result from uterine rupture or cervical or vaginal lacerations.

Management:

If systolic BP is < 90 mmhg, elevate the legs (keep or replace the patient's feet in the delivery table stirrups).

Under general anaesthesia and antibiotic prophylaxis (ampicillin or cefazolin tV, 2 g as a single dose): manual removal of the placenta (if not yet delivered) and systematic manual exploration of the uterus to remove any clots/ placental debris and to make sure the uterus has not ruptured.

Oxytocin: 5 to 10 IU by slow IV injection, and at the same time, start an {V infusion with 20 IU of oxytocin in 1 liter of Ringer lactate or 0.9% sodium chloride, to be administered over 2 hours (160 drops/minute). Check for injury to the cervix or vagina using retractors (or Speculum).

Massage of the uterus to expel any clots and aid uterine retraction. Insert a urinary catheter to facilitate uterine retraction. Continue monitoring (pulse, BP, blood loss). Bleeding should diminish and the uterus should remain firm.

# CASE 99

# ABNORMAL VAGINAL DISCHARGE

Abnormal vaginal discharge is defined as discharge that differs from usual with respect to colour/odour/ consistency (e.g., discoloured or purulent or malodorous).
Abnormal discharge is often associated with vulvar pruritus or pain with intercourse (dyspareunia), or painful or difficult urination (dysuria}) or lower abdominal pain.
Routinely check for abnormal vaginal discharge in women presenting with these symptoms.

Abnormal vaginal discharge may be a sign of infection of the vagina (vaginitis) and/or the cervix (cervicitis) or Salphingitis.
The presence of abnormal discharge must be confirmed by performing a clinical examination: inspection of the vulva, speculum exam (checking for cervical/vaginal inflammation or discharge).
Abdominal and bimanual pelvic examinations should be performed routinely in all women presenting with vaginal discharge to rule out upper genital tract infection (lower abdominal pain and cervical motion tenderness).
Treatment of Cervicitis (for both chlamydia & gonorrhoea):

Tab Azomax / Macrobac (Azithromycin) 1gm, 1 Tab PO x stat a single dose "OR" Cap/TabVibramycin (Doxycyclin) 100mg, 1 Tab PO x 8D for ? days
Inj Oxidil / Rocephin (Ceftriaxone) 250mg,

IM x stat as a single dose "OR" Tab Cefiget/ Cefim (Cefixime) 400mg, 1Tab PO x stat as a single dose.
Note; Avoid Doxycyclin in pregnant women, remaining treatment Is Me, both in pregnant and non-pregnant women.
Treatment of Bacterial vaginosis and trichomoniasis.

# CASE 100

# PELVIC INFLAMMATORY DISEASES

## HISTORY:

This condition can have very varied presentations. They may be mild and, in some cases, even absent. Usually however, patients will present with lower abdominal or pelvic pain that may range from mild to severe, heavy vaginal discharge with a foul odor, dyspareunia, fever, difficult and painful micturition.

## Characteristic Features:

Lower abdominal pain with uterine, adnexal, or cervical motion tenderness.
Absence of a competing diagnosis.

## MANAGEMENT

Inj Emidoxin (cefoxitin) 2gm IM x stat
Tab probenecid, 500mg, 2 tab PO x stat plus Cap Vibramycin / contimycin (doxycycline) 100mg, 1 cap PO x BD for 14 days.

"OR"
Inj-Rocephin (ceftriaxone) 250-500mg IM x stat plus CapVibramycin / contimycin (doxycycline) 100mg, 1 cap PO x BD for 14 days.
Tab flagyl (metronidazole) 400mg, 1 tab PO x for 14 days may also be added to either of these two regimens and will also treat bacterial vaginosis that is frequently associated with PID.
For patients with severe disease or those who meet the other criteria for hospitalization, there are two recommended regimens.
Inj-Cefotan (cefotetan) 2 gm, IV x BD "OR"
Inj-cefoxitin, 2 gm, IV X QID intravenously every 6 hours, plus
Inj / CapVibramycin (doxycycline) 100mg IV / PO x BD. inj-Dalacin-C (clindamycin) 900 mg !V x TDS, plus Inj-gentamicin, 2 mg/kg IV or IM x stat then 1.5 mg/kg IV /

IM x TOS (or as a single daily dose, 3-5 mg/kg).
These regimens should be continued for a minimum of 24 hours after the patient shows significant clinical improvement. Then, an oral regimen should be given

for a total course of antibiotics of 14 days with either doxycycline, 100mg, PO x BD, or clindamycin, 450mg, PO x QID.

If a tubo-ovarian abscess is present, clindamycin or metronidazole should be used with doxycycline to complete the 14-day treatment for better anaerobic coverage.
Note: In chronic PID, don't give antibiotics, just give analgesics.
Tab Ponstan (mefenamic acid) 500mg 1 tab PO x TDS "OR" © TabPanadol (Paracetamol) 500mg, 1 Tab PO x TDS.

Surgical Measures
Tubo-ovarian abscesses may require surgical excision or transcutaneous or transvaginal aspiration.
Unless rupture is suspected, institute high-dose antibiotic therapy in the hospital, and monitor therapy with ultrasound.
In 70% of cases, antibiotics are effective; in 30%, there is inadequate response in 48-72 hours, and surgical intervention is required.
Unilateral adnexectomy is acceptable for unilateral abscess.
Hysterectomy and bilateral salpingo-oophorectomy may be necessary for overwhelming infection or in cases of chronic disease with intractable pelvic pain.