****PART 2****

Monographs Nonproprietary Essential Drugs
Part 2
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1-(G.I.T.) Gastro-intestinal Tract Drugs

(G.I.T.)–[A]–[a]- Anti-emetics and Anti-naireants (Gastroprokinetics)

(G.I.T.) – [A]-1- Metoclopramide:
Dose: Oral, I.M. or I.V., 10 mg (5 mg in Patients 15-19 years) 3 times/day. Child up to 1 year 1 mg twice / day; 1-3 years 1 mg 2-3 times/day; 5-9 years 2.5 mg 3 times /day; 9-14 years 5 mg 3 times / day. Before radiological examination, a single I.M dose of 10-20 mg (10 mg in young adults); child under 3 years 1 mg,
5-9 years 2.5 mg, 9-14 years 5 mg by continuous I.V. infusion, before starting chemotherapy, 2-4/kg mg over 15-30 minutes, then 3-5 mg/kg over 8-12 hours (maximum 10 mg/kg/day).
Indications: In non-ulcer dyspepsia, for speeding transit time of barium during intestinal induced nausea and vomiting, in oesophageal reflux.
Contraindications: GIT hemorrhage, obstruction, perforation or immediately after surgery phaeochromocytoma.
Precautions: Renal and hepatic impairment; in elderly and under 20 years, pregnancy and lactation, patients with hypertension, parkinsonism, history of depression and after gut anastomosis in patients with diabetic gastroparesis, insulin dosage or timing might require adjustment.
Adverse effects: Diarrhea, galactorrhoea and gynaecomastia can occur. May induce extrapyramidal manifestations (facial and skeletal muscle spasm and oculogyric crisis) in young patients.
Drug interactions: Aspirin, paracetamol, opioid analgesics, reserpine, antimuscarinics, anti-psychotics, lithium, tetrabenazine, levodopa and bromocryptine.

Patient instructions:
- Take each dose 30 minutes before meals and at bedtime.
- Use caution when performing other tasks requiring mental alertness.
- Report any involuntary movements especially in children and elderly.

(G.I.T.) – [A]-2- Domperidone:
Dose: Tablets 10 mg, suspension 1 mg / ml and suppository: 10 mg (infantile). 30 mg (pediatric)
And 60 mg (adult).
Action: Gasteric prokinetic (increase gastric tone without diarrhea) by its dopamine antagonist (D2-receptor).
Adverse effects: Gynecomastia and galactorrhea (stimulates prolactin release).
(G.I.T.) – [A] – (b)- Anti-emetics during Cytotoxic therapy (Serotonin Antagonists)

(G.I.T.) – [A]-1- **Ondansetron:**

**Dose:** Tablets 4 and 8 mg and amp04 and 8 mg I.V. (0.15 mg / kg / dose pediatric and 24 mg P.O. and 8 mg I.V. Adults)

**Action:** Anti-nausea and anti-emetic by antagonizing serotonin (5 H T3).

**Indications:** Severe nausea and vomiting during cytotoxic therapy. Hyperemesis gravidarum.

**N.B.** serotonin released from enterochromaffin cells stimulates afferent vogue nerve to
Produce nausea and blocks those receptors that has anti-nausea and anti-emetic actions.

(G.I.T.) – [A] – 2- **Tropisetron:**

**Dose:** 5 mg capsules and 2,5 mg amp.

**Indications:** similar to ondansetron.

(G.I.T.) – [B] – Peptic Ulcer Healing Drugs (Decrease gastric HCl secretion)

(G.I.T.) – [B] – {a} - Proton pump Inhibitors:

(G.I.T.) – [B] – {a} –1- **Omeprazole:**

**Dose:** Capsules 20 mg and 40 mg. vial, 20-40 mg at bed time to decrease HCl for 24 hours.

**Action:** Decrease gastric HCl secretion by irreversible non-competitive inhibition of H+ K+-ATPase in gastric parietal cells.

**Indications:** Peptic ulcer disease (NSAIDs) dyspepsia to prevent duodenal ulcers and bleeding. Ulcer healing rate 90% in 2 weeks.

**Adverse effects:** Nausea, diarrhea, abdominal pain, CNS (dizziness, headache), rash, gynecomastia. Increase liver transaminases and hypergastrinemia with hyperplasia of enterochromaffin like cells and carcinoid Tumors of the stomach (after several years of large doses) and Enzyme inhibition decreases metabolism of diazepam, phenytoin, warfarin and tolbutamide.

(G.I.T.) – [B] – {b} – **H2 receptor antagonist**

(G.I.T.) – [B] – {b} – 1- **Cimetidine:**

**Dose:** By I.M. injection, 200 mg every 4-6 hours, maximum 2.4 mg / day. Slow I.V. injection may repeat 200 mg given over at least 2 minutes, repeated after 4-6 hours. When larger doses are given or there is cardiovascular impairment, the dose should be diluted and given over 10 minutes, maximum 2.4 mg / day.
. By I.V. infusion, 400 mg in 100 ml of sodium chloride 0.9% infused over 1/2-1 hour (may be repeated every 4-6 hours) or by continuous I.V. infusion at a rate of 50-100 mg/hours, maximum 2.4 mg/day. Child by I.M. or slow I.V. injection or I.V. infusion, 20-30 mg/kg/day in divided doses.

**Indications:** In benign duodenal, gastric or stomach ulcers, Zollinger-Ellison syndrome, reflux oesophagitis. In the prophylaxis of GIT hemorrhage as a result of stress ulcer and in patients at risk of acid aspiration during general anesthesia.

**Precautions:** Exclude possibility of malignancy before starting treatment, reduce dose in renal and hepatic impairment. I.V. injections should be given very slowly. Should be avoided in patients stabilized on phenytoin, warfarin, theophylline (or aminophylline) and cyclosporin.

**Adverse effects:** Altered bowel habits, dizziness, rash, tiredness, rarely gynaecomastia, reversible liver damage, rarely Bradycardia and AV block.

**Drug interactions:** Phenytoin, warfarin, theophylline, aminophylline, cyclosporin, opioid analgesics, amiodarone, flecainide, lignocaine, procainamide, propafenone, quinidine, rifampicin, metronidazole, nicoumalone, amitryptyline, desipramine, doxepin, imipramine, nortriptyline, metformin, carbamazepine, ketoconazole, chloroquine, quinine, chlorpromazine, benzodiazepines, some beta-blockers, some calcium channel blockers, fluorouracil and sucralfate.

**Patient instructions:**
- Take after meals and again at bedtime.
- should not be crushed or chewed.
- If you are taking antacids; at least 1 hour should separate doses of 2 medications.

(G.I.T.) – [B] – {b} - 2 - **Ranitidine:**

**Dose:** 150 mg twice daily (morning and at night), or for patients with gastric and duodenal ulceration 300 mg as a single daily dose at night for 4-8 weeks. Zollinger Ellison syndrome 150 mg 3 times / day increased if necessary up to 6 gm / day in divided doses. Maintenance 150 mg at night. Child 8-18 years 150 mg at night. Prophylaxis of acid aspiration, 150 mg by mouth then every 6 hours I.M injection 50 mg every 6-8 hours. Slow I.V injection, 50 mg diluted to 20 ml and given over at least 2 minutes (could be repeated every 6-8 hours).

**Indications:** To inhibit gastric secretion in: duodenal, gastric ulcers, Zollinger Ellison syndrome, reflux oesophagitis. In the prophylaxis of GIT hemorrhage as a result of stress ulcer and in patients at risk of acid aspiration during general anesthesia.

**Contraindications:** Porphyria.
Precautions: Exclude possibility of malignancy before starting treatment. Reduce dose in renal and hepatic impairment. I.V. injections should be given very slowly.

Adverse effects: Altered bowel habits. Rare reports of breast swelling, bradycardia and AV block.

Drug interactions: glipizide, warfarin, procainamide.

Patient instructions:
- Take on an empty stomach or with food or milk.
- 1 hour should separate doses of ranitidine and antacids.

(G.I.T.) – [C]- Antacids

(G.I.T.) – [C]-1- Aluminum Hydroxide Combinations:
Dose: Suspension, 5-10 ml (tablets,1-2 tablets chewed)4 times /day between and bedtime.
Child 6-12 year, up to 5 ml times /day.

Indications: For use in dyspepsia and in hyperphosphataemia.

Contraindications: Hypophosphataemia, porphyria, undiagnosed gastrointestinal or rectal bleeding.

Precautions: impaired renal function and renal dialysis, constipation, dehydration, fluid restriction.

Adverse effects: Constipation, intestinal obstruction (large doses), hypercalciuria and risk of osteomalacia.

Patient instructions:
- Do not take for longer than 2 weeks.
- Taking too much can cause stomach to secrete excess stomach acid.
- Reduce acidity for about 30 minutes when taken on an empty stomach and for about 3 hours when taken 1 hour after meals.

(G.I.T.) – [C] – 2- Magnesium Trisilicate Mixtures:
Dose: 10 ml 3 times daily in water.2 gm by mouth.

Indications: Dyspepsia.

Contraindications: Porphyria (aluminum) and hypophosphataemia.

Precautions: Liquid preparations are more effective than solid.
- Impair absorption of simultaneously administered drugs. May damage enteric coating of drugs.

Adverse effects: Constipation (aluminum) or diarrhoea (magnesium).

Drug interactions: Aspirin, diflunisal, flecainide, mexilitine, quinidine, ciprofloxacian, rifampicin, pivampicillin, most tetracyclines,itraconazole, ketoconazole, chloroquine, hydroxychloroquine, phenothiazines, iron, Penicillamine, sucralfate.
Patient instructions:
- may cause diarrhoea.
- chew before swallowing with a glass of water.

(G.I.T.) – [D] - Antidiarrhoeal Drugs
  (G.I.T.) – [D] - {a} – Electrolytes of Body Fluid (Restoratives)
  (G.I.T.) – [D] - {a} – 1- **Oral Rehydration Salts:**
  **Dose:** According to fluid loss: 200-400 ml solution after every loose motion, infant 1-11 2times usual feed volume and child 200 ml after every loose motion.
  **Indications:** Fluid and electrolyte loss in diarrhea.
  **Precautions:** For those who cannot retain the solution orally, I.V.treatment should be considered. Overdose may cause hypernatremia and hyperkalemia.

(G.I.T.) – [D]- {b} -Intestinal Adsorbants
  (G.I.T.) – [D]- {b}-1- **Kaolin, pectin:**
  **Dose:** up to 24 gm (usually in combination with other anti-diarrheae drugs.
  **Indications:** In the symptomatic treatment of diarrhea.
  **Drug interactions:** absorption of other drugs may be reduced if administered concomitantly.

(G.I.T.) – [D]-{c}-Antipropulsives
  (G.I.T.) – [D]-{c}-1- **Loperamide:**
  **Dose:** Acute diarrhoea: Initial 4 mg followed by 2 mg for each stool. The usual daily dose is 6-8 mg and 16 mg should not be exceeded daily. For children 13-20 kgm, initial 3 mg / day in divided dose. Subsequent doses: 1 mg/kg/day in divided dose. (Total dose should not exceed that given on first day). Chronic diarrhoea; 4-8 mg/day in divided dose. Maximum 16 mg/day).
  **Indications:** In the management of acute and chronic diarrhoea.
  **Contraindications:** Children are more prone to its CNS depressive action, so its use is not recommended for children below 2 years.
  **Precautions:** Should be used cautiously in patients with hepatic dysfunction, dysentry, inflammatory bowel disease or pseudomembranous colitis.
  **Adverse effects:** Abdominal pain, toxic megacolon Hypersensitivity reactions and CNS depression.
  **Drug Interaction:** opioid analgesics.
Patient Instructions:
- Use caution when performing tasks that requires mental alertness.
- Drink plenty of fluids.

(G.I.T.) – [E] – **Intestinal evacuants**

(G.I.T.) – [E] – 1- **Glycerin + gelatin:**

**Dose:** Infantile & adult Suppository:

**Action:** Soften faecal impaction & stimulate rectal peristalsis by increasing faecal bulk.

**Indications:** Constipation to evacuate the distal intestinal content and avoid staining at stools.

(G.I.T.) – [E] – 2- **Lactulose:**

**Dose:** Constipation, initial 10-20gm (15-30 ml) / day in single or 2 divided dose. Then dose is reduced gradually to 7-10 gm (10-15 ml) / day. Child, less than 1 year 2.5 ml twice / day; 1-5 years 5ml twice / day; 5-10 years 10 ml twice / day. Hepatic encephalopathy, initially, 20-30 gm may be given every hour, then the dose is adjusted every 1-2 days to produce 2-3 soft stools / day.

**Indications:** constipation and hepatic encephalopathy.

**Contraindications:** Intestinal obstruction and galactosaemia.

**Precautions:** Diabetes mellitus.

**Adverse effects:** GIT disturbances (flatulence, cramps, nausea and vomiting). Prolonged use may lead to excessive water electrolyte loss.

**Drug interactions:** Neomycin, non-absorbable antacids.

Patient instructions:
- Can be mixed with fruit juice, water or milk to make it more palatable.

**N.B:** Not to take other laxatives while receiving lactulose, Increased dietary fiber & fluid intake and participate in regular exercise.

(G.I.T.) – [E] – 3- **Senna Extract:**

**Dose:** 15-30 mg of total sennosides given as a single dose at bedtime. Child over 6 years, given half the adult dose. Bowel evacuation, 1mg / kg on the day before examination.

**Indications:** Constipation and in evacuation of bowel before investigational procedures or surgery.

**Contraindications:** Nausea, vomiting, other symptoms of appendicitis.

**Precautions:** Inflammatory bowel disease. Prolonged use should be avoided.

**Adverse effects:** Colics or cramps and discoloration of urine. Prolonged use may lead to diarrhea with excessive water and electrolyte loss (specially potassium) and the possibility of melanosis coli in colon.
Drug interactions: Antacids and milk.

Patient instructions:
- Do not use longer than 1 week
- Take with a full glass of water or juice.
- Contact your doctor if rectal bleeding.
- Adequate fluid intake 4-6 glass of water daily.

Dose: 5 mg. tablets & 5,10 mg suppository.
Action: Contact irritant laxatives (stimulant).
Indications: Acute constipation, cleaning G.I.T before surgery or x-ray, after intestinal anthelmentic therapy to expel worms, prevent staining at stool e.g. piles, cardiac disorders, glaucoma, anal fissure, proctitis.

(G.I.T.) – [F] – Antihaemorrhoids
(G.I.T.) – [F] – {a} - Products Containing Corticosteroids
(G.I.T.) – [F] – {a} –1- Fluocortolone:
Dose: Ointment, Apply 2 times/day for 5-7 days (3-4 times on the first day if necessary), then once daily for few days after symptoms have cleared. Suppository, Insert one suppository/day after a bowel movement (in severe cases, start with 2-3 times/day) then 1 suppository on alternate days for 1 week.
Indications: For occasional short-term therapy of hemorrhoids after exclusion of infections.
All items same as hydrocortisone.

(G.I.T.) – [F] – {a} –2- Hydrocortisone:
Dose: Ointment, Apply night and morning and after a bowel movement (not for more than 7 days). Suppository, Insert one suppository night and day after a bowel movement (not for more than 7 days)
Indications: For occasional short-term therapy of hemorrhoids after exclusion of infections.
All items are the same as hydrocortisone cream.

(G.I.T.) – [F] –{b}- Products containing local anesthetics
(G.I.T.) – [F] –{b} -1- Lignocaine:
Dose: Ointment, apply several times/day. Suppository, insert one suppository at night and after a bowel movement.
Precautions: Should not be used for more than 2 weeks.
(G.I.T.) – [G]- Colorectal
  (G.I.T.) – [G] – {a} – Anti-flatulents

All items same as lidocaine.

(G.I.T.) – [G] – {a} -1- **Simethicone combination: or Dimethicone:**
Simethicone reduces surface tension of gas bubbles fuse them and helps in eliminating gas or air from GIT.
**Dose:** Plain dimethicone 10 mg, 30 mg chewable tablets, 100 mg / 5 ml emulsion and 40 mg / 1 ml drops.
**Indications:** Meteorism, flatulence, dyspepsia and distension. Combined with antacids, digestive enzymes, antispasmodics, gastroprokinetics, and anti-diarrheals.

(G.I.T.) – [G] – {b}-1- **Chloramphenicol + Streptomycin:**
See Anti-Infectious Disease Drugs.

(G.I.T.) – [G] – {b}-2- **Neomycin:**
**Dose:** Tablets 500 mg and suspension 125 mg /ml.
**Orally:** 1 gm / 6 hours to decrease ammonia production in hepatic encephalopathy and to sterilize GIT pre-operative on intestinal tract 2-6 gm / d. **Topical:** For external ear and conjunctiva and with chlorhexidine for staph. Nasal carriers.
**Adverse effects:** Poorly absorbed 13% malabsorption action due to atrophic action on mucosa (diarrhea). Steatorrhea, azotorrhea, vit, sugars and minerals.

(G.I.T.) – [G] – {b}-3- **Nifuroxazide:**
**Dose:** 200 mg capsules and 200 mg / 5 ml. suspension.200 mg / 6-8 hours.
**Properties:** it has wide range of bactericidal activity against gram +ve and gram –ve enteropathogenic bacteria (staph, strept, camylobacter jejuni, shigella, salmonella, E.coli and yersinia), it is not absorbed and act locally .It doesn’t disturb intestinal flora.
**Indications:** Acute and chronic bacterial diarrhea, gastroenteritis, acute and chronic colitis and intestinal antiseptic .It are safe during pregnancy, lactation, and infancy.

(Sodium phosphate (cleansing enema):
Dose: 120 ml enema.
Action: Break hard faecal impaction in rectal and pelvic colon.
Indications: Acute constipation to avoid staining at stools. Avoid rectal and anal prolapse, piles, Anal fissure.

(G.I.T.) – [H] - Hepato-Biliary

(Silymarin containing compound:
Dose: Tablets 35 and 70 mg, capsules 140 mgm sachets. (1*3)
Action: Lipotropic.
Indications: Fatty degeneration of liver from any cause e.g. hepatitis, chronic congestion.

(G.I.T.) – [H] – {b} - Cholagogues

(Cynara extract and Mg sulphate compound:
Cynara extract
Dose: 5 ml amp.
Action: Choleretic.
Indications: Hepatic dysfunction stimulates liver cells to secrete bile of normal composition in Mal-digestion.
Mg sulphate:
Indications: Chronic cholecystitis to drain gall bladder inflammatory exudate.

(G.I.T.) – [I] – Antispasmodics

(Pipenzolate 15mg + Phenobarbitone:
Dose: Pediatric drops 3-5 drops.
Action: Antispasmodic.
Uses: Intestinal colic, diarrhea, dyspepsia in children.

(G.I.T.) – [I] – 2- Atropine sulphate:
Dose: Pre-medicated, I.V injection, 300-600 micrograms immediately before induction and in incremental doses of 100 micrograms for the treatment of bradycardia. With neostigmine, 0.6-1.2 mg
**Indications:** Adjust to the treatment of gastric and duodenal ulcers to facilitate radiological examination of the gut, treatment of irritable bowel syndrome, with opiate analgesics in biliary and ureteric colics, in parkinsonism, in the treatment of some arrhythmias (sinus bradycardia and heart block), in the treatment of irreversible anti-cholinesterase poisoning, mushroom poisoning as a pre-medicate in anesthesia with neostigmine to control its side effects in reversal of competitive neuro-muscular blockers and in ophthalmology (refraction, iridocyclitis and convergent squint).

**Contraindications:** Glaucoma, prostatic enlargement, pyloric stenosis, ulcerative colitis, hepatic and renal disease, tachycardia, myocardial ischemia, myasthenia gravis, unstable cardiovascular status, in acute hemorrhage.

**Precautions:** Extremes of age, infants below 3 month, fever, thyrotoxicosis, cardiac insufficiency, hypertension, Down syndrome.

**Adverse effects:** Dry mouth, constipation, mydriasis and cycloplegia, increased intra-ocular pressure, flushing, rashes, dry skin, palpitations and arrhythmia and difficulty in micturition.

**Drug interactions:** Disopyramide, mexiletine, tricyclic antidepressants, MAOI, ketoconazole, antihistamines, phenothiazines, cisapride, domperidone, metoclopramide, amantadine and sublingual nitrates.

**Patient’s instructions:**
- Adequate oral fiber intake
- Not to drive, dilated pupils (mydriasis).

(G.I.T.) – [I] – 3- **Hyosine Butylbromide:**

**Dose:** 10,20 mg tablets, 5 mg /5ml syrup, 20mg amp. And 7.5, 10&15mg suppository.

**Action:** Synthetic anti-spasmodic, anti-cholinergic & anti-secretory actions on GIT and anti-parkinsonism, anti-emetic & amnestic actions on C.N.S.

**Indications:** Intestinal colic, nausea & vomiting, pre-anesthetic medication.

**Contraindications:** Prostatic hypertrophy, glaucoma.

**Adverse effects:** Urinary retention, blurred vision, xerostoma, and sedation.

(G.I.T.) – [I] – 4- **Mebeverine:**

**Dose:** 100 & 135 mg tablets and 10 mg /ml suspension.

**Action:** Antispasmodic.

**Indications:** Intestinal, ureteric & biliary colic.
2- (C.V.S.)- Cardiovascular System Drugs

(C.V.S.) – [A] -Cardiac Stimulants:

(C.V.S.) – [A] – {a} -Cardiac Glycosides:

(D.C.V.S.) – [A] – {a} -1- **Digoxin:**

**Dose:** Rapid digitalization 1-1.5 mg in divided doses/24 hours. Moderate digitalization 250-500 mcgm / day (higher dose divided). Maintenance 62.5-500 mcgm / day (higher dose divided) usual range 125-250 mg /day according to renal function and heart response in atrial fibrillation.

**Indications:** Heart failure and supraventricular arrhythmias.

**Contraindications:** Ventricular fibrillation, hypertrophic obstructive cardiomyopathy, Wolf-Parkinson-white syndrome, partial heart block.

**Precautions:** Cases of acute myocarditis, severe pulmonary disease, myocardial infarction, Cases that previously received cardiac glycosides or undergoing cardioversion. Reduce dose in elderly and in renal impairment.

**Adverse effects:** Nausea, vomiting, anorexia, diarrhea, abdominal pain, mental and visual disturbance and gynaecomastia. Any type of arrhythmia. Chronic toxicity may lead to hypokalemia.

**Drug Interactions:** NSAIDs, anion - exchange resin, quinidine, amiodarone, propafenone, erythromycin, rifampicin, anti-epileptics, beta-blockers, calcium salts, verapamil, diuretics, aminoglutethimide, suxamethonium and carbenoxolone.

**Patient Instructions:**

- Take digoxin at same time each day.
- Avoid OTC medications without consulting e.g. antacids, antidiarrheals.

(C.V.S.) – [A] – {a} -2- **Ouabain: (strophanthin-g):**

Cardiac glycoside derived from strophantus gratus seeds. It is poorly absorbed orally, no protein bound, most potent for rapid actions parenterally. Its actions are primarily inotropic with little slowing effect, renal excretion. It has very rapid onset of action (5 min), peak (45 min) and short duration (24 hours).

**Dose:** Ampoule 0.25 mg/ml.

**Use:** When cardiac glycoside with rapid elimination is needed e.g. atrial flutter to convert it to fibrillation & after elimination normal rate is restored or atrial fibrillation persists that needs a longer cardiac glycoside e.g. digoxin.
Other Stimulants

1. **Dopamine**:
   - **Dose**: I.V infusion, initially 2-5 mg /kg /min gradually increases to 5-10 mg /kg /min.
   - **Indications**: Correction of hemodynamic disturbances associated with cardiogenic shock in myocardial infarction, endotoxic septicemia, renal failure or cardiac surgery.
   - **Contraindications**: Should never be given simultaneously with epinephrine.
   - **Precautions**: Ischaemic heart disease, hyperthyroidism and diabetes mellitus
   - **Adverse effects**: Tachycardia, arrhythmia, hypotension and headache.
   - **Drug interactions**: Halogenated anesthetics, doxapram, epinephrine, beta-blockers, and theophylline.

2. **Dobutamine**:
   - **Action**: Inotropic action by stimulation of B1 sympathetic cardiac receptors, peripheral vasodilator action and increase COP.
   - **Dose**: I.V. infusion 10 microgram / kg min. (vial 250 mg). Half-life 2 min. 3-day infusion lasts effect for 4 weeks.
   - **Indications**: Heart failure & acute pulmonary edema in myocardial infarction, shock, cardiac surgery when arrhythmia is a problem (less arrhythmogenic than dopamine) when the blood pressure is below 100 mmhg.
   - **Adverse effects**: Nausea, headache, palpitation & anginal pains.

3. **Isoprenaline**:
   - **Dose**: Amp. 0.2 & 1 mg. Linguits 10-15 mg & Atomizer 1-3 %.
   - **Actions**: Strong B-sympathetic receptor stimulant, rapidly metabolized by liver. Onset 5 min. Duration one hour.
   - **Indications**:
     - Carotid sinus stimulation & heart block 1: 5000 solutions Injection or linguits 30 mg / 4-6 hours.
     - Bronchial asthma (acute attack), chronic emphysema & Bronchospasm during anesthesia (atomizer is more effective).
   - **Adverse effects**: Palpitation, ventricular arrhythmia, tremors, nausea, excitement, slight increase in systolic pressure & decrease diastolic B.P.

**Antiarrhythmic**:

1. **Amiodarone**
**Dose:** I.V infusion 5mg /kg in 250ml glucose as a 5 % injection infused over 20 minutes to 2 hours and repeated 2 or 3 times / day up to a maximum of 1.2 gm in up to 500ml of glucose injection / day (Monitor ECG).

**Indications:** Class III anti-arrhythmic drug used in the management of ventricular and supraventricular arrhythmias where other drugs can not be used including Wolf - Parkinson - White syndrome.

**Contraindications:** Bradycardia, heart block, severe hypotension or severe respiratory depression, porphyria and breast-feeding.

**Precautions:** Used with caution in-patient with heart failure, iodine sensitivity or history of thyroid dysfunction. Electrolyte disturbances should be corrected before starting treatment. Patients advised to use wide spectrum sunscreens. If prolonged or repeated infusions, a central venous catheter should be considered.

**Adverse effects:** Thyroid dysfunction, reversible corneal deposits, photosensitivity, GIT disturbances, diffuse pulmonary alveolitis, hepatitis and blood disorders.

**Drug interactions:** Anti-arrhythmic, digoxin, anticoagulants, beta-blockers, diltiazem, verapamil, diuretics, phenytoin, cimetidine.

**Patient instructions:**
- Regular ophthalmic examinations are recommended.
- Eat small frequent meals or dividing daily dose & taking 2 or 3 doses with meals.
- Heart rate < 60 blood pressures should be reported.
- Avoid exposure to sunlight.

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**(C.V.S.) – [B] – 2 - Quinidine Sulphate:**

**Action:** It blocks fast sodium influx during depolarization (sodium channel blocker). It is classified as class I (A) antifibrillatory drug (moderate phase - o depression, slows conduction & prolongs repolarization by increasing the effective refractory period.

**Dose:** Loading dose 12mg/kg PO & maintainance dose 6 mg /kg every 4-6 hours. Target serum level 2-7 ng/ml.

**ECG changes:** Short ST- interval, reduce amplitude of delayed after depolarization and PR & QRS- intervals are unchanged.

**Indications:** Atrial & ventricular premature contractions, paroxysmal supraventricular tachycardia, ventricular tachycardia & prophylaxis of atrial fibrillation.

**Adverse effects:** GIT(nausea & vomiting), thrombocytopenia, rash, hypotension, idiosyncrasy, respiratory diseases, heart block and tachyarrhythmia (secondary to therapy).
(C.V.S.) – [B] – 3 – **Lidocaine**:
See in Local Anesthesia.

(C.V.S.) – [B] – 4 – **Verapamil**:
**Dose**: Oral, supraventricular tachycardia, 40-120mg three times/day. Angina, 80-120mg three times/day. Hypertension, 240-480mg/day in 2-3 divided doses by slow IV injection (over 2 minutes) 5-10 mg (preferably with ECG monitoring), further 5mg may be required after 5-10 minutes in paroxysmal tachycardia.

**Indications**: Angina pectoris (classic and vasospastic), hypertension, supraventricular tachyarrhythmias (class iv antiarrhythmic).

**Contraindications**: patients with second and third degrees heart block, Wolf-Parkinson -White syndrome, hypotension, cardiogenic shock, marked bradycardia, uncompensated heart failure, patients treated with beta blockers, in sick sinus syndrome and porphyria.

**Precaution**: pregnancy and breast-feeding, arrhythmia in children, first-degree heart block, and acute myocardial infarction. Reduce dose in hepatic impairment.

**Adverse effects**: constipation may precipitate heart failure, hypotension and heart block.

**Drug interactions**: Beta-blockers, digoxin, general anesthetics, amiodarone, quinidine, rifampicin, carbamazepine, antihypertensives, antipsychotics, cyclosporin, lithium, tubocurarine, theophylline and cimitidine.

**Patient instructions**:
- Administer with milk or meals.
- Give I.V slowly over two minutes.
- Not double dose.
- Not suddenly stop taking medication.
- Report any irregular heartbeats, swelling of hand and feet.
- Avoid use of alcohol and limit caffeine.
- Stress the importance of compliance in all areas of treatment regimen, diet, exercise, stress, Reduction drug therapy.

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(C.V.S.) – [C] - **Antihypertensives**

(C.V.S.) – [C] – {a} - **Sympatholytics and Vasodilators**

(C.V.S.) – [C] – {a} – 1- **Alpha Methyldopa**

**Dose**: Initial 250 mg 2-3 times / day for 2 day, then adjusted by small increments every 2 days. Usual maintenance dose 0.5-2 gm / day. Child, initial 10 mg / kg / day in 2-4 divided doses increases as necessary to a maximum of 65 mg / kg / day.
Indications: Moderate to severe hypertension used in conjunction with diuretics, and in hypertensive crisis.

Contraindications: Active liver disease, mental depression and porphyria.

Precautions: Impaired liver or kidney functions, history of hemolytic anemia or Parkinsonism. Not recommended for phaeochromocytoma. Periodic blood counts and liver function tests are advised every 6-12 weeks of treatment.

Adverse effects: Drowsiness, dizziness, weakness, fatigue, and loss of libido, impotence, mental changes, fluid retention and edema. CNS disorders (bradycardia, postural hypotension, syncope, aggravate angina, GIT disorders (nausea, vomiting, diarrhea, and dry mouth). If thrombocytopenia or leucopenia occurs discontinue treatment.

Drug Interactions: Alcohol, anesthetics, NSAIDs, anxiolytics, hypnotics, calcium channel blockers, beta-blockers, anti-psychotics, dopaminergics, contraceptive pills, corticosteroids, lithium, nitrates, diuretics and carbenoxolone.

Patient instructions:
- Not to take OTC medications.
- Avoid exposure to sunlight.
- Use care while driving.
- Avoid alcoholic beverage.
- Avoid sudden position changes to avoid arthostatic hypotension.
- Report if fever, muscle aches, jaundice and flu, like symptoms.
- Urine may darken when exposed to air.
- Hot baths or showers may aggravate dizziness.
- Cessation of smoking and weight reduction.

(C.V.S.) – [C] – {a} –2- Clonidine: Action: Stimulate the nucleus tractus solitarius in medulla oblongata that inhibits the V.M.C. & sympathetic outflow to heart, renal & peripherally i.e it has centeval alpha 2-agonist action & suppress RAA-axis.

Dose: 0.1-0.3 mg twice /day or once a day plus saluretic, catapress -TTS 3, 5, 7 & 10.5 cm2 /week provides 0.1, 0.2 & 0.3 mg / day respectively.

Indications: In mild to moderate hypertension in geriatrics, adolescents, renal impairment, diabetes, myocardial ischemia & CHF. It dose not change COP, renal & cerebral blood flow, metabolism or sympathetic control of posture, exercise & sexual function.

Adverse effects: Sedation, dizziness, dry mouth & post - treatment syndrome (sweating, anxiety, palpitation, arrhythmia and increase blood pressure).
Reserpine + Dihydroergocristine + Clopamid:

**Dose:** Initial up to 50 mg / day for 2 weeks, then tapered to the lowest possible dose necessary to maintain the response. A maintenance dose of 250 mg /day is usually adequate. The full effect is only reached after several or continual use and persists for up to 6 weeks after its discontinuation. To minimize side effects and tolerance, smaller doses of reserpine could be given in conjunction with thiazide diuretics.

**Indications:** Mild to moderate hypertension unresponsive to other agents.

**Contraindications:** Active peptic ulcer, ulcerative colitis, Parkinsonism and history of mental disease

**Precautions:** Debilitated and elderly patients, cardiac arrhythmia, myocardial infarction, renal insufficiency, gallstones or bronchial asthma. If used in patients requiring electro convulsive therapy, an interval of at least 7-14 days should be allowed to elapse between the last doses and the commencement of therapy.

**Adverse effects:** Nasal congestion, CNS disorders (headache, depression, drowsiness, nightmares), GIT disorders (diarrhea, cramps, and increased gastric acidity), CVS disorders (bradycardia and postural hypotension), breast enlargement, gynaecomastia, decreased libido and impotence.

**Drug Interactions:** Alcohol, anesthetics, NSAIDs, calcium channel blockers, beta blockers, anti-hypertensives, anti-depressants, domperidone, metoclopramide, nitrates, levodopa, antipsycotics, anxiolytics, hypnotics, contraceptives, corticosteroids, diuretics and carbenoxolone.

**Patient instructions:**
- Tell your doctor about any allergic reactions especially to reserpine or rowlfia alkaloids.
- Tell your doctor if you have arrhythmia, epilepsy, gallstones, kidney disease and peptic ulcers.
- Tell your doctor if you are pregnant or breast-feeding.

Sodium Nitroprusside:

It is an inorganic nitrate, most rapidly acting powerful direct vasodilator due to accumulation of cyclic GMP and relaxation of arterioles & venules.

**Dose:** 3-5 microgram / kg / min. (vial 50 mg) diluted in 5 % glucose. 1/2 life 3-4 min, action within seconds and effect cease after discontinuation. Target serum level 10mg %.

**Contraindications:** Cerebral ischemia (cerebro-vascular insufficiency), coarctation of aorta, compensatory hypertension e.g. shunts, dissecting aneurysm, liver & renal dysfunction, severe myocardial ischemia.
**Adverse effects:** Nausea, colic, sweating, retching, headache, restlessness, dizziness, fatigue, chills, palpitation, premature beats, cramps, confusion, nasal stuffiness.  
**Large doses:** Cyanide-like poisoning & goitrogenic.

(C.V.S.) – [C] – {a} – 5- **Prazocine:**  
**Action:** Blocks peripheral post-synaptic alpha sympathetic receptors with lowering of blood pressure  
(Most diastolic), decreases in plasma rennin activity & renal blood flow. It decreases after load & Preload with relieve of pulmonary congestion.  
**Dose:** Initial 1mg /12 hrs and increase gradually to 5-10 mg/day (cap. 1,2,5 mg)  
**Indications:** Mild to moderate hypertension, refractory CHF, Raynaud vasospasm.  
**Adverse effects:** Syncope (first- dose phenomena), dizziness, headache, weakness, palpitation, nausea, red sclera, impotence and aggravates myocardial ischemia.

(C.V.S.) – [C] – {b} - **Angiotensin converting enzyme inhibitors (ACE-Inhibitors)**  
(C.V.S.) – [C] – {b} – 1- **Captopril:**  
**Dose:** Hypertension, initial 12.5 mg twice daily increases at intervals of 2-4 weeks according to response (6.5 mg twice daily in elderly and in renal impairment). Usual maintenance daily dose 25-50 mg twice daily and should not exceed 50 mg thrice daily. In congestive heart failure, initial 6.25-12 mg (given under close medical supervision), maintenance daily dose 25 mg 2-3 times daily  
(Should not exceed 50 mg thrice daily).  
**Indications:** Used alone or in combination in the treatment of mild to moderate hypertension, in severe hypertension resistance to other medications, and in the treatment of severe congestive heart failure (adjunct), following myocardial infarction.  
**Contraindications:** pregnancy, breast-feeding, prorphyria, and aortic stenosis or outflow tract obstruction.  
**Precautions:** Renal functions should be assessed prior to administration. Monitor proteinuria and WBC counts. Initial doses should be given at bedtime. Used cautiously in patients with impaired renal functions, Renovascular hypertension or collagen vascular disease.  
**Adverse effects:** Skin rash with pruritis, fever or eosinophilia, dry cough, taste disturbances, hyperkalemia, deterioration of renal functions in patients with pre-existing renal disease and hematological disorders.
Drug Interactions: Alcohol, anesthesia, NSAIDs, anxiolytics, hypnotics, calcium channel blockers, beta-blockers, anti-psychotics, dopaminergics, contraceptive pills, corticosteroids, lithium, nitrates, potassium salts, diuretics, probenicid, cyclosporin and carbenoxolone.

Patient Instructions:
- Monitor & record blood pressure daily.
- Weight self-daily at consistent time.
- If over weight, supervised weight management program.
- Low sodium diet.
- Expect increased urine output.
- Not to discontinue taking drug & not take OTC medication without consulting physician.

(C.V.S.) – [C] – {c} - Selective Angiotensin II inhibitor
(C.V.S.) – [C] – {c} – 1- Losartan, Valsartan:
Dose: Losartan: Tablets 50 mg / day.
Valisartan: Tablets 80-160 mg / day.
Action: They are angiotensin II blockers (AT1 receptor blocker) block vascular, renal and suprarenal receptors.
Indications: Severe malignant, high - renin hypertension.
Adverse effects: Sweating, headache, dizziness, fatigue, premature beats & risk of hypotension in hyponatremia, hypovolemia, renal impairment & biliary cirrhosis.
(No cough or angio-edema like ACE is).
Contraindications: Pregnancy & lactation.

(C.V.S.) – [C] – {d} - Calcium Antagonists
(C.V.S.) – [C] – {d} – 1- Nifedipine
Dose: Angina, initially 10mg 3 times /day, increase to 20 mg 3 times / day if necessary. In elderly initially 5mg 3 times /day (for immediate effect bite capsule and retain liquid in mouth). Raynaud disease 10mg 3 times /day (maximum 20 mg 3 times /day). Hypertension and angina prophylaxis 20mg twice daily after food, increased to 40mg twice daily if necessary.
Indications: Angina pectoris (classic and vasospastic), hypertension and Raynaud disease.
Contra-indications: Cardiogenic shock, pregnancy, porphyria, who experience ischemic pain on its administration.
Precautions: Hypotension, patients with poor cardiac reserve and breast-feeding. Reduce dose in hepatic impairment. Adjustment of anti-diabetic dose may be required.
Adverse effects: Vasodilatation (flushing, headache, hypotension, dizziness, peripheral oedema), paradoxical increase in ischaemic pain, GIT disturbance, gum hyperplasia and depression.

Drug Interactions: Anti-diabetic, carbamazepine, phenytoin, phenobarbitone, primidone, anti-hypertensives, anti-psychotics, beta-blockers and cimetidine.

Patient instructions:
- Visit dentist on routine basis because gum swelling may occur.
- There may be increase chest pain at short medication & with dose changes but this effect is Transient.
- Use caution while performing tasks requiring mental alertness.
- Sustained release capsules must be swallowed whole not chewed, divided or crushed.

(C.V.S.) – [C] – {d} – 2- Diltiazem:

Dose: Angina, initially 60 mg three time daily, thereafter, dosage may increase up to 360 mg/day. Hypertension, initially 60-120 mg twice daily increased at 14-day intervals as required to a maximum of 350 mg/day.

Indications: Management of classic and vasospastic angina and hypertension.

Contraindications: Sick sinus syndrome, second and third degree heart block and marked bradycardia, pregnancy, porphyria, acute myocardial infarction and pulmonary congestion.

Precautions: Reduce dose in elderly, hepatic and renal impairment. Use cautiously in patients with first-degree heart block, bradycardia, and impaired left ventricular function.

Adverse effects: Headache, peripheral oedema, and dizziness and GIT disturbances.

Drug interactions: Beta - blocker, amiodarone, carbamazepine, anti-hypertensives, antipsychotics, cyclosporin, lithium, theophylline and cimetidine.

Patient Instructions:
- Take pulse so regularly while taking medication.
- Swallow whole sustained release capsule.
- Notify if irregular heart beat, shortness of breath.
Essential Drug List 2006

(C.V.S.) – [C] – {e} - Beta - Adrenoreceptor Blocker

(C.V.S.) – [C] – {e} – 1- **Atenolol:**

**Dose:** In hypertension 50-100mg /day as a single dose. Full effect is evident after 1-2 weeks. Angina, 100 mg /day in single or divided dose.

**Indications:** In hypertension, angina pectoris and cardiac arrhythmia (injection).

All items similar as propranolol.

(C.V.S.) – [C] – {e} – 2- **Propranolol:**

**Dose:** Gradually build up the dose. In hypertension initially 40-80 mg twice daily increased to 60-320 mg /day. Angina initial 40 mg 2-3 times daily increased at weekly intervals to 120-240 mg /day. Myocardial infarction administer within 5-21 days of infarction 40 mg 4 times / day for 2-3 days then 80 mg twice daily. Arrhythmia 30-160 mg / day. Thyrotoxicosis and hypertrophic subaortic stenosis, 10-40 mg 3-4 times daily. Pheochromocytoma, 60 mg / day on 3 preoperative days (with alpha blocker) Migraine prophylaxis and essential tremor, initial 40 mg 2-3 times daily increased weekly up to 160 mg / day. Anxiety states 40 mg / day. Child hypertension 1 mg /kg /day in divided doses increase to 2-4 mg /kg / day in divided doses Arrhythmia, thyrotoxicosis and pheochromocytoma 250-500 mg / kg 3-4 times / day.

**Indications:** Treatment of hypertension and improvement of exercise tolerance in angina. Arrhythmia thyrotoxicosis and pheochromocytoma (in conjunction with alpha-blocker), myocardial infarction, portal hypertension, hypertrophic subaortic stenosis, migraine prophylaxis and essential tremors.

**Contraindications:** Obstructive airway disease, heart failure, second and third degree heart block, cardiogenic shock, metabolic acidosis and sinus bradycardia.

**Precautions:** Abrupt withdrawal may precipitate angina. Decrease dose in renal impairment (Atenolol) and in hepatic impairment (propranolol). Used cautiously in late pregnancy, breast-feeding diabetes mellitus, and myasthenia gravis and in pheochromocytoma (add alpha-blocker).

**Adverse effects:** CVS effects (bradycardia, hypotension, heart block and heart failure), bronchospasm (More with propranolol), fatigue, cold extremities, CNS effects (nausea, vomiting and diarrhea).

**Drug interactions:** Alcohol, anesthetics, amiodarone, lidocaine, rifampicin, fluoxetine, anti-diabetic, hypnotics, calcium channel blockers, cardiac glycosides, cholinergics, anti-psychotics, ergotamine, sympathomimetics, theophylline, thyroxine, cimetidine, diuretics and carbenoxolone.
Patient instructions:

- sudden discontinuation can cause chest pain or heart attack.
- Not to take drug if pulse is < as usual rate.
- Not to take OTC medications.

(C.V.S.) – [D] – Anti-anginal
(C.V.S.) – [D] – {a} – Short Acting Nitrates
(C.V.S.) – [D] – {a} – 1- Isosorbide dinitrate:
Dose: Initially, 20 mg 2-3 times /day or 40 mg twice / day up to 120 mg / day in divided doses
(10 mg twice / day in those who have not received nitrates before).
Indications: Prophylaxis and treatment of angina and in left ventricular failure.
Contraindications: Severe hypotension, hypovolaemia, marked anemia, constrictive pericarditis or raised intracranial pressure.
Precautions: Used cautiously in patients with closed angle glaucoma, early myocardial infarction, severe renal or hepatic impairment, hypothyroidism, malnutrition or hypothermia. Tolerance to the effect of nitrates may develop.
Adverse effects: Flushing of face, throbbing headache, and tachycardia. Larger doses may lead to vomiting, hypotension and syncope, methemoglobinemia.
Drug Interactions: Alcohol, anesthetics, calcium channel blocker, anti-hypertensives, disopyramide, anti-depressants, anti-muscarinics, anti-psychotics, dopaminergics, contraceptive pills, corticosteroids, diuretics and carbenoxolone.

Patient instructions:

- Report these symptoms; dizziness, retching, nausea, abdominal pain, chest pain, tinnitus.
- Caution to avoid sudden position changes to prevent orthostatic hypotension.

(C.V.S.) – [D] – {a} – 2- Glyceryl Trinitrate:
Dose: Sublingually, 0.3 -1 mg repeated as required.
Orally 2.6-6.4 mg as sustained release tablets 2-3 times / day. I.V infusion, 10-20 mg / minute.
(C.V.S.) – [D] – {b} – Long Acting Nitrates

(C.V.S.) – [D] – {b} – 1- **Glyceryl Trinitrate:**
All items are similar as isosorbide trinitrate.

(C.V.S.) – [D] – {b} – 2- **Isosorbide dinitrate:**
All items are similar as isosorbide trinitrate.

(C.V.S.) – [E] – Antihyperlipaedemics

(C.V.S.) – [E] – 1- **Bezafibrate:**

**Dose:** 200 mg 3 times / day taken with or after food. 200 mg twice daily may be adequate for maintenance.

**Indications:** In conjunction with dietary modifications in the treatment of type IIa, IIb, III, IV and V hyperlipoproteinaemia.

**Contraindications:** Severe liver or kidney dysfunction, primary biliary cirrhosis, gall bladder disorders, pregnancy, hypoalbuinaemia and nephritic syndrome.

**Precautions:** In patients taking anti-coagulant therapy, the dose of anti-coagulant should be reduced to 50% initially and then adjusted as necessary.

**Adverse effects:** GIT disturbances (nausea, vomiting, diarrhoea and dyspepsia), weight gain, headache and myositis-like syndrome.

**Drug interaction:** Anti-coagulants and anti-diabetics.

**Patient instructions:**
- Avoid alcohol and prolonged exposure to sunlight.
- Strict Birth control procedures.
- Notify your doctor if chest pain, shortness of breath, swelling of feet and weight gain.

(C.V.S.) – [E] – 2- **Gemfibrozil:**

**Dose:** Capsule 300 mg TDS and tablets 600 mg twice/day.

**Action:** Fibrate derivative, stimulants lipoprotein lipase enhance VLDL catabolism & decreases cholesterol synthesis at mevalonic acid stage, decreases triglycerides by 30-60 %, increases HDL-C by 10-15 % by upregulate ApoAI genes and decreases liver lipogenesis.

**Indications:** Dyslipidemia mainly hypertriglyceridemia, hypercholesterolemia & atherosclerosis.

**Adverse effects:** Rash, gastro-intestinal upset, headache, gallstones and myopathy.
(C.V.S.) – [E] – 3- **Atrovastatin:**

**Dose:** Tablets 10, 20 mg 1-2 times / day. Response is after 2-4 week.

**Action:** Statin derivative, it is hydroxy-methyl-glutaric acid reductase inhibitor. Decrease cholesterol synthesis & lipoprotein levels by increase the hepatic LDL receptors enhancing uptake & catabolism of LDL (40%) i.e. upregulates LDL receptor proteins. Also, it has triglyceride - lowering effect.

**Indications:** Dyslipidemia, hypercholesterolemia (mainly LDL-C).

**Adverse effects:** Headache, insomnia, myositis (aches, fatigue & cramps), increase serum enzymes (CPK, transaminases & alkaline phosphatase), rhabdomyolysis, increase myopathy with niacin, cyclosporin, erythromycin.
C.V.S.) – [F] – Antiaggregants

(C.V.S.) – [F] – 1. Acetyl Salicylic Acid:
Dose: 300-900 mg every 4-6 hours, when necessary, maximum 4 mg daily.
Indications: Used for mild to moderate pain, fever, inflammation and the prevention of myocardial infarction and stroke.
Contra indications: GIT ulcer, gout, bleeding tendencies and allergy. Children under 12 years and with breast-feeding, pregnancy, asthma and nasal polyps.
Precautions: Asthma, allergic diseases, impaired liver and kidney functions. Prolonged medication with salicylates requires medical supervision.
Adverse effects: GIT disturbances, increased bleeding time, Raye syndrome, and precipitation of allergic attacks. Chronic over dosage leads to salicilism.
Drug interactions: Antacids, anticoagulants, anti-epileptic, cytotoxic, diuretics, uricosuric, metoclopramide, domperidone and alcohol.

Patient instructions:
- Take with food or after meals.
- Do not crush or chew.
- Take with a full glass of water.
- Do not use if it has strong vinegar like odour.
- Do not place or dissolve on an oral lesion.

(C.V.S.) – [G] – Thrombolytics

Once the blood pressure is controlled in patients suffering from myocardial infarction or other thrombic complications, patient should receive thrombolytics within first 2-5 hours.

(C.V.S.) – [G] – Streptokinase:
Action: It is a polypeptide that binds to plasminogen to form active plasminogen-streptokinase complex that cleaves other molecules of plasminogen to form active plasmin. It acts an fibrin clot leading to its dissolution. It is antigenic & minimal fibrin specificity.
Dose: 1.5 million U. by 1 hour I.V. infusion.
Problems:
- Inability to open 100% of the artery occlusions.
- The complications of bleeding & hemorrhagic stroke especially in old patients more than 75 years.
- In consistency to maintain good blood flow in the infarct-related artery after it is successfully opened.

Major contraindications:
• Recent head trauma or intracranial tumor.
• Aortic dissecting aneurysm.
• Previous hemorrhagic stroke.
• Non-hemorrhagic stroke or cerebrovascular events within one year.
• Active internal bleeding (excluding menses)
• Major surgery within 2 weeks.

Relative contraindications:
• Uncontrolled hypertension > 180 / 110 mmHg & safe level is < 180 / 110 mmHg.
• Remote thrombotic stroke & recent transient ischemic attack.
• Cardiopulmonary resuscitation for more than 10 min.
• Recent trauma or major surgery less than 2-4 weeks.
• Active peptic ulcer.
• Pregnancy.
• Diabetic retinopathy.

(C.V.S.) – [H] - Anticoagulants
(C.V.S.) – [H] - 1- Heparin salts:
Dose: 5000 U. I.V. followed by I.V. infusion of 1000 –2000 U/hour or 5000-10,000 U I.V. every 4 hours By S.C prophylaxis of DVT 5000 u/2 hours before surgery, then every 8 – 12 hours until patient is ambulant, in pregnancy 10,000 U/12 hours. Treatment of DVT 10,000-20,000 U/12 hours. Ampoules 12500 I.U., 20000 U, 5000 U, 12000 U, 5000 I.U. (1 mg = 130 U)
Indications: Initiation of anti-coagulant therapy in deep venous Thrombosis (D V T), disseminated intravascular coagulopathy and prophylaxis of postoperative thrombosis.
Contraindications: Hypersensitivity to heparin, severe liver or kidney damage, peptic ulcer infective endocarditis, hemorrhagic, blood disorders, severe trauma, administration by I.M route and cerebral aneurysm and severe hypertension.
Precautions: When treatment is prolonged monitor activated partial thromoplastin time and platelet count.
Adverse effects: Haemorrhage, thrombocytopenia, hypersensitivity reactions and osteoporosis after prolonged use.
Drug interactions: NSAIDs, dipyridamole, sulphinpyrazone, spinal and epidural anesthetics.
Patient instructions: See warfarin.

(C.V.S.) – [H] -2- Phenindione:
Dose: 200 mg on first day, 100 mg on second and maintenance dose of 50-150 / day according to coagulation tests.

Indications: Prophylaxis of embolisation in rheumatic heart disease and atrial fibrillation, prophylaxis after prosthetic heart valve; prophylaxis and treatment of deep venous thrombosis and pulmonary embolism and transient ischaemic attacks.

Contraindications: Pregnancy and breast-feeding, active peptic ulcer, in active endocarditis, haemorrhagic blood disorders, severe wounds including surgical, cerebrovascular disorders and severe hypertension.

Precautions: monitor treatment with prothrombin time.

Adverse effects: Hemosensitivity reactions, skin rash, pyrexia diarrhoea, or orange coloration of urine.

Drug interactions: Anabolic steroids, NSAIDS, anion-exchange resin, dipyridamole, oral contraceptives, vitamin k and thyroxin.

Patient instructions: 1-Consult your physician or pharmacist when considering use of other medications in particularly aspirin containing products or herbal products.

(C.V.S.) – [H] – 3 - Warfarin:
Dose: 10 mg/day for 2 days, then maintain by 3 mg / day. Gradually withdraw treatment.

Indications: Prophylaxis of embolisation in heart disease and atrial fibrillation, prophylaxis after prosthetic heart valve, prophylaxis and treatment of venous thrombosis and pulmonary embolism and ischaemic attack.

Contraindications: Pregnancy and bleeding, active peptic ulcer, infective endocarditis, haemorrhagic blood disorders, severe wounds (including surgical), cerebro-vascular disorders and severe hypertension.

Precautions: monitor treatment with time.

Adverse effects: Haemorrhage, alopecia, fever, diarrhoea, vomiting and skin reactions.

Drug interactions: Alcohol, NSAIDS, anabolic steroid, co-trimoxazole, erythromycin, cephamandole, rifampicin, sulphonylureas, anti-epileptics, anti-fungals, allopurinol, sulphinpyrazone, dipyridamole, chloral, vitamin k.

Patient instructions: See phenindone.

(C.V.S.) – [H] - 4- Enoxaparin sodium (L MW Heparin)=Clexane:
Dose: 20 and 40 mg ampoule.,0.5-5 mg /kg controlled by 3 – fold coagulation time.
I.V.: immediate onset, peak 10 minute and duration 2 hours. (5-10.000 u / 6 hours).
S.C.: onset 1.5 hour, peak 3 hours and duration 18 hour.
Infusion: 5,000-10,000 u bolus followed by 1000-2000 u / hour.

**Indications:** Heparin binds to AT III, changes its conformation and accelerates its inactivation of factors, IX, XII, XI, X, II and plasmin (AT = antithrombin) prolongation of coagulation time but bleeding time is little affected. Uses as prophylaxis and treatment of pulmonary embolism and Thrombophlebitis, acute coronary thrombosis, arterial occlusion, vascular disease (thromboangitis obliterans,) exchange transfusion, hemodialysis and prolonged immobilization (surgical or medical).

**Adverse effects:** sensitization, alopecia, osteoporosis, thrombocytopenia, and diarrhea.

**Toxicity:** Hemorrhage from mucous membranes, skin and internal organs.

**Contraindications:** Hemorrhagic tendencies and blood dyscrasias, GIT ulceration, bacterial endocarditis, CNS surgery, hepatic and renal disorders and heparin sensitivity and shock.

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**(C.V.S.) – [I] – Diuretics**

**(C.V.S.) – [I] – {a} - Potassium-Sparing Diuretics**

**(C.V.S.) – [I] – {a} – 1- Spironolactone:**

**Dose:** 100-200 mg / day increased to 400 mg if required. Child 3 mg / kg / day in divided doses.

**Indications:** oedema associated with liver cirrhosis and heart failure, nephrotic syndrome and in primary hyperaldosteronism.

**Contraindications:** Hyperkalaemia, pregnancy, breast-feeding, porphyria, Addison disease and renal failure.

**Precautions:** Diabetes mellitus and patients predisposed to acidosis. Serum electrolytes and kidney functions should be assessed regularly.

**Adverse effects:** sensitization, alopecia, osteoporosis; GIT disturbances, headache, muscle cramps and hormonal disturbances (Gynaecomastia, hirsutism, menstrual irregularities and impotence).

**Drug Interactions:** NSAIDS, antidiabetics, ACE Inhibitors, Prazosin, terazosin, cardiac glycosides, corticosteroids, cyclosporin, trilostane, potassium salts, oral contraceptives and carbenoxolone.

- Avoid large quantities of potassium rich food or potassium salt substitutes.
- Be careful while performing other tasks requiring mental alertness.
Thiazide

**Dose:** oedema, initially, 50-100 mg / day maintenance, 25-50 mg on alternate days, Hypertension, 25 mg/day (increases to 50-100 mg / day if necessary).

**Indications:** Oedema associated with congestive heart failure, renal or hepatic disorders, and in hypertension.

**Contraindications:** Severe hepatic or renal dysfunction. Addison disease, and pre-existing hypercalcaemia.

**Precautions:** Hepatic or renal dysfunction, elderly. Monitor blood glucose.

**Adverse effects:** sensitization, alopecia, osteoporosis, Fluid and electrolyte disturbances (hyponatraemia, hypokalaemia, hypochloraemic alkalosis, hypomagnesaemia and hyperuricaemia) which manifest by dry mouth, thirst, weakness, muscle pain, cramps and GIT upsets. Hypersensitivity reactions and blood disorders.

**Drug Interactions:** NSAIDS, cholestyramine, Amiodarone, disopyramide, flecainide, quinidine, lignocaine, mexilitine, tocainide, antidiabetics, ACE inhibitors, prazosin, terazosin, indapamide, beta-blockers, calcium salts, cardiac glycosides, corticosteroids, other diuretics, lithium, oral contraceptives and carbenoxolone.

**Patient Instructions:** 1- Drink 2-3 L / day of water. 2- frequent assessment of blood pressure while taking drug. 3- Avoid aspirin. 4- may increase blood glucose levels.

Osmotic Diuretics

**Mannitol**

**Dose:** the usual adult dose is 50-100 gm by I.V. infusion of 5-25% solution, adjusted to maintain a urine flow of 30-50 ml / hour. In raised intra-cranial and intra-ocular pressures, a 15-25% solution is administered in a dose of 1-2 gm / kg over 30-60 minutes.

**Indications:** To increase urine flow in acute renal failure, to reduce raised intra-cranial and intra-ocular pressure and to promote the excretion of toxic substances by forced diuresis.

**Contraindications:** Pulmonary oedema, intra-cranial hemorrhage (except during craniotomy), congestive heart failure, metabolic oedema with capillary fragility, in patients with renal failure, metabolic oedema with capillary fragility, in patients with renal failure unless a test dose produced a diuretic response and administration with whole blood.

**Precautions:** Careful monitoring of fluid and electrolytes balance, renal functions and vital signs is necessary during infusion.
Adverse effects: Fluid and electrolytes imbalance with circulatory overload and acidosis at higher doses. Nausea, vomiting, thirst, headache, dehydration, chest pain, blurred vision and fever may occur.

(C.V.S.) – [I] – {d} - Loop Diuretics
(C.V.S.) – [I] – {d} – 1- Furosemide:
Dose: In oedema, initially, 40 mg / day (or on alternate days or up to 80 mg / day) adjusted according to response, which may reach 600 mg / day in severe cases. In emergency treatment I.M. or slow I.V. injection of 20-50 mg (at a rate less than 4 mg/minute). Child 0.5-1.5 mg / kg to a maximum daily dose of 20 mg I.V. infusion, initially, 250 mg over 1 hour, if on satisfactory urine response 500 mg over 2 hours, then 1 gm over 4 hours and if still no urine response, dialysis is recommended.

Indications: Treatment of oedema associated with congestive heart failure, pulmonary, renal or hepatic disorders and in some patients unresponsive to thiazide diuretics.

Contraindications: Renal failure secondary to nephrotoxic or hepatotoxic drugs or associated with hepatic failure, pre-comatose states associated with hepatic cirrhosis and porphyria.

Precautions: Prostatic hypertrophy or impairment of micturition.

Adverse effects: Fluid and electrolytes imbalance hyponatraemia, hypokalaemia, hypochloraemic alkalosis, hyperurecaemia), nephrocalcinosis and hyperglycemia (less than thiazides). GIT visual disturbances, headache, hypersensitivity reactions, pancreatitis, and deafness (specially if other ototoxic drugs are co-administered).

Drug Interactions: NSAIDS, amiodarone, disopyramide, flecainide, quinidine, tocainide, aminoglycosides, cephalothin, polymyxin, vancomycin, antidiabetics, ACE inhibitors, prazosin, terazosin, indapamide, beta-blockers, cardiac glycosides, corticosteroids, metolazone, other diuretics, lithium, oral contraceptives, and carbenoxolone, lignocaine, mexiletine.

Patient Instructions:
- Take with food and milk.
- Do not use if discolored.
- Take it early in day as it may cause disruption of sleep.
- diet high in potassium.
- do not take O T C medications.
- may feel fatigue during first few weeks.

(C.V.S.) – [J] - Antihypotensives
(C.V.S.) – [J] – 1- Midodrine:
**Action:** It has cardiac stimulant action & peripheral vasoprotective.

**Dose:** Drops 1% and tablets 2.5 mg 3-4 times / day

**Indications:** Hypotension states & circulatory collapse to improve blood flow at rest

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(C.V.S.) – [K] - Haemostatics

(C.V.S.) – [K] -1- Ethamsylate:
(Cerebral & peripheral).

**Dose:** Hemorrhage from small blood vessels and in menorrhagia.

**Indications:** Oral, 500 mg 4 times / day. I.M. or I.V. injection of 1 gm, maintenance 500 mg every 4-6 hours.

**Contraindications:** Porphyria.

**Precautions:** Transient hypotension has been reported following I.V injection.

**Adverse effects:** Nausea, headache and skin rashes.

**Patient instructions:** Avoid using aspirin and herbs interfering with clotting such as garlic and ginko.

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See in vitamins.
3-(R.S.) - **Respiratory system Drugs**

(R.S.) – [A] - Bronchodilators

(R.S.) – [A] – {a} – Theophylline

(R.S.) – [A] – {a} – 1- **Aminophylline:**

**Dose:** Slow I.V. injection (over 20 minutes) 250-500 mg or child 5 MG / KG. Maintenance if required in patients not previously treated with theophylline in adults 500 mg / mg/ hour by slow I.V. infusion,

**Indications:** Relief of bronchospasm in asthma, bronchitis and emphysema. Management of patients with heart failure and asthma or bronchitis in opioid analgesics is contraindicated.

**Contraindications:** Porphyria, hypersensitivity to xanthines, peptic ulcer, seizures disorders, and suppositories contraindicated in presence of irritation or infection of rectum or lower colon.

**Precautions:** Liver disease, epilepsy, pregnancy, breast feeding, cardiac disease, elderly patients and fever. Serum drug concentration monitoring is necessary. Patients should not change one sustained release theophylline to the other without clinical assessment.

**Adverse effects:** GIT irritation (nausea, vomiting, diarrhoea, abdominal pain) and CNS stimulation (insomnia, anxiety, dizziness). High doses lead to tachycardia, tachypnoea and convulsions.

**Drug Interactions:** Ciprofloxacin, enoxacin, erythromycin, rifampicin, viloxazine, carbamazepine, primidone, phenytoin, phenobarbitone, beta-blockers, diltiazem, verapamil, aminogluthethimide, interferon, lithium, contraceptive pills, beta 2 agonists, cimitidine and sulphinpyrazone.

**Patient Instructions:**
- Do not smoke.
- Avoid food or beverages containing caffeine.
- Elderly patients take safety precautions.(rise slowly & request assistance if dizziness occurs).
- Do not take OTC cough, cold or breathing medication.

(R.S.) – [A] – {a} – 2- **Theophylline:**

**Dose:** Over 70 kg 500 mg every 12 hours. Under 70 kg and elderly 350 mg every 12 hours.

**Indications:** Relief of bronchospasm in asthma, bronchitis and emphysema.

**All items similar to aminophylline.**

(R.S.) – [B] - Beta Adrenergic Stimulants

(R.S.) – [B] – 1- **Salbutamol:**
Dose: Oral, 4 mg times / day. Child, under 2 years, 100 mg / kg 4 times/day; 2-6 years 1-2 mg 3-4 times / day; 6-12 years 3-4 times / day. S.C or I.M injection, 500 mg repeated every 4 hours if necessary. Aerosol inhalation, in acute and intermittent episodes and in prophylaxis of exercise-induced asthma 100-200 mcgm (1-2 puffs), child, 100 mcgm (1 puff). 200 mcgm (2 puffs). Chronic maintenance therapy 200 mcgm (2 puffs) 3-4 times / day, child 100 mcgm (1 puff) 3-4 times / day.

Indications: Chronic management or prophylactic therapy of bronchial asthma.

Contraindications: Hyperthyroidism and ischaemic heart disease.

Precautions: Hypertension, I.V. in diabetes mellitus and in elderly patients.

Adverse effects: Fine tremors, nervous tension, headache, tachycardia and hypokalaemia after high dose, palpitations, insomnia, urticaria and angioedema.

Drug interactions: Cardiac glycosides, quinidine, monoamine oxidase inhibitors, tricyclic anti-depressants, halogenated anaesthetics, corticosteroids, and beta-blockers.

(R.S.) – [B] – 2 - Terbutaline:

Dose: 2.5 mg Tablets, 1.5 mg / 5 ml syrup. Inhaler 0.25 mg / mist.


Indications: Prophylactic and management of bronchial (acute exacerbation, intermittent symptoms and protective in exercise – induced asthma).

In productive cough and antitussive to produce bronchial dilation inhibiting cough reflex and expulsion of bronchial exudates.

Adverse effects: Palpitations, fine tremors, tolerance dose-duration effect (least side effects after inhalation).

(R.S.) – [C] - Inhalants

(R.S.) – [C] -1- Sodium Cromoglycate:

Dose: Inhalation of dry powder, 20 mg 4 times / day (up to 6-8 times/day) Adult, child 10 mg 4 times daily when stabilized 5mg 4 times daily.

Indications: Prophylactic control of asthma, seasonal and perennial allergic rhinitis and allergic conditions of the eye including acute and chronic conjunctivitis and viral keratoconjunctivitis.


Adverse effects: Inhalation of dry powder may lead to bronchospasm, cough and throat irritation cough, transient bronchospasm.
(R.S.) – [C] - 2- **Beclomethasone dipropionate:**

**Dose:** Aerosol inhalation, 200 mcgm (4 puffs) twice daily, or 100 mcg (2 puffs) 3-4 times daily. Child, 50-100 mcgm (1-2 puffs) 2-4 times /day.

**Indications:** Prophylaxis of asthma not fully controlled by bronchodilators or cromoglycate.

**Contraindications:** Primary treatment of status asthmatics or acute episodes of asthma, systemic fungal infections, untreated localized infections of nasal mucosa.

**Precautions:** Transferring patients from oral corticosteroids to inhalation type should be done gradually. High doses of inhaled steroids may lead to adrenal suppression. Patients may have to change to oral corticosteroids during periods of stress.

**Adverse effects:** Hoarseness, candidiasis of mouth or throat, acne, fever, neck pain, headache, fatigue, migraine, weakness muscle or joint pain.

**Drug Interactions:** Ketoconazole (Nizoral), dietary supplements.

**Patient Instructions:**
- Benefit requires daily use as instructed.
- Not to continue intranasal therapy beyond 3 weeks.
- Not to exceed prescribed dose.
- wash inhaler daily with warm water and dry thoroughly.
- Not to use for acute severe asthma attack requiring rapid relief.
- Use with caution if sores or injuries in nasal passages.

(R.S.) – [C] - 3- **Salbutamol:**

see Beta-Adrenergic stimulants

(R.S.) – [D] - Anti-tussives and cough Suppressants

(R.S.) – [D] - 1- **Clobutinol:**

**Dose:** 40 mg tablets, 20 mg / 5 ml syrup, 60 mg / ml drops and 20 mg mpoule.

**Action:** depress cough reflex in useless cough and dyspnea.

**Indications:** Anti-tussive in bronchial irritation and early stages of bronchitis or bronchial irritation.

(R.S.) – [D] - 2- **Dextromethorphan:**

**Dose:** 10-20 mg every 4 hours, to a usual maximum of 120mg/day. Child, 2-6 years, 2.5-5 mg every 4-8 hours (with a maximum of 30 mg / day) 6-12 years, 5-15 mg every 4 hours, (maximum 60 mg/day).

**Indications:** Dry or painful cough.
**Contraindications:** Patients at risk of developing respiratory failure, liver disease, porphyria and with MAOI.

**Precautions:** Asthma, history of drug abuse, headache, CNS stimulants, hepatic or renal impairment.

**Adverse effects:** Dizziness and constipation. Excitation and respiratory depression may occur after over-dosage.

**Drug interactions:** Mexiletine, MAOI, anxiolytics, hypnotics, cisapride, domperidone, metoclopramide, alcohol, anaesthetics, buprenorphine, butorphanol, nalbuphine and pentazocine and drugs that inhibit CYP2D6 can inhibit drug metabolism.

**Patient Instructions:** 1-Do not use this drug to suppress productive cough or chronic cough that occurs with smoking, asthma or emphysema. 2-Report if your cough persists.

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**(R.S.) – [E] – Mucolytics**

**(R.S.) – [E] – 1- Carbocysteine:**

_Dose:_ 375 mg capsules and 125 mg and 250 mg / 5 ml syrup.

**Action:** Mycolytic dissolves viscid bronchial secretion to be easily expectorated.

**Indications:** Expectorant in productive cough to expell bronchial secretion.

**(R.S.) – [E] – 2- Ambroxol:**

_Dose:_ 30 mg tablets, 75 mg capsules, 15, 30 mg / 5 ml syrup and 7.5 mg rops.

**Indications:** Similar to carbocysteine.

**(R.S.) – [E] – 3- Bromhexine:**

_Dose:_ 4-16 mg 3 times/day.

**Indications:** In respiratory disorders associated with viscid or excessive mucus.

**Precautions:** Peptic ulcer.

**Adverse effects:** GIT upsets.

**(R.S.) – [E] – 4- Guaiphenesin:**

_Dose:_ 200-400 every 4 hours. Child, 2-6 years, 50-100 mg every 4 hours, 6-12 years, 100-200 mg every 4 hours.

**Indications:** Expectorant.

**Contraindications:** Porphyria.

**Precautions:** Cough with excessive secreations, 7 to 10 days in duration with fever. Diabetics. Heart disease. Kidney disease.

**Adverse effects:** GIT discomfort. Nausea and vomiting with very large
doses, Rash, Urticaria.

**Drug Interactions:** ACE inhibitors, antithyroid agents, MAOIs, potassium products.

**Patient Instructions:**
- Don’t take for persistent or chronic cough such as with smoking, asthma.
- If cough persist more than 1 week, in form your doctor.
- Drink a glass of water or other fluid with each dose of expectorant.
4-A-Antiallergics

(A.) – [A] – Antihistamines

(A.) – [A] – {a} – Histamin H1 Receptor Antagonists

(A.) – [A] – {a} – 1- Chlorpheniramine maleate:

Dose: 4 mg every 4-6 hours (maximum 24 mg/day). Child 1-2 years 1 mg twice daily, 2-5 years 1 mg every 4-6 hours (maximum 6 mg / day) and 6-12 years 2 mg every 4-6 hours. (Maximum 12 mg/day).

Indications: For the control of allergy (hay fever, allergic rhinitis and conjunctivitis, atopic dermatitis) and in common cold preparation.

Contraindications: Premature infants, neonates and pregnancy, asthmatic attack, stenosing peptic ulcer.

Precautions: May affect performance of skilled tasks. Should be used cautiously in patients with glaucoma, prostatic hypertrophy, intestinal obstruction, epilepsy and severe cardiovascular disorders, bladder neck obstruction & pregnancy (do not use in 3rd trimester or in nursing mother).

Adverse effects: Sedation, CNS stimulation may occur in children, dry mouth blurred vision, thickened respiratory secretions, retention of urine and decreased GIT motility.

Drug Interactions: Alcohol, tricyclic anti-depressants, anti-muscarinics, anxiolytics, hypnotics and betahistine, MAO therapy.

Patient instructions:
1. Advise patient to take sips of water frequently, suck ice chips, sugarless hard candy or gum if dry mouth occurs.
2. Avoid exposure to sunlight.

(A.) – [A] – {a} – 2- Astemizole:

Dose: 10 mg/day (must not be exceeded). Child 6-12 years 5 mg/day (must not be exceeded).

Indications: For the control of allergic reactions such as hay fever or hives.

Contraindications: Porphyria pregnancy, patients with pre-existing prolongation of QT-interval.

Precautions: Although drowsiness is rare, patients should be advised that it might occur.

Adverse effects: Increased appetite and weight gain, ventricular arrhythmia, cardiotoxicity with overdose, nervousness, dry mouth, shortness of breath, rash.

Drug Interactions: Alcohol, erythromycin, ketoconazole, itraconazole, tricyclic anti-depressants, anti-muscarinics, anxiolytics, hypnotics and betahistine.

Patient Instructions:
• To relieve mouth dryness, chew sugarless or suck ice chips or hard candy.

• Be cautious in performing tasks that require alertness.

(A.) – [A] – {a} – 3- Loratidine:
Action: It is antihistaminic (H1 blocker) for systemic use. Long duration of action without sedative effect.
Uses: Antiallergic in: urticaria, angioneurotic edema, serum sickness, allergic drug reaction, allergic rhinitis, hay fever & common cold.
Dose: 10 mg Tablets / day, Syrup 5 mg / 5 ml. Combined preparation with pseudoephedrine mainly in running nose, allergic rhinitis & common cold.

(A.) – [A] – {a} – 4- Promethazine:
Action: It is a phenothiazine derivative with antihistaminic action & antiserotonin on smooth muscles. Central sedative action.
Precautions: Avoided in driving and professions need alertness eg. machinery, … etc.
Dose: Syrup 5 , 6 mg / 5 ml. And amp. 25 mg / 2 ml.

(A.) – [A] – {a} – 5- Cetirizine:
Action: Antihistaminic for systemic use.
Uses: Allergic disorders.
Dose: 10 mg Tablets / 12 hours.

(A.) – [A] – {a} – 6- Dimethindene:
Action: Antihistaminic for systemic use for long duration.
Uses: Allergic Disorders.
Dose: Tablets 1 mg, capsules 4 mg / 12 – 24 hs.
Infantile drops 1 mg / 1 ml. & Syrup 5 mg / 5 ml. Amp. 4 mg.

(A.) – [B] -Adrenergic Receptor Stimulants
Dose: Acute bronchial asthma: S.C or I.M 1 mg=1:1000 solution) repeated every 15-30 minutes. Acute anaphylaxis, I.M of 1 mg/ml, under 1 year 0.05 ml.year 0.1 ml, 2 years 0.2 ml, 3-4 years 0.3 ml, 5 years 0.4 ml, 6-12 years 0.5 ml, adult 0.5-1 ml.
Indications: Acute reversible airway obstruction and acute anaphylaxis.
Contraindications: Hyperthyroidism, cardiovascular disease (hypertension, ischaemic heart disease, arrhythmia or tachycardia).
Precautions: Care should be taken in patients with closed angle glaucoma and diabetes mellitus.

Adverse effects: Central stimulation (anxiety, tremors, insomnia) CVS disorders (hypertension, tachycardia, arrhythmia, anginal pains).

Drug Interactions: Cardiac glycosides, quinidine, monoamine oxidase inhibitors, tricyclic anti-depressants, halogenated anaesthetics, corticosteroids and beta-blockers.

Patient Instructions:
- periodically familiarize yourself for use so you maintain an adequate comfort level.
- obtain new kit by expiration date or colour change or sooner if precipitate is noted in solution.

(A.) – [C] - Glucocorticoids

(A.) – [C] -1- Dexamethasone:

Dose: Oral, 0.5-9 mg/day. By I.M or slow I.V. or infusion, 0.50-20 mg. In shock by I.V injection or infusion 2-6 mg/kg, repeated if necessary after 2-6 hours. Cerebral oedema by I.V injection 10 mg then 4 mg by I.M every 6 hours for 2-10 days. Intra-articular 0.8-4 mg, injections to be repeated every 3-5 days to every 2-3 weeks. Eye drops, apply 4-6 times/day or in severe conditions every hour until controlled then reduce frequency.

Indications: Cerebral oedema, congenital adrenal hyperplasia, prevention of nausea and vomiting of cancer chemotherapeutics, intra-articular and topically in eye inflammations (uveitis, schleritis and to reduce post-operative inflammation) or intra-lesional.

Contraindications: Systemic fungal infections, administration of live virus vaccines to patients receiving an immuno suppressive dosage of dexamethasone. I.M use in idiopathic thrombocytopenic purpura and pregnancy.

Precautions: It is especially imp. To tell your doctor about abdominal enlargement or pain, acne or other skin problems in back or rib pain.

Adverse effects: perineal itching or burning can occur after I.V administration.

Drug Interactions: Alcohol, aspirin, anti inflammatory medications, warfarin, insulin, Thiazide diuretics, Phenobarbitane, rifampin, ephedrine, oral contraceptives, cholestyramine, colestipol.

Patient Instructions:
- Do not stop taking it suddenly, if you have been taking this drug for
more than 1 or 2 weeks.

- Never increase the dosage or take the drug for longer than prescribed.
- You should not be vaccinated or immunized.
- Blood sugar can be monitored.

An ophthalmologist should examine 5-your eyes.

(A.) – [C] – 2- **Hydrocortisone sodium succinate:**

**Dose:** By I.M. or slow I.V or infusion 100-500mg,3-4 times daily (as required). Child, slow I.V injection, up to 1 year 25 mg,1-5 years 50 mg,6-12 years 100mg.

**Indications:** Emergency treatment of adrenal insufficiency, status asthmatics and anaphylactic shock (with epinephrine).

**Contraindications, precautions, side effects, Drug interactions, and patient instructions:** similar to dexamethasone.

(A.) – [C] – 3- **Prednisolone:**

**Dose:** 10-20 mg (up to60 mg)/day, maintenance 5-15 mg/day (cushingoid side effects increases with doses above 7.5 mg/day).

**Indications:** In physiological doses for replacement therapy in adrenal insufficiency. In pharmacological doses to induce palliative anti-inflammatory or immuno-suppressant effects.

**Contraindications:** Unless life saving, corticosteroid therapy should be contraindicated in peptic ulcer, psychoses and osteoporosis. Corticosteroids should be used with great caution in severe hypertension, congestive heart failure, diabetes mellitus, infectious disease, glaucoma, undiagnosed red eye ocular herpes simplex, chronic renal failure, elderly or active tuberculosis.

**Precautions:** Rapid withdrawal may precipitate adrenal insufficiency, hypotension and death. During long courses of corticosteroid therapy monitor: blood pressure, blood glucose, potassium and ask for symptoms of gastric discomfort or back-pain.

**Adverse effects:** Diabetes mellitus, osteoporosis (specially in elderly), mental disturbances, spread of infection, peptic ulceration, Cushing syndrome, suppression of growth in children, affect fetal adrenal development and steroid cataract (daily oral prednisolone for years). Joint damage after repeated intra-articular injection and glaucoma after topical dexamethasone or prednisolone for weeks).

Sodium and water retention, potassium depletion and hypertension (highest incidence with hydrocortisone, less with prednisolone and least with dexamethasone).
Drug Interactions: Barbiturates, carbamazepine, phenytoin, primidone, rifampicin, thiazide furosemide, NSAIDs, anti-coagulants, anti-diabetics, anti-hypertensives and anti-muscarinics.

Patient instructions: similar to Dexamethasone.

(A.) – [C] – 4- Fludrocortisone:
Action: Oral corticosteroid 10-fold active as cortisol.
Dose: 0.1 mg Tablets.

(A.) – [C] – 5 – Betamethasone:
Action: Corticosteroid 30-fold active as cortisol. Potent anti-inflammatory
Dose: Tablets 0.5 mg (3 mg / d) Amp. 7 mg / 2 ml.

(A.) – [C] – 6 – Triamcinolone:
Action: Corticosteroid 5-fold active as cortisol. Produce severe muscle wasting.
Dose: Tablet 4 mg (20 mg / d). Vials 40 mg.

Uses:
- Collagen diseases to control aedematous, degenerative & fibrotic process e.g. SLE, scleroderma, dermatomyositis, sarcoidosis, nephrotic syndrome, polyarteritis nodosa, …etc.
- Blood dyscrasias e.g. hemolytic anemia, thrombocytopenic purpura.
- Miscellaneous: acute polyneuritis, toxic encephalitis.
- Antiallergic in hypersensitivity reactions, status asthmaticus, skin diseases e.g.eczema, exfoliative dermatitis.

Adverse effects: Cushing – like syndrome, psychosis, steroid diabetes, osteoporosis, hirsutism, edema, potassium loss, myopathy, and indigestion.

Contraindications: Epilepsy, diabetes, T.B., hypertension, peptic ulcer infectious diseases, fungal & viral infections.
5- (C.N.S.) - Central nervous system

(C.N.S.) – [A] - Hypnotics, sedatives & anxiolytics

(C.N.S.) – [A] - 1- Phenobarbitone:
Dose: Oral, 60-180 mg by night. Child, 5-8 mg / kg / day. By I.M. Or I.V. 100-200 mg repeated after 6 hours if necessary, maximum 600 mg / day.
Indications: For the control of tonic –clonic (grand mal) and partial (focal) seizures and status epileptics. Prophylaxis of febrile convulsions in children.
Contraindications: severe hepatic, renal or respiratory dysfunction and porphyria.
Precautions: In extremes of age, in acute pain, mental depression, hepatic, renal or respiratory impairment. May cause drowsiness, so tasks needing mental alertness should be avoided and withdraw drug gradually.
Adverse effects: Sedation (less marked with prolonged use), mood changes, folate deficiency and hypocalcaemia (after prolonged administration). High doses lead to nystagmus and ataxia and toxicity lead to severe cardiovascular and respiratory depression.
Drug interactions: Disopyramide, quinidine, chloramphenicol, doxycycline, metronidazole, oral anticoagulants, tricyclic antidepressants, griseofulvin, antipsychotics, digitoxin, corticosteroids, cyclosporin, oral contraceptives, theophylline, thyroxine, isradipine and other antiepileptics.

Patient instructions:
- Use with caution when driving or performing other tasks requiring mental alertness.
- Avoid concurrent use of alcohol.
- Do not stop suddenly, it can increase seizures.

(C.N.S.) – [A] - 2- Diazepam:
Dose: In anxiety, orally, 2 mg 3 times / day increased if necessary to 15-30 mg / day in divided doses (elderly should receive half the dose). Insomnia, 5-15 mg at bedtime in acute anxiety and acute alcohol withdrawal symptoms, I.M or slow I.V, 10 mg. In status epilepticus, slow I.V, as a 0.5 % solution, 10-20 mg at a rate of 0.5 ml / 30 seconds repeated if necessary after 30-60 minutes.
Indications: In the treatment of severe anxiety states, as a hypnotic in the short treatment of insomnia, as a sedative, premedicant in anaesthesia, in the management of status epilepticus and ebrile convulsions, in the control of muscle spasms and in the management oh alcohol withdrawal symptoms.
Contraindications: Patients with pre-existing CNS depression, arteriosclerosis or coma alone in the treatment of depression, porphyria, acute pulmonary insufficiency or sleep apnoea.
**Precautions:** Elderly, debilitated, chronic pulmonary disease, personality disorders, pregnancy and breast-feeding, impaired hepatic or renal function. Skills that need alertness should be avoided. Withdraw drug gradually. In case of I.V. injection, facility resuscitation should be at hand.

**Adverse effects:** Drowsiness, sedation and ataxia (commonest). Vertigo, headache, confusion, slurred speech, urinary incontinence or retention, loss of libido and amnesia. Respiratory depression and hypotension may occur with high doses. Rebound anxiety occurs with tolerance.

**Drug Interactions:** Anesthetics, alcohol, opioid analgesics, antidepressants antihistamines, antihypertensives, antipsychotics, disulfiram, levodopa and Cimetidine.

**Patient Instructions:** Similar To Clonazepam.

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**C.N.S.** – [B] – Drugs in Psychosis & Neurosis

**(C.N.S.) – [B] – {a} – Anti-psychotics**

**(C.N.S.) – [B] – {a} – 1- Chlorpromazine:**

**Dose:** In psychosis, orally, initially 25mg 3 times/day adjusted to usual maintenance dose of 75-300mg/day. Elderly, 1/3 to 1/2 adult dose. Child, 1-5 years 0.5mg/kg every 4-6 hours, 6-12 years 1/3 to 1/2 adult dose. In intractable cough 25-50mg 3-4 times/day. For the relief of acute symptoms, I.M 25-50mg every 6-8 hours. Child as oral dose.

**Indications:** In chronic and acute schizophrenia, control of manic phase in manic-depressive disorder, control of severe anxiety status in other psychiatric illnesses. To control nausea and vomiting induced by disease, drugs or post-operatively, alleviation of intractable cough, to control acute intermittent porphyria and to induce hypothermia.

**Contraindications:** Patients with pre-existing CNS depression, coma, bone-marrow suppression or phaeochromocytoma, closed angle glaucoma, Parkinsonism, diabetes mellitus, hypothyroidism, myasthenia gravis and prostatic hypertrophy and untreated epileptics.

**Precautions:** Epilepsy, pregnancy and breast-feeding. Skills need alertness should be avoided in first days of drug administration. Regular ophthalmological and hematological examinations are recommended. Avoid abrupt drug withdrawal.

**Adverse effects:** Sedation (tolerance develops to this effect). Antimuscarinic action (dry mouth, constipation, difficulty with micturition, blurred vision, mydriasis. CVS, (tachycardia and ECG changes and postural hypotension is common). Hypersensitivity reactions (urticaria, systemic lupus like syndrome), blood disorders, extra pyramidal manifestations (parkinsonism-like syndrome), endocrine and metabolic changes (amenorrhoea, galactorrhoea,
gynaecomastia, and hyperglycemia).

**Drug interactions:** Alcohol, anesthetics, antacids, tricyclic antidepressants, antiepileptics, ACE inhibitors, reserpine, methyldopa, metirosine, anxiolytics, hypnotics, antimuscarinics, propranolol, calcium channel blockers, desferrioxamine, domperidone, metoclopramide, dopaminergics, lithium, and cimetidine.

**Patient instructions:**
- Not to stop taking medication abruptly.
- Avoid intake of alcoholic beverages & OTC medications.
- Dry mouth may be relieved by rinsing mouth with warm water, sucking on sugarless hard candy or Gum.
- Dizziness or light needlessness may be experienced when rising to a sitting or standing position.

(C.N.S.) – [B] – {a} – 2- **Haloperidol:**

**Dose:** In schizophrenia and psychosis. As short term adjunctive therapy in severe anxiety, psychomotor excitement and agitation.

**Indications:** In schizophrenia and other psychoses. As short term adjunctive therapy in severe anxiety, psychomotor excitement and agitation. In the management of nausea, vomiting, intractable hiccup and motor tics.

**Contraindications:** Extrapyramidal diseases.

**Precautions:** In depression.

Adverse effects: Extrapyramidal manifestations especially in thyrotoxic patients. Less sedating, hypotensive and antimuscarinic actions than chlorpromazine. Rarely liver function disturbances, GIT upsets and weight loss may occur.

**Drug interactions:** Alcohol, anesthetics, calcium channel blockers, ACE inhibitors, methyldopa, metitosine, reserpine, anxiolytics, hypnotics, carbamazepin, indomethacin, metoclopramide, lithium, rifampicin and dopaminergics.

**Patient instructions:**
- Avoid exposure to sunlight.
- Use mouth rinses, good oral hygiene.
- Use caution while performing other tasks require mental alertness.

(C.N.S.) – [C] – **Antidepressants**

(C.N.S.) – [C] – 1- **Imipramine**

**Dose:** 10 and 25 mg. tablets. 75-200 mg/ed and maintenance 50-150 mg / d.
Essential Drug List 2006

**Actions:** antidepressant by central noradrenaline reuptake inhibitor.

**Indications:**
- Endogenous depression.
- Nocturnal enuresis.

**Adverse effects:** Cholinergic blocking action, cardiac arrhythmias, tremors (mild extra pyramidal symptoms), sweating, fatigue, and excitement.

**Contraindications:** glaucoma, enlarged prostate and drugs (MAOIs, alcohol, and barbiturates (potentiation) and antagonizes guanethedine.

(C.N.S.) – [C] – 2- Amitriptyline:

**Dose:** Oral initially 50-75 mg in (elderly and adolescents 25-50 mg)/day in divided doses or a single dose at bedtime. Increased gradually to a maintenance of 50--100 mg/day (maximum period of treatment should not exceed 3 months)

**Indications:** Treatment of endogenous depression (less effective depression) particularly where sedation is required. Nocturnal enuresis in children.

**Contraindications:** Heart block arrhythmias, immediately following myocardial infarction, severe liver failure, mania and porphyria.

**Precautions:** Patients with prostatic hypertrophy, glaucoma, heart diseases, epilepsy liver dysfunction, constipation and hyperthyroidism. Reduce dose in elderly. Avoid during performance of tasks requiring alertness. Should not be used within 14 days of MAOI discontinuation.

**Adverse effects:** Antimuscarinic effects (sedation (less clomipramine) dry mouth, constipation, retention of urine, blurred vision), CVS (hypotension, bradycardia, arrhythmia, syncope), sweating, tremor and personality changes and less common are blood disorders.

**Drug Interactions:** Alcohol, MAOI, antiepileptics, adrenergic neuro-blockers, clonidine, antihypertensives, antihistamines, antimuscarinics, antipsychotics, anxiolytics, hypnotics, disulfiram, sublingual nitrates, sympathomimetics, oral contraceptives and Cimetidine.

**Patient Instructions:**
- Do not stop it suddenly.
- Do not takes part in any activity.
- Tell your doctor if pregnancy or breast-feeding.

(C.N.S.) – [C] – 3- Clomipramine:

**Dose:** Oral, initially, 10 mg/day increased to a usual maintenance dose of 30-50 mg/day. Maximum 30-150 mg/day, elderly 75 mg).

**Indications:** Depressive illness, in obsessive and phobic states and in cataplexy associated narcolepsy.
**Contraindications:**
- recent myocardial infarction, arrhythmias, severe liver disease and porphyria.

**Precautions:** cardiac disease, history of epilepsy, pregnancy, and breast feeding and thyroid disease.

**Adverse effects:** sedation, dry mouth, blurred vision, constipation, nausea, postural hypotension, tachycardia, sweating, tremor, rash, hypersensitivity reactions, behavioural disturbances, increase appetite and weigh gain and movement disorders.

**Patient instructions:** The drug may impair ability to perform skilled tasks e.g. operating machinery, driving.

**(C.N.S.) – [C] – 4- Lithium Carbonate:**

**Dose:** 0.25-2 gm/day on divided doses adjusted to achieve plasma of 0.4-1 mmol Li/L.

**Indications:** Treatment and prophylaxis of mania, depressive illness, recurrent depression and aggressive or self –mutilating behaviour.

**Contraindications:** Children, Addison disease, severe renal disease, debilitated patients or with thiazide diuretics.

**Precautions:** Monitor plasma level and thyroid functions regularly. Maintain adequate fluid and sodium intake. Avoid in renal and cardiac impairment. Caution during severe vomiting, diarrhoea, pregnancy, breast feeding, elderly patients, diuretic therapy and myasthenia gravis.

**Adverse effects:** GIT upsets, fine tremor, polyuria, polydipsia weight gain and oedema. Toxicity manifests by blurred vision, increased GIT troubles (drowsiness, sluggishness coarse tremor and dysarthria), which necessitates withdrawal of drug.

**Drug interactions:** NSAIDS, antacids, fluoxetine, fluvoxamine, antidiabetics, phenytoin, carbamazepine, ACE inhibitors, methylidopa, haloperidol, diltiazem, verapamil, neostigmine, pyridostigmine, loop diuretics and thiazide diuretics, acetazolamide, domperidone, metoclopramide, muscle relaxants, theophylline.

**Patient instructions:**
- Don’t take part in any activity that require alertness
- Extremely important to follow your correct dosing schedule.
- Drink 2 to 3 quarts of water or other fluids each day.
- Donot change amount of salt in your diet.
Essential Drug List 2006

(C.N.S.) – [D] – Antiparkinsonian Drugs
(C.N.S.) – [D] – {a} - Antimuscarinic Drugs
(C.N.S.) – [D] – {a}-1- Benzatropine Mesylate:

Dose: Oral, 0.5-1 mg/day usually at bedtime gradually increased to a usual maintenance dose of 1-4 mg/day as a single or divided doses (maximum 6 mg/day).

Indications: First line drug in mild Parkinsonism, or as an adjunct to levedopa in more severe cases, in the management of drug-induced extra-pyramidal symptoms (but not tardive dyskinesia).

Contraindications: Children less than 3 years, narrow angle glaucoma, pyloric or duodenal obstruction, bladder neck obstructions.

Precautions: Given cautiously in patients at risk of urinary retention, glaucoma and CVS disease. Avoid abrupt discontinuation of the drug. Patients should not drive or operate machinery.

Adverse effects: GIT disturbances, dry mouth, blurred vision, tachycardia and sedation, urinary retention, impairment of recent memory.

Drug Interactions: Disopyramide, tricyclic antidepressants, and MAOI, ketoconazole, antihistamines, phenothiazines, cisapride, domperidone, metoclopramide, amantadine and sublingual nitrates.

Patient instructions: 1- Take with food. 2- maintaining good dental hygiene can relieve the dry mouth. 3- avoid excess sun or exercise which may cause excessive sweating.

(C.N.S.) – [D] – {b} Dopaminergic Drugs
(C.N.S.) – [D] – {b} –1- Levodopa+Carbidopa:

Dose: Expressed as levodopa, initially, 100-125 mg 3-4 times/day, gradually increased by small increments to 0.75-105 gm /day in divided doses after meals.

Indications: The treatment of choice in patients disabled by idiopathic Parkinson’s disease.

Contraindications: Closed angle glaucoma.

Precautions: Pulmonary diseases, peptic ulceration, CVS and endocrine disorders, psychiatric disturbance. And history of malignant melanoma. Periodic evaluations of hepatic, hematological, cardiovascular and renal functions are advised.

Adverse effects: GIT disturbances (anorexia and nausea), postural hypotension, dizziness, reddish discoloration of body fluids, abnormal involuntary movements and psychiatric symptoms.

Drug interactions: Volatile anesthetic, MAOI, antihypertensives, reserpine antipsychiatric, anxiolytics, metoclopramide.
Patient instructions:

- Avoid activities that require alertness.
- Notify your doctor if you start to experience any uncontrolled movements of limbs and face.
- Diabetic patients should not change their medication dosage.
- Avoid taking vitamins and foods rich in pyridoxine.

(C.N.S.) – [E] – Antiepileptics

(C.N.S.) – [E] – 1- Carbazepine:

**Dose:** Epilepsy, initially, 100-200 mg 1-2 times / day increased slowly to 0.8 – 1.2 gm / day in divided doses. Child, daily in divided doses, up to 1 year; 100-200 mg, 1-5 years; 200-400 mg, 5-10 years; 400-600 mg, 10-15 years; 0.6-1 gm. Trigeminal neuralgia initially, 100 mg 1-2 times/day increased to reach 400-800 mg /day in 2 divided doses.

**Indications:** To control tonic clonic (grand mal) and partial (focal) seizures. Treatment of trigeminal neuralgia. Prophylaxis in manic-depressive disorders.

**Contraindications:** Atrioventricular conduction defects (unless paced), patients on MAO or within 14 days of their administration.

**Precautions:** Blood disorders, raised intra-ocular pressure, pregnancy, hepatic, renal, cardiac dysfunction. Avoid sudden withdrawal. Periodic eye examination.

**Adverse effects:** Dizziness, drowsiness and ataxia (occur initially). Nystagmus and diplopia are symptoms of high plasma levels. GIT upsets (dry mouth, constipation, pain, nausea and vomiting) are less common. Hypersensitivity reactions may manifest as: rash, blood disorders, photosensitivity, and lymphadenopathy.

**Drug Interactions:** MAOI, dextropropoxyphene, doxycycline, erythromycin, isoniazid, oral anticoagulants, anxiolytics, hypnotics, verapamil, diltiazem, isradipine, viloxazine, other antiepileptics, digitoxin, corticosteroids, cyclosorin, lithium, oral contraceptives, theophylline, thyroxdine & cimetidine.

(C.N.S.) – [E] – 2- Phenytoin:

**Dose:** Oral, 150-300 mg / day increased gradually as necessary, usually to 300-400 mg /day, maximum 600 mg/day. Child, 5-8 mg / kg / day. In status epilepticus, slow I.V of 10-15 mg / kg maintenance doses of about 100 mg should be given thereafter at 6 hourly intervals (monitor ECG and blood pressure). In arrhythmia, 305 – 5 mg /kg by slow I.V (monitor ECG and blood pressure).
Indications: Control of tonic-clonic (grand mal) and partial (focal) seizures and status epilepticus. In prophylaxis control of seizures developing during or after neurosurgery or following head injuries. Class Ib anti-arrhythmic drug to treat arrhythmia associated with digitalis toxicity.

Contraindications: I.V. administration in sinus bradycardia, heart block Adams-stokes syndrome and porphyria.

Precautions: Impaired renal or hepatic function, diabetes mellitus, hypotension, pregnancy and breast-feeding. In case of I.V administration, it should be done slowly with ECG and blood pressure monitoring. Gradually withdraw the drug.

Adverse effects: Anorexia, headache, dizziness, insomnia, GIT upsets (nausea, vomiting and constipation), gum hyperplasia, hirsutism, rickets, osteomalacia and mild hypersensitivity reactions. Rapid I.V. Administration may lead to CNS depression and hypotension. Toxicity manifests by nystagmus, diplopia and ataxia.

Drug Interactions: Aspirin, azapropazone, phenylbutazone, amiodarone, quinidine, mexiletine, disopyramide, chloramphenicol, isoniazid, metronidazole, co-trimoxazole, rifampicin, doxycycline, oral anticoagulants, tricyclic antidepressants, fluconazole, ketoconazole, miconazole, antipsychotics, isradipine, digitoxin, corticosteroids, cyclosporin, methotrexate, disulfiram, lithium, oral contraceptives, theophylline, thyroxin, Cimetidine, sucralfate, sulphirinpyrazone, influenza vaccine, folic acid and other antiepileptics.

(C.N.S.) – [E] – 3- Valproic Acid and its Salts:

Dose: Oral, initially, 600 mg / day in divided doses (preferably after meals) increased by 200 mg/day at 3 day intervals to a maximum of 205 gm/day in divided doses. Child up to 4 years.
Initially, 20mg/kg/ day in divided doses increased to a maximum of 40 mg / kg / day. Over 4 years, initially, 400 mg / day in divided doses increased to a maximum of 20-30 mg / kg / day.

Indications: Control of primary generalized, absence seizures (petit mal) and myoclonic seizures.

Contraindications: Pre-existing liver diseases and pregnancy.

Precautions: Congenital metabolic disorders, organic brain diseases, mental retardation have an increased risk of hepatotoxicity. Monitor platelet and pancreatic function. Withdraw drug gradually.

Adverse effects: GIT upsets (commonest), increased appetite, weight gain, drowsiness, ataxia, blood disorders, impaired liver enzymes and hyper ammonaemia. Liver dysfunction, which necessitates drug withdrawal.

Drug interactions: Aspirin, antidepressants, other antiepileptics and anti psychotics.
(C.N.S.) – [E] – 4- **Clonazepam:**

**Dose:** Initially, 0.5 mg. The dose is gradually built up until an optimum response is obtained. Child, initially, 250 mcgm for children below 5 years, and 500 mcgm till 12 years, maintenance doses: infants 0.5-1 mg, children 1-5 years; 1-3 mg; children 5-12 years; 16 mg, adults; 4-8 mg.

**Indications:** In the treatment of all types of epilepsy and seizures, in status epilepticus and in the management of panic disorders.

**Contraindications:** Respiratory depression, acute pulmonary insufficiency and porphyria.

**Precautions:** Respiratory disease, renal or hepatic dysfunction, pregnancy and breast-feeding, elderly and debilitated. Avoid sudden withdrawal.

**Adverse effects:** Drowsiness (commonest), bronchial hypersecretion, dizziness, muscle hypotonia, mental changes and dependence.

**Drug interactions:** Carbamazpine, phenobarbitone and phenytoin accelerate metabolism of clonazepam. Drugs interacting with all other benzodiazepine: anaesthetics, alcohol, opioid analgesics, antidepressants, antihistamines, antihypertensives, antipsychotics, disulfiram.levodopa and Cimetidine.

**Patient instructions:** similar to phenobarbitone.
6-(Anti.I.D.)-Anti-Infectious Disease Drugs

(Anti.I.D.) – [A]-Antibacterials

(Anti.I.D.) – [A] – {a} – Antibiotics

(Anti.I.D.) – [A] – {a} – 1- Long Acting Penicillin

(Anti.I.D.) – [A] – {a} – 1-1 Penicillin G Benzathine:

**Dose:** When reconstituted with 10 ml water for injections, 10 ml 3-4 times/day, child 5 ml 3-4 times/day. It is long acting repository form, duration 1-3 ws depending on dose 600.000-1.200.000 u. injected deep I.M.

**Indications:** Penicillin sensitive infections.

**Contra indications:** Patient allergic to penicillin or beta lactam antibiotics.

**Precautions:** Use caution in patients with a history of penicillin or cephalosporin hypersensitivity reactions. Impaired renal function, pre-existing seizure disorders.

**Adverse effects:** Nausea or diarrhoea, CNS toxicity with massive I.V dosages. More serious hypersensitivity reactions followed injection rather than oral administration.

**Patient Instructions:** 1-It is only given by injection deep I.M. and not orally.

(Anti.I.D.) – [A] – {a} – 1-2 Penicillin Procaine:

**Dose:** When reconstituted with 4-6 water for injections 1 ml every 12-24 hours by I.M injection. For early syphilis: 3 ml/day for 10 days. Long acting, peak 4 hours and duration 24 hours.

**Indications:** Penicillin sensitive infections. Drug of choice for the treatment of syphilis.

**Contraindications, precautions, side effects, and patient instructions:** as penicillin G sodium.

(Anti.I.D.) – [A] – {a} – 2- Short Acting Penicillin

(Anti.I.D.) – [A] – {a} – 2 Penicillin G Sodium (Benzyl Penicillin):

**Dose:** By I.M or slow I.V or I.V infusion: 0. 6-102 gm/day in 2-4 divided doses (1 mg=1679 u.) (Maximum 2.4 gm/day), neonate, 30 mg/kg/day (in 2 divided doses in the first few days of life then in 3-4 divided doses), child 1 month-12 years, 10-20 mg/kg/day in 4 divided doses. Bacterial endocarditis; slow I.V or I.V infusion, child 1 month-12 year, 180-300 mg/kg/day in 4-6 divided doses.

**Indications:** In tonsillitis, otitis media, erysipelas, streptococcal endocarditis, meningococcal, pneumococcal meningitis and prophylaxis in limb amputation.

**Contraindications, precautions, side effects, and patient instructions:** as penicillin Benzathine.

Dose: 250-500 mg every 6 hours at least 30 minutes before food, child up to 1 year 62.5mg.6-12 years 250 mg every 6 hours. Acid -Resistant and active orally.
Indications: Tonsilitis, erysipelas, otitis media and prophylaxis of rheumatic fever.
Contraindications, Precautions, Side effects, Patient instructions: as penicillin G Sodium.

(Anti.I.D.) – [A] – {a} – 4-Broad Spectrum Semi synthetic Penicillin

(Anti.I.D.) – [A] – {a} – 4-1- Amoxycillin:
Dose: Oral, 250 mg every 8 hours doubled in severe infections, Child up to 10 years 125 mg every 8 hours doubled in severe infections, severe or recurrent purulent respiratory after 8 hours. Urinary tract infection, 3 gm repeated after 10-12 hours. Gonorrhoea, single dose of 3 gm with probenecid. Otitis media, 3-10 years, 750 mg twice/day for 2 days. By I.M injection, 500 every 8 hours child 50-100 mg/kg/day in divided doses. By I.V. Injection or infusion, 500 mg every 8 hours increased to 1 gm every 6 hours child 50-100 mg/kg/day in divided doses.
Indications: Urinary tract infections, otitis media, chronic bronchitis, typhoid fever, gonorrhoea.
Contraindications: Penicillin hypersensitivity.

(Anti.I.D.) – [A] – {a} – 4-2- Piperacillin:
Dose: By I.M or slow I.V. infusion: 100-150 mg/kg/day in divided doses and increased in severe infections to 200-300 mg/kg/day in life threatening infections.
Indications: Broad spectrum and against pseudomonas aeuriginosa.
Precautions: History of allergy, renal impairment, Diabetics taking Amoxicillin should know that this drug may cause false positive sugar reaction with a urine glucose test.
Adverse effects: Nausea, diarrhea, and rarely pseudo-membranous colitis. Rash is common with patients with glandular fever and chronic lymphatic leukemia.
Drug interactions: Probenecid and oral contraceptives.
Patient instructions:
- Tell your doctor if you have kidney disease, asthma, and allergies.
- This medication for your current infection only.
- You should not give it to other people or use it for other infections.
(Anti.I.D.) – [A] – {a} – 5- Cephalosporines

(Anti.I.D.) – [A] – {a} – 5- 1- Cephadroxil:
**Dose:** Orally active, capsules 250 mg, 500 mg, tablets 1 gm. suspension 125 mg, 250 mg and 500 mg /5 ml.given twice daily.
**Actions:** Longer duration. Bactericidal (inhibits cell wall synthesis).
**Indications:** First generation against B-lactam susceptible and against more gram positive organisms (in pt. Sensitive to penicillin) in meningitis, endocarditis, respiratory, urinary, soft tissue infection, septicemia, bone and joint infections, septicemia and pyoderma.
**Adverse effects:** Bleeding (antiaggregant), allergic rash, fever, neutropenia, esinophilia diarrhea, phlebitis, opportunistic infection (pseudomonas and fatal) and increase hepatic transaminases.

(Anti.I.D.) – [A] – {a} – 5- 2- Cephoperazone:
**Dose:** Vials 0.5 and 1 gm, injection I.M. and I.V. / 12 h. third generation.
**Indications:** In serious mixed infection and traverse blood brain barrier (CNS and meninges)
**Adverse effects:** Bleeding, allergy, fever, phlebitis fever, rash and increase hepatic transaminases.

(Anti.I.D.) – [A] – {a} – 5- 3- Cefotaxime:
**Dose:** By I.M. or I.V. 1 gm every 12 hours in moderate to severe infections, 1 gm every 8 hours in life threatening conditions, up to 12 gm daily.
Gonorrhoea 1 gm as a single dose. In severe renal impairment, doses to be halved after the initial dose. Neonate 50 mg /kg/day in 2-4 divided doses, up to 200 mg/kg / day in severe infections. Child, 100-150 mg/kg/day in 2-4 divided up to 200 mg /kg/day in severe infections. By I.V infusion, 1-2 gm over 20-60 minutes.
**Indications:** Infections due to susceptible Gram positive and negative bacteria (more against Gram negative): brain abscess, gonorrhoea, meningitis, pneumonia, typhoid fever and septicemia.

(Anti.I.D.) – [A] – {a} – 5- 4- Ceftazidime:
**Dose:** Parental administration I.M. and I.V. vials of 250 mg, 500 mg, and 1 gm and 2 gm, dose every 12 hours, third generation.
**Uses And Side Effects:** Similar To Cephoperazone.

(Anti.I.D.) – [A] – {a} – 6- amino glycosides

(Anti.I.D.) – [A] – {a} – 6- Gentamycin:
**Dose:** By I.M. or slow I.V. infusion: 2-5 gm/kg/day in 3 divided doses In renal impairment the interval between doses should be 12 hours when creatinin...
clearance is 30-70 ml/minute, 24 hours for 10-30 ml/minute, and 48 hours for 5-10 and 3-4 days after dialysis for less 5ml/minute.
Child up to 2 weeks, 3mg/kg every 12 hours, week’s 12 years 2 mg/kg every 8 hours. By intrathecal injection, 1 mg daily (maximum 5 mg/day), with 2-4-mg/kg daily by I.M. in divided doses every 8 hours.

**Indications:** Septicaemia and neonatal sepsis, meningitis and other CNS infections, biliary tract infections, acute Pyelonephritis or prostatitis or endocarditis.

**Contraindications:** Allergy to any amino glycosides patients with myasthenia gravis, Parkinsonism, or other conditions with muscle weakness. Pregnancy.

**Precautions:** Monitoring of serum drug level is recommended with prolonged or high doses specially in elderly, infants and patients with hepatic or renal impairment.

**Adverse effects:** Ototoxicity (cochlear and vestibular), nephrotoxicity, respiratory depression allergy and neuromuscular block.

**Drug Interactions:** Cephalosporines, vancomycin, cholinergics, loop diuretics, cytotoxics, amphotericin, and cyclosporin and muscle relaxants.

**Patient instructions:** 1-Report any dizziness or sensation of ringing or fullness in the ears.

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**Macrolides:**

**Erythromycin:**

**Dose:** 250-500 mg every 6 hours or 0.5-1 gm every 12 hours up to 4 gm/day in severe infections. Child up to 2 years 125 mg every 6 hours, 2-8 years 250 mg every 6 hours doses doubled for severe infections. Early syphilis, 500 mg 4 times daily for 14 days.

**Indications:** Patients hypersensitive to penicillin, sinusitis, diphtheria and whooping cough prophylaxis, legionnaires diseases, chronic prostitutes and acne vulgaris.

**Contraindications:** Hypersensitive to erythromycin, porphyria, estolate in liver impairment.

**Precautions:** patients with history of arrhythmias.

**Adverse effects:** Nausea, vomiting and diarrhoea after large doses.

**Drug interactions:** Alfentanil, astemizole, bromocriptine, carbamazepine, corticosteroids, digoxin, disopyramide, ergotamine, lovastatin, phenytoin, terfenadine, theophylline, triazolam, warfarin and cyclosporin.

**Patient Instructions:**

- Discuss with pharmacist, which forms of erythromycin, is appropriate for use as not all erythromycin are chemically equivalent.
• Some types can cause allergic reactions.

(Anti.I.D.) – [A] – {a} – 7- 2- **Clarithromycin:**
**Action:** It is a semi-synthetic derivative of erythromycin A. Its antibacterial action is by binding to the 50s ribosomal sub-unit of susceptible bacteria & suppresses protein synthesis. It is potent against a wide variety of aerobic & anaerobic gram-positive & gram-negative organisms. It is active against following organisms:
- Gram-positive bacteria: Staphylococcus aureus, Staphylococcus viridans, pneumococci & Listeria monocytogenes.
- Gram-negative bacteria: Haemophilus influenza, parainfluenza, Moraxella catarrhalis, Neisseria gonorrhoea, bordetella pertussis.
Mycoplasma, pneumonia, chlamydia tracomatis, Mycobacterium Leprae, Chlamydia Pneumonia.
Anaerobes: Clostridium perfringens, peptococcus species.
**Pharmacokinetics:** absolute bioavailability oral is 50% & protein binding 70%
**Indications:** Infections caused by susceptible organisms:
- Lower respiratory tract infection e.g. acute & chronic bronchitis & pneumonia.
- Upper respiratory tract infection e.g. pharyngitis & sinusitis.
- Skin & soft tissue infections e.g. folliculitis, cellulites & erysipelas.
**Contraindication:**
- Hypersensitivity to macrolides.
- Renal insufficiency (creatinine clearance < 30 ml per minute)
**Interaction:** It inhibits hepatic cytochrome P450 enzyme system & may be associated with elevation in serum level of warfarin, ergot alkaloids, triazolam, midazolam, disopyramide, lovastatin, phenytoin, cyclosporin and thiophylline & digoxin.
**Contraindications:** Pregnancy & Lactation unless the benefit is considered to outweigh the risk. In renal impairment (creatinine clearance < 30 ml / m)
**Adverse effects:** Nausea, dyspepsia, diarrhea, vomiting, abdominal pain, stomatitis, glossitis & oral monilia.
Headache, arthralgia, myalgia & allergic reactions Dizziness, vertigo, psychosis, increased liver enzymes. Prolongation of Qt internal & ventricular tachycardia.
**Dose:** 500mg tablet / day with foad and in severe infections, dose is increased to 500 mg / 12 hours. Duration of therapy 7-14 days. Supplied in modified-release tablet-XL

(Anti.I.D.) – [A] – {a} – 8 - **Tetracyclines**

(Anti.I.D.) – [A] – {a} – 8- 1- **Tetracyclines:**

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**Dose:** 250 mg every 6 hours up to 500 mg every 6-8 hours. Early syphilis, 500 mg 4 times daily for 15 days. Nongonococcal urthritis, 500 mg 4 times daily for 7-21 days.

**Indications:** Exacerbation of chronic bronchitis, infections due to brucella, clamydia, mycoplasma, rickettsia, some spirochetes and in acne vulgaris.

**Contraindications:** Hypersensitivity to any of the tetracycline's, systemic lupus erythematosis, pregnancy, breast feeding and children below 8 years, renal impairment (not doxycycline) porphyria (doxycyclin).

**Precautions:** Avoided in liver and severe renal impairment.

**Adverse effects:** Nausea, vomiting and diarrhoea pseudo-membranous enterocolitis, deposition in growing bone and teeth enamel, hepatic renal toxicity (with outdated preparations) photosensitivity and vestibular reactions.

**Drug interactions:** Antacids, anti-epileptics, diuretics, retinoids, lithium, oral anticoagulants, ergot alkaloids, methotrexate and oral contraceptives.

**Patient instructions:**
- Takes by a full glass of water on an empty stomach.
- Take with food or milk if stomach upsets.
- Do not take antacids or iron products.

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**Doxycycline:**

**Dose:** Orally available in 50 mg and 100 mg capsules every 12–24 hours.

**Indications:** Broad-spectrum antibiotics against mycoplasma, rickettsia, spirochete and chlamydia. It has longer duration than other tetracyclines.

**Precautions and contraindications:** It should not prescribe during pregnancy, lactating women or children below 12 years of age to avoid skeletal deformities and dental hypoplasia and staining.

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**Choloramphenicols**

**Choloramphenicol:**

**Dose:** For salmonella infections or severe rickettsial diseases: adult dose 2-3 gm daily for 2-3 weeks. Children 30 – 50 mg / kgm / day for 2 to 3 weeks. H. Influenza, 50-100 mg / kgm / day for 8-14 days. Meningitis 50 mg / kgm / day in 4 divided doses.

**Indications:** Broad-spectrum antibiotic, potentially toxic and is used for Haemophilus influenza and typhoid fever and severe CNS infections.

**Contraindications:** Pregnancy, breast-feeding and porphyria.

**Precautions:** Avoid prolonged and repeated doses, blood counts should be monitored.

**Adverse effects:** Nausea, vomiting, diarrhoea, bone marrow disturbances, gray baby syndrome.
Drug interactions: Rifampicin, oral anti-coagulants, sulphonylurea and anti-epileptics.

Patient instructions: Same as Amoxycillin.


(Anti.I.D.) – [A] – {a} – 10- 1- Rifampicin:

Dose: In tuberculosis (or other atypical mycobacterium) 600 mg /day in combination with other drugs. In elimination of meningococcal carriers, 600 mg twice daily for 2 days

Indications: In the treatment of tuberculosis (with other anti-tuberculosis drugs), leprosy (with a sulfone) and prophylaxis of meningococcal eningitis.

Contraindications: Jaundice and porphyria.

Precautions: The indiscriminate use of rifampicin for minor infections may lead to development of resistant mycobacterium.

Adverse effects: Nausea, vomiting, diarrhea, influenza syndrome, allergic reactions, acute renal failure, impaired liver enzymes, orange discoloration of body secretions.

Drug Interactions: Oral anti-coagulants, oral contraceptives, ketoconazole, cyclosporin, chloramphenicol and methadone.

Patient instructions:
- Take this medication with a full glass of water on empty stomach (1 hour before or 2 hour after meals) for best absorption.
- It is important to take this medication regularly as directed because inconsistent use might increase its toxicity.

(Anti.I.D.) – [A] – {a} – 11- Other Antibiotic

(Anti.I.D.) – [A] – {a} – 11- 1- Vancomycin HCL:

Dose: 0. 5 mg I.V. in 20 minutes every 6-8 hours. Child 20-40 mg/kg/day.

Indications: Sepsis or endocarditis caused staphylocoCCI resistant to other drugs.

Contraindications: Renal impairment or history of deafness.

Precautions: Rapid infusion can lead to flushing prevented by slow infusion and pretreatment with antihistamines. Blood counts, liver and kidney functions are required, reduce dose in elderly.

Adverse effects: Phlebitis at the site of injection, chills and fever.

Drug interactions: anion exchange resins, aminoglycosides, cephalosporins and loop diuretics.

Patient instructions:
• Report pain at infusion site, dizziness or fullness or ringing in ears with I.V. use.
• nausea or vomiting with oral use.

(Anti.I.D.) – [A] – {b} – Sulphonamides
(Anti.I.D.) – [A] – {b} – 1- Co-Trimoxazole:
Dose: 2 gm initially, then 1 gm twice up to three daily.
Indications: Acute uncomplicated urinary tract infections, in otitis media, chlamiedial infection and prophylaxis of meningococcal meningitis.
Contraindications: Hypersensitivty to sulfonamides, pregnancy near term, during breast feeding, infants 1-2 months porphyria patients with glucose-6-phosphate dehydrogenase deficiency, severe renal, hepatic or blood disease.
Adverse effects: Crystalluria, hematuria, skin rash, fever, photosensitivtyhaemolytic anaemia, and kernicterus in newborn.
Drug interactions: Methenamine compounds, sulphonylureas, phenytoin, oral anti coagulants, methotrexate.

Patient instructions:
• Take with full glass of water on an empty stomach.
• Drink several additional glasses of water daily.

(Anti.I.D.) – [A] – {b} – 2 - Sulfamoxole and Trimethprim:
Dose:960 mg every 12 hours (up to 1.44 gm ),480 mg every 12 hours if course for more than 14 days.child,6 weeks to 5 months,120 mg every 12 hours,6 months to 5 years 240 mg every 12 hours,6-12 years 480 mg every 12 hours. Prophylaxis of recurrent UT infections, 480 mg at night, child 6-12 mg/kg at night.
Indications: Urinary tract infections, typhoid fever, sinusitis, bone and joint infections due to H.influenza, Pneumocystitis carinii pneumonia.
Contraindications: Hypersensitivy to sulfonamides, pregnancy near term, during breast-feeding infants 1-2 months, porphyria patients with glucose-6-phosphate dehydrogenase deficiency, severe renal, hepatic or blood disease.
Precautions: In the elderly, in debilitated patients and in renal impairment. Advice plenty of fluid intake. Blood counts in long treatment courses.
Adverse effects: Megaloblastic anaemia, leucopenia and granulocytopenia, crystalluria, hematuria, skin rash, fever, photosensitivity.
Drug interactions: Thiopentone, oral anti-coagulants, sulphonylureas, phenytoin and cyclosporin.
Patient instructions: Similar to sulfamethaxazole.

(Anti.I.D.) – [A] – {c} – **Fluoroquinolones**

(Anti.I.D.) – [A] – {c} – 1- **Levofloxacin**:
Dose: Orally, 500 mg / day. Bactericidal by inhibiting DNA synthesis.
Indications: respiratory infection, against staph. Aureus, E.coli, Pseudomonas enterobacter, klebsiella.
Adverse effects: uncommon, arthropathy (cartilage damage), hepatotoxic, blood dyscrasias and photosensitization (pigmentation)
Drug interactions: Antacids interfere their absorption and xanthenes increase seizures.

(Anti.I.D.) – [A] – {c} – 2- **Ciprofloxacin**:
Dose: Tablets 250 mg, 500 mg, 750mg and ampoule 100 mg, vial 200 mg.tables every 12 hours and ampoule and vials I.M. or I.V. / 12 hours.
250-500mg/2 hours and via 200 mg/100 ml I.V. infusion
Indications: Used in various infections affecting respiratory tract, GIT, bone, surgery, meningitis (H-influenza) and typhoid.
Adverse effects and drug interactions: similar to levofloxacin.

(Anti.I.D.) – [A] – {c} – 3- **Norfloxacin**:
Dose: Tablets 400 mg and 800 mg / 12 hours.
Indications: Bactericidal against pseudomonas and in urinary tract and GIT infections.
Adverse effects and drug interactions: Similar to ciprofloxacin.

(Anti.I.D.) – [A] – {c} – 4- **Ofloxacin**:
Dose: Urinary tract infections 200-400 mg/day up to 400 mg (twice daily). Lower respiratory tract infection; 400 mg daily up to 400 mg (twice daily). Uncomplicated gonorrhoea, non-gonococcal urtheritis and cervicitis 400 mg as single dose.
Indications: Urinary tract infection, lower respiratory tract infection, gonorrhoea and non-gonococcal urtheritis and cervicitis.
Contraindications: Pregnancy, breast-feeding, patients below 18 hours. History of epilepsy or CNS disorders.
Precautions: May affect performance of skilled tasks.
Adverse effects: Nausea, vomiting, diarrhoea, headache, dizziness and insomnia.
Drug Interactions: Theophylline.
Patient Instructions:
- Take with food.
- Avoid antacid use.
- Avoid excessive exposure to sunlight.
- Report any tendon pain or inflammation.

(Anti.I.D.) – [A] – {d} – Urinary Antiseptics
(Anti.I.D.) – [A] – {d} – 1- Nitrofurantoin:
Dose: oral capsules 50 mg and 100 mg / 4-6 hours, 50 % excreted rapidly in urine, soluble in acid urine. Less toxic and safer than sulphonides for prolonged use.
Indications: Urinary tract infection (E.coli, strept, staph. Pyrogens and proteus.)
Adverse effects: GIT (nausea, vomiting, dyspepsia), rash, alopecia, asthma and jaundice.

(Anti.I.D.)– [A] – {e} - Antituberculous Drugs
(Anti.I.D.)–[A] – {e} – 1- Pyrazenamide:
It is related to isoniazide (pyrazinoic acid amide = adrenamide).
Dose: Antituberculous, orally 500 mg tablets. 25 mg /kg/day maximum 3gm /day divided into 3-4 doses.
Action: Tuberculostatic initially & later bactericidal. Activity less than streptomycin & isoniazide but more than PAS with rapid development of resistance (2 months).
Adverse effects: Hepatotoxic (15 %), G.I. disturbance, fever, hyperuricemia, uncontrolled diabetes & hemoplysis.

(Anti.I.D.) – [A] – {e} – 2- Ethambutol:
Dose: Adult and child above 6 years 15mg/kg/day.
Indications: Treatment of tuberculosis
Contraindications: elderly patients, children below 6 years, patient with impaired renal functions, low vision or optic neuritis.
Precautions: Periodic ocular examination is needed.
Adverse effects: Visual disturbances (loss of acuity, colour blindness, restrictions of visual fields) necessitates discontinuations of ethambutol, peripheral neuritis, hallucinations, joint pain, elevated blood uric acid, liver impairment, abnormal lung x-rays.
Drug interactions: Administrations of alcohol.
Patient instructions:
- Physical exams should include ophthalmoscope finger print, testing of color discrimination
• Changes in color perception are the first signs of toxicity.

(Anti.I.D.) – [A] – {e} – 3- **Isoniazid:**  
Dose: 300mg/day. Child, 6mg /kg/day .T.B meningitis, 10mg/kg/day.  
**Indications:** Treatment of tuberculosis.  
**Contraindications:** Pophyria, acute or chronic liver disease, previous INH-associated hepatitis.  
**Precautions:** It should be administered with caution to patient with convulsive disorder, chronic liver disease, and renal dysfunction. Periodic liver function tests and eye examination should be done. Pyridoxine 10mg/day is given to avoid peripheral neuropathy.  
**Adverse effects:** Nausea, vomiting, hypersensitivity reactions, peripheral neuritis, convulsions, hepatitis, and systemic lupus erythematosus-like syndrome.  
**Drug interactions:** Carbamazepine, ethosuximide, and phenytoin.

**Patient instructions:**  
• Avoid tasks that require alertness.  
• Avoid eating tuna, yeast, extracts, sausages, certain cheeses.  
• Changing test tape urine tests.

(Anti.I.D.) – [A] – {e} – 4- **Streptomycin:**  
Dose: Aminoglycoside for I.M injection 1 gm vial for systemic use in gram-negative bacteria.1gm / day. (Bactericidal)  
**Indications:** In gram negative infections, limited in tuberculosis, plague, tularemia & brucellosis  
(WITH tetracycline)  
**Action:** Inhibits protein synthesis, half-life 2 hours, protein bound 30 % with low renal excretion.  
Rapid bacterial resistance & synergy with B- lactulose with narrow therapeutic index.  
**Precautions & Adverse effects:** Ototoxicity, nephrotoxicity, neuromuscular blocker with narrow safety margin.  
**Contraindications:** Myasthenia gravis.

(Anti.I.D.)– [A] – {f} - **Anti-leprotic Drugs**  
(Anti.I.D.)– [A] – {f} – 1- **Clofazimine:**  
Dose: In Lepromatous lepra reactions, dose is increased to 300 mg daily for maximum of 3 months.  
**Indications:** Leprosy
**Contraindications:** Liver and kidney impairment, pregnancy and breast-feeding.

**Precautions:** Hepatic and renal impairment.

**Adverse effects:** Nausea, giddiness, headache and diarrhea in high doses, skin and urine are colored red.

**Patient instructions:** Red discoloration of skin and urine occurs.

(Anti.I.D.) – [A] – {f} – 2- **Dapson:**

**Dose:** By mouth adult 100mg daily , child 10-14 years 50mg daily .

**Indications:** Paucibacillary (pb) and multibacillary leprosy.

**Contraindications:** Hypersensitivity to sulfones, severe anemia.

**Precautions:** Anemia, G6PD deficiency, pregnancy and breast-feeding, porphyria.

**Adverse effects:** Haemolysis and methaemoglobinaemia, allergic dermatitis, Stevens Johnson syndrome, dapsone syndrome resembling mononucleosis, rash, fever, jaundice and eosinophilia, GI irritations, headache, nervousness, insomnia, blurred visions.

(Anti.I.D.) – [B]-Antiviral

(Anti.I.D.) – [B] – 1- **Acyclovir:**

**Dose:** Herpes simplex treatment Adult: 200 mg-400mg (in the immunocompromised) 5 times daily for 5 days. Children 2 years: 1/2 adult dose, above 2 years, adult dose. Herpes simplex prophylaxis: adult 200 mg 4 times daily, reduced to 200 mg 2 or 3 times daily and interrupted every 6-12 months. Herpes simplex prophylaxis in the immunocompromised: Adult dose: 200-400 mg 4 times daily. Children under 2 years; 1/2 adult dose and above 2 years, adult dose. Herpes zoster: adult dose: 800 mg 5 times daily for 7 days.

**Indications:** Prophylaxis and treatment of herpes and varicella virus.

**Contraindications:** Patients allergic to acyclovir.

**Precautions:** Maintain adequate hydration; doses should be adjusted according to creatinine clearance.

**Adverse effects:** Rashes, GIT upsets, disturbance in liver, kidney and hematological indices.

**Drug interactions:** Nephrotoxic drugs, zidovudine and probenicid.

**Patient instructions:**

- Use a finger coat or latex glove when applying ointments.

(Anti.I.D.) – [B] – 2- **Ribaverin:**

**Dose:** Orally 200 mg capsules divided doses 400 mg (A.M.) and 600 mg
P.M. in patient less than 75 kg or 600 mg twice daily in patients more than 75 kg. It is combined with interferon for 6-12 months to reduce virus relapse. Its target end point is the disappearance of virus from serum (serum conversion).

**Action:** It is guanine analogue against broad spectrum DNA and RNA viruses.

**Adverse effects:** Hemoglobin reduction, dyspnea, pharyngitis, pruritus, rash, nausea, insomnia, anorexia and depression.

(**Anti.I.D.**) – [**B**] – 3- **Interferon:**

**Indications:** Used as prophylaxes against rhinoviruses cytomegalovirus infections in transplant patients and in the treatment of herpetic keratitis. Interferons are also used in management of some neoplasms (Kaposi sarcoma, hairy cell leukemia, chronic granulocytic leukemia, multiple myeloma and renal cell carcinoma).

**Contra-indications:** Hypersensitivity to interferons, severe cardiac, renal, hepatic or CNS disorders, or in patients taking drugs that may lead to these conditions.

**Precautions:** Antibodies may develop to exogenous interferons and diminish their activity.

**Adverse effects:** Influenza-like symptoms (fever, chills, headache), anorexia, weight loss bone marrow depression, renal, cardiovascular and CNS abnormalities.

**Drug Interactions:** Vidarabine, theophylline, zidovudine, melphalan and paracetamol.

**Patient instructions:**
- Instruct in proper method of aseptic preparation of vials and syringes in subcutaneous use.
- Acetaminophen is recommended to reduce frequent Flu-like symptoms.
- Rotate subcutaneous injection sites.

(**Anti.I.D.**) – [**C**] – Anti-fungal Drugs

(**Anti.I.D.**) – [**C**] – 1- **Nystatin:**

**Dose:** For intestinal candidiasis, 500000 U every 6 hours, doubled in severe infections. Children, 100000 U 4 times / day.

**Indications:** Candidiasis.

**Precautions:** Pregnancy and breast-feeding.

**Adverse effects:** Nausea, vomiting and diarrhea.

**Patient instructions:**
- If you are using this drug to treat a vaginal infection, avoid sexual intercourse.
Use vaginal tablets continuously, even during menstrual period.
Do not douche during treatment.
If symptoms do not begin to improve 2 or 3 days after starting nystatin, contact your doctor.

(Anti.I.D.) – [C] – 2- Fluconazole:
It is triazole derivative, anti-mycotic for systemic use.
**Dose:** Capsule 50 mg, 150 mg, syrup 5 mg / ml and infusion I.V. 2 mg / ml 50 ml.
**Indications:** For systemic fungal infections in immunocompromised patients, in prophylactic & release prevention.
**Contraindications:** Liver disorders (hepatotoxic).

(Anti.I.D.) – [C] – 3- Amphotericin B:
**Dose:** Slow I.V. Infusion, 250 microgram / kg/day gradually increases if tolerated 1 mg/kg/day maximum 1.5 mg/kg/day on alternate days.
**Indications:** Systemic fungal infections.
**Contraindications:** Patients allergic to amphotericin.
**Precautions:** Reduce dose in renal impairment. Monitor kidney and liver functions, electrolyte and blood indices. Control reactions with anti-histamines, aspirin or phenothiazine.
**Adverse effects:** Chills, fever, vomiting, headache, impair renal and hepatic functions, anaemia, hypotension, and hypokalemia.
**Drug interactions:** Aminoglycosides, cephalosporins, cyclosporin, miconazole.

Patient instructions:
- Shake container well before use.
- Take mineral supplements by mouth.
- Hold the product in your mouth for 1 minute then swallow.
- This preparation can stain clothing.

(Anti.I.D.) – [C] – 4- Griseofulvin:
**Action:** Fungistatic by binding to cell lipids. Absorbed orally.
**Uses:** Treatment of choice in tinea capitis, barbe, cruris, cerporis, pedis & onychomycosis.
**Dose:** 1 gm / d (adult) & 0.5 gm / d (children) for 1-2 months or longer.
Dose is divided every 6 hours. 125 mg. Cap. 125, 250mg Tablets, oral suspension 250 mg / 5 ml.
**Adverse effects:** (15%) nausea, gastric discomfort, heartburn, diarrhea, paresthesia, photosensitivity, headache, fatigue, lethargy, insomnia, incoordination, rash, leucopenia (2-3 % discontinue due to side effects).
**Dose:** 200 mg - 600 mg / day depending on site and severity of infection. Give dosage over 200 mg / day in 2-3 divided doses
**Indications:** Treatment of blastomycosis, aspergillosis and histoplasmosis fungal infections. Treatment of dermatophytosis, candidiasis, cryptococcus.
**Contraindications:** Coadministration with terfenadine, astemizole, cisapride, triazolam or oral midazolam.
**Precautions:** Pregnancy (category c), lactation (excreted in milk). Absorption may be decreased in HIV-infected individuals with hypochlorhydia
**Adverse effects:** Rash, pruritus and other skin irritations.
**Drug interactions:** Astemizole, cisapride, terfenadine coadministration. Do not use together with phenytoin, sulfonylurea, tacrolimus, and warfarin.
**Patient instructions:** Tell patient to report these symptoms to physician; rash, swelling, itching, yellow skin.

**Dose:** Topical, apply sufficient quantity to cover the affected areas once daily for 2 weeks to 1 month.
**Indications:** Treatment of tinea pedis, tinea cruris, tinea corporis, cutaneous candidiasis, tinea versicolor (Against dermatophytes & Candida).
**Contraindications:** Allergic reactions to econazol.
**Precautions:** Use with cautious in blistered, raw, or oozing area of skin, worsening skin irritation during drug therapy. Consult your doctor before you begin breast-feeding.
**Preparation:** cream 1% Topical powder and topical spray.
**Adverse effects:** Burning, Itching, stinging and erythema.
**Patient instructions:**
- Teach patient to wash and dry skin before applications.
- Advise patient to report signs of hypersensitivity such as rash, burning or redness.

(Anti.I.D.) – [D]- Anti-protozoal drugs

(Anti.I.D.) – [D] - {a} – Antiamoebiasis & Antigardiasis

(Anti.I.D.) – [D] - {a} – 1- *Metronidazole*:
**Dose:** For anaerobic infections, oral, 400 mg every 8 hours for 3 days then 1 gm every 12 hours. I.V infusion: 500 mg every 8 hours for up to 7 days. Child: 7.5 mg/kg (any route) Bacterial vaginosis, oral, 400 mg twice daily for 7 days, or 2 gm as a single dose. Trichominiasis, oral, 200 mg every 8 hours or 400 mg every 12 hours for 7 days, or 2 gm as a single dose.
Amoebiasis: 800 mg every 8 hours for 5 days, Gardiasis: 2 gm daily for 3 days. Acute ulcerative gingivitis: 200 mg daily for 3 days.

**Indications:** Against anaerobic bacteria and protozoa (Bacteroids fragilis, Entamoeba histolytica, Trichomonas vaginalis and giardia lamblia) and in the management of pseudo-membranous colitis.

**Contra indications:** Porphyria.

**Precautions:** High doses should be avoided in pregnancy and breastfeeding. Dose should be reducing in hepatic impairment and should be given with great care to patients with blood dyscrasias or active disease of the CNS.

**Adverse effects:** Nausea, vomiting metallic taste and GIT upsets, drowsiness, headache, peripheral neuropathy with prolonged treatment and seizures with high doses.

**Drug Interactions:** Alcohol, antiepileptics, anticoagulants, cimetedine, disulfiram.

**Patient Instructions:** When metronidazole is used to treat vaginal infection, sexual partners should receive concurrent therapy in order to prevent reinfection.

(Anti.I.D.) – [D] - {a} –2- **Diloxanide furoate:**

**Dose:** 500 mg daily for 10 days Child: 20 mg /kg daily in divided doses for 10 days course could be repeated if necessary.

**Indications:** Active against intestinal amoebiasis and used alone in asymptomatic patients (intestinal or hepatic amoebiasis).

**Precautions:** Pregnancy and lactation.

**Adverse effects:** Flatulence, vomiting, pruritis and urticaria.

**Patient Instructions:** 1-Do not stop taking the drug before completing the course.

(Anti.I.D.) – [D] - {a} –3- **Tinidazole:**

**Dose:** For anaerobic infections: 2 gm initially followed by 1 gm daily or 500 mg twice daily for 5-6 days. Bacterial vaginosis, trichomoniasis, giardiasis and acute ulcerative gingivitis: a single 2 gm dose. Child: single dose of 50-75 mg/kg. Intestinal amoebiasis: 2 gm daily for 2-3 days.

Child: 50-60-mg/kg daily for 5 days.

Abdominal surgical prophylaxis: single 2 gm dose 12 hours before surgery.

**Indications:** Active against a range anaerobic and protozoal infections (it differs from metronidazole in having a longer life allowing its administration in single daily doses).

**Contra indications:** Porphyria.

**Precautions, Side effects, Drug interactions, Patient instructions:** As for metronidazole.
(Anti.I.D.) – [D] – {b} -Antimalarials

1. Chloroquine Phosphate:

**Dose:** Treatment of benign malaria, oral, initial dose 600mg, then 300mg after 6-8 hours, then 300mg / day as a single for 2 days. Child, initial dose 10mg / kg then 5mg / kg after 6-8 hours then 5mg / kg day as a dose for 2 days. Treatment of malignant. Malaria: I.V infusion, 10mg / kg infused over 8 hours followed by 3-8 hours infusions of 5mg / kg. Child, oral, as the child oral doses of benign malaria. Parenteral, as for adults.

**Indications:** Chemoprophylaxis and treatment of malaria. In rheumatoid arthritis and lupus erythematosus

**Contraindications:** Porphyria, psoriasis.

**Precautions:** Large I.M doses or rapid infusions may cause severe cardio-respiratory depression. Used cautiously in patients with retinal abnormalities, liver damage, alcoholism, and neurological or hematological disorders. Ocular examination in long-term treatment, severe G.I disorders elderly, G-6-PD deficiency, porphyria, and myasthenia gravis.

**Adverse effects:** Headache, GIT upsets, pruritis and visual disturbances (with large doses).

**Drug interactions:** Antacids, antidiarrheals, cholinergics and cimetidine.

**Instructions:**
- Take with food.
- Store at controlled room temperature. Protect from light.
- Irreversible damage to the retina of eye so periodic eye examination Exams should be performed.
- Do not change the dose or stop taking unless advised.

2. Pyrimethamine:

**Action:** It is Diamenopyrimidine of high potency, slow onest (not used in acute malarial attack) & more prolonged action against malaria. It attacks the primary tissue schizonts before entering R.BCs (Exo-erythrocytic stage) specially plasmodium falciparum. It prevents the PABA uptake in the synthesis of folic acid. Therefore, sulfadoxine potentiates its action (Fansidar).

**Pharmacokinetics:** It is greatly concentrated in tissues & 20% excreted unchanged in urine.

**Dose:** 25mg Tablet / week for 10 week & children 12.5mg.

**Adverse effects:** Stomatitis, vomiting, abdominal pain, colitis, diarrhea, leucapenia, megaloblastic anemia, thrombocytopenia & hemolytic anoemia.

**Use:** Causal prophylaxis antimalarial.
(Anti.I.D.) [D] – {c} -Anthelmentic

(Anti.I.D.) [D] – {c} – 1- **Praziquantel:**

**Dose:** 40 mg/kg as a single oral dose.

**Indications:** Effective against all human schistosomes, trematodes and cestodes, fluke infections.

**Contraindications:** Pregnancy, ocular cysticercosis.

**Precautions:** Breast-feeding should be stopped 72 hours after drug administration. In cases of cerebral cysticercosis, coadministration of corticosteroids is advised.

**Adverse effects:** G I T upsets, drowsiness and lethargy, headache, rarely hypersensitivity reactions.

**Drug Interaction:** Dexamethasone.

**Patient instructions:**
- Administer tablets during meals with liquids and not to chew tablets.
- Drug may cause drowsiness so use caution while driving or performing other tasks requiring mental alertness.

(Anti.I.D.) [D] – {c} – 2- **Flubendazole:**

**Dose:** It is an analogue of mebendazole. For the treatment of Entrobiasis: 100 mg single dose repeated after 2-3 weeks if necessary. For ascariasis, hookworms and trichuriasis: 100 mg twice daily for 3 days.

**Indications:** Threadworm, hookworm, roundworm and whipworm infestations.

**Contraindications, side effects, drug interactions and patient instructions** similar to mebendazole.

(Anti.I.D.) [D] – {c} – 3- **Levamisole:**

**Dose:** In case of ascariasis: 120-150 mg as a single oral dose, children: 3 mg/kg. For hookworm or mixed infections: 300 mg is given over 1-2 days.

**Indications:** Against roundworm and hookworm infestations. It is also used as an immune-stimulant and as adjunct in patients with malignant diseases.

**Contra-indications:** Levamisole should not be given to patients with pre-existing blood disease or sjogren syndrome. Breast-feeding.

**Adverse effects:** G I T upsets and dizziness. After longterm use as immuno-stimulant hypersensitivity reactions, CNS disturbances and hematolgic disorders are reported.

**Precautions:** pregnancy.

(Anti.I.D.) [D] – {c} – 4- **Mebendazole:**

**Dose:** For threadworm: 100 mg single dose, if re-infection occurs a second dose may be needed after 2-3 weeks. For Ascariasis: 100 mg twice daily for 3 days.

**Indication:** Threadworm, hookworm, roundworm and whipworm infestations.
Contra indications: Pregnancy especially first trimester and children under 2 years.
Precautions: Allergic to the medicine.
Adverse effects: Abdominal pain and diarrhea.
Drug interactions: Carbamazepine (Tegretol), Cimetidine (Tagamet), hydantoins (phenytoin).
Patient instructions:
- Doses vary according to type of parasite.
- Tablets may be chewed, swallowed or crushed and mixed with food.
- Laxative therapy and fasting are not necessary.
- If one family member has a pinworm infection, treat all family members in close contact with the patient.
- Strict hygiene is essential.

(Anti.I.D.) [D] – {c} – 5- Niclosamide:
Dose: Taenia solium; 2 gm as a single dose after a light breakfast followed by a purgative after 2 hours, child up to 2 years: 500 mg, 2-6 years: 1 gm. For the treatment of T.saginata and Diphyllobothrium Latum as before, but half the dose may be taken after breakfast and the reminder one hour later followed by a purgative after a further 2 hours. Hymenolepis nana: 2 gm on first day, then 1 gm daily for next 6 days: child up to 2 years: 1/4 adult dose: 2-6 years1/2 adult dose.
Indications: For all types of tapeworms.
Precautions: The tablets should be chewed thoroughly. Anti-emetic should be given before treatment.
Contraindications: pregnancy.
Adverse effects: GIT upsets, light-headness and pruritis.
Patient instructions: Tablets should be chewed or crushed thoroughly before washing down with water.

(Anti.I.D.) – [E] - Antiseptics and Disinfectants
(Anti.I.D.) - [E] – 1- Cetrimide:
Action:
- It is cationic detergent (surfactant), quaternary germicide. It is bactericidal affecting cell wall (cytolysis), denature and precipitate proteins.
  It acts against Gram positive & negative organisms but not active against spores, veriuises or fungi. Activity increases in alkaline PH & decreases in plasma & organic matter.
- Keratolytic action & emulsifying agent.
• It has low toxicity & non-irritant with rapid onset of action.

Preparations & Dose (for external use):
• 0.1% for minor wounds & Napkin rash.
• 0.5% in 70% alcohol for skin sterilization pre-operative.
• 1% for instruments.

(Anti.I.D.) - [E] –  2- Chlorhexidine Gluconate (Sol):
Dose: Rinse mouth with 10 ml for 1 minute 2 times / day.
Indications: Oral hygiene and inhibition of plaque formation.
Precautions: It is not used if the patient is allergic to the drug or any ingredient.
Adverse effects: Idiosyncratic mucosal irritation and reversible brown staining of teeth.
Patient instructions:
  • Avoid contact with middle ear, eyes, brain, and meninges.
  • Not for use in body cavities.

(Anti.I.D.) - [E] –  3- Hydrogen Peroxide (Sol):
Dose: Rinse mouth for 2-3 minutes with 15 ml in water 2-3 times / day.
Indications: Oral hygiene.

(Anti.I.D.) - [E] –  4- Chloroxylenol (for external use):
Action: similar to cetrimide & non-irritant.
Dose: 5% is potent.
(Anti.I.D.) - [E] –  5- Povidone Iodine:
Povidone Iodine 10%: To be applied undiluted in pre-and post-operative skin disinfections.
Povidone Iodine 7.5%: For infected skin conditions. Retain on scalp for 5 minutes before rinsing.
Tincture Iodine 2.5%: To be used undiluted in minor skin wounds.
Precautions: Pregnancy and breast-feeding.
Adverse effects: Rarely sensitivity may interfere with thyroid function tests.

(Anti.I.D.) - [E] –  6 - Gentian violet (crystal violet):
Dose: Apply 2 or 3 times daily for 2-3 days.
Indications: Antiseptic dye against some gram-positive bacteria and candida (less active against gram negative bacteria and ineffective against acid fast bacteria and spores).
Contraindications: ulcerative lesions, broken skin, mucous membranes.
Precautions: Avoid contact with eyes, mucous membranes and broken skin. Animal carcinogenicity has restricted its use.
Adverse effects: **Can produce irritation and ulceration of skin, stains skin and clothing.**

**Patient instructions:**
- Avoid contact with eyes, nose or mouth.
- Wear well-fitting and ventilated shoes, change socks at least once a day.

**(Anti.I.D.) - [E] – 7- Castellani paint (Magenta Paint):**
**Indications:** Antiseptic dye effective against some gram positive bacteria and fungi, used in the treatment of some superficial dermatophytosis specially when moist eczematous dermatitis is present
**Precautions:** Possible carcinogenicity has restricted its use.

**(Anti.I.D.) - [E] – 8- Silver Sulphadiazine:**
**Dose:** In burns apply daily with a sterile applicator. In leg ulcers, apply at least three times / week. Topical cream 1%.
**Action:** Against gram positive bacteria (Staph., strept. & Cl.welcii) and gram negative bacteria (neisseria & enterobacteria). It is non-irritant with high penetration.
**Indications:** Skin infections particularly gram-negative infections e.g. pseudomonal infections in second and third degree burns, in infected leg ulcers and pressure sores.
**Contraindications:** Sensitivity to sulfonamides, pregnancy, neonates.
**Precautions:** Hepatic and renal insufficiency, G6PD deficiency, breast-feeding.
**Adverse effects:** Rarely hypersensitivity reactions, argyria and sulphonamide-induced systemic toxicity.
**Drug interactions:** Tell your doctor if you are taking over-the-counter drugs. Proteolytic enzymes interact with silver sulphadiazine.
(E.) – [A]- Anti-diabetics

(E.) – [A] – {a}-Insulins

(E.) – [A] – {a}- 1- Human Insulins:

**Dose:** Short acting (S.C., I.M., I.V., or infusion), when injected S.C it has an onset of action within 30-60 minutes and a peak action between 2-4 hours and a duration of 8 hours. Intermediate and long acting insulins, S.C. only, have an onset of action of about 1-2 hours with a peak effect after 4-12 hours and duration lasting 16-35 hours.

**Indications:** In insulin dependent diabetes mellitus and in diabetic ketoacidosis. In some patients with non-insulin dependent diabetes mellitus (during periods of severe infections, stress or trauma,during surgery ).In all types of diabetes mellitus during pregnancy.

**Contraindications:** Hypoglycaemia.

**Precautions:** Increased dosage requirements are necessary during infection, accidental or surgical trauma, stress puberty, the latter two trimesters of pregnancy, and liver or renal impairment. Changing of Insulin form one species to another or during excessive exercise may also require dosage adjustments. Frequently monitoring of blood and urine for glucose and ketones is essential.

**Adverse effects:** Hypoglycaemia lipotrophy or lipodystrophy at the site of injection, local or systemic hypersensitivity reactions antibody formation.

**Drug Interactions:** Alcohol, monoamine oxidase inhibitors, diazoxide, beta-blockers, nifedipine, clofibrate, corticosteroids, loop diuretics and thiazide diuretics, octreotide, lithium, and oral contraceptives.

**Patient instructions:**

- If your physician prescribes 2 types of insulin and recommends mixing, always draw the regular insulin (clear) into syringe first.
- Some insulin react quickly and require immediate injection.
- Always have insulin and syringes available.
- Do not store insulin in your car glove compartment.
- You should eat on a regular schedule.

(E.) – [A] – {a}- 2- Bovine insulins:

**Dose:** Actrapid 20 IU, Actrapid Mc 40 IU, Neutral 20 IU /ml.

All following are vials 10 ml, each contains 40 I.U/ml: Initard, Insulatard, Isophane NPH Novo, Lent,, Mixtard ,Monotard,Neutral,NPH Retard ,Raptard,Semilent M.C.

**Actions:** Secreted from langrhan B cells of pancreas . It has important Metabolic actions mainly regulate blood glucose level: glucosides, glycogenesis, gluconeogenesis and lipogenesis .It antagonizes the metabolic
effects of the other hormones (growth H., thyroxine and glucocorticoids).

**Indications:** Mainly for treatment patients with insulin-dependent (Type 1) diabetes mellitus and occasionally in type 2 non – insulin dependent and with complications e.g. pregnancy, ketoacidosis, infection and stresses.

**Contraindications:** Hypoglycemia, allergy, anti-body formation (decreased action),skin lipo-atrophy ,necrosis and ulceration (intradermal).

(E.) – [A] – {b}- Biguanides
(E.) – [A] – {b} –1- **Metformin:**

*Dose:* Initial dose.500 mg 3 times/day, gradually increased if necessary to a maximum 3 gm/day.

**Indications:** Non –insulin dependent diabetes mellitus especially in obese patients who have gained weight under sulphonylurea despite adequate dietary modifications.

**Contraindications:** In conditions of heart, hepatic or renal failure, dehydration, acute or chronic alcoholism, insulin dependent diabetes mellitus breast feeding, pregnancy, porphyria, ketoacidosis, surgery, severe infections and stress.

**Precautions:** Requirement may vary during periods of excessive exercise.

**Adverse effects:** GIT upsets (anorexia, nausea, metallic taste), weight loss, impaired vitamin B12 absorption and lactic acidosis.

**Drug interactions:** Alcohol, mono-amine oxidase inhibitors, diazoxide, beta-blockers, nifedipine, clofibrate, corticosteroids, loop and thiazide diuretics, octreotide, lithium, oral contraceptives and Cimetidine.

**Patient instructions:**
- Take it just before meals.
- Don’t take if you have stroke, myocardial infarction, hyperventillation, serious infections require surgery.
- Contact your physician if gastrointestinal side effects persist.

(E.) –[A] – {c} - Salfonylureas
(E.) –[A] – {c} – 1- **Glibenclamide:**

*Dose:* Initially 5 mg / day (2.5 mg in elderly adjusted according to response (maximum 15 mg) taken at breakfast.

**Indications:** Non –insulin dependent diabetes mellitus (to supplement treatment by diet modification).

**Contraindications:** Insulin dependent diabetes mellitus breast-feeding, pregnancy, porphyria, ketoacidosis, surgery, severe infections and stress.

**Precautions:** Elderly, renal failure and periods of excessive exercise.
**Adverse effects:** GIT upsets and headache. Rarely sensitivity reactions or blood disorders may occur.

**Drug interactions:** Alcohol, azapropazone, phenylbutazone, chloramphenicol, Co-trimoxazole, sulphonamides, rifampicin, miconazole, mono-amine oxidase inhibitors diazoxide, beta-blockers, nifedipine, clofibrate, corticosteroids, loop diuretics and thiazide diuretics, octreotide, lithium, oral contraceptives and sulphipyrazone.

**Patient instructions:**
- Follow the special diet that your doctor gave u.
- Avoid drinking alcoholic beverages.
- Eat or drink something containing sugar if you had any symptoms of low blood sugar.

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(E.) – [B] - Posterior Pituitary Hormones

(E.) – [B] – 1- **Oxytocin:**

**Dose:** Slow I.V. infusion, as a solution containing 1 unit/l, 1-3 minute adjusted according to response.

**Indications:** In induction and augmentation of labour, to control postpartum hemorrhage and Uterine hypotonicity in the third stage of labour, and to promote lactation in case of faulty milk ejection.

**Contraindications:** Women with severe toxemia, hypertonic uterine dysfunction, predisposed to uterine tear (high parity, uterine scar). Placenta praevia, mechanical obstruction of delivery and obvious fetal distress.

**Precautions:** Should be given in induction before head engagement. Hypertension and pressor drugs (reduce rate of infusion).

**Adverse effects:** Severe uterine contractions leading to uterine tear and foetal asphyxia, maternal hypertension, and arrhythmia.

**Drug Interactions:** pressor drugs and oxytocics.

**Patient Instructions:**
- Clear nasal passages, first sit, do not lie down or tilt head back, hold bottle upright into vertical position (nasal spray).
- Early contractions will feel like strong menstrual cramps.

(E.) – [B] – 2- **Desmopressin Acetate:**

**Dose:** Tablets 0.1, 0.2 mg, drops, spray 0.1 mg/ml (nasal) and ampoule 0.4 mg. Transnasal 40 microgram at bedtime or tablets 400-600 mg/day for 6 weeks as trial and therapy should be continued for 2-4 months (enuresis).

**Indications:**
- Diabetes insipidus.
- Mild to moderate hemophilia to increase factor VIII
- Concentration.
- Variceal bleeding due to portal hypertension.
- 4-Enuresis.

**Adverse effects:** Transnasal: epistaxis and nasal stuffiness. Nasal congestion (allergic rhinitis and upper respiratory infection) decreases absorption.

**(E.) – [C] - Glucocorticoids**

**(E.) – [C]-1- Dexamethasone:**

**Dose:** Oral, 0.5-9 mg/day. By I.M or slow I.V. or infusion, 0.50-20 mg. In shock by I.V injection or infusion 2-6 mg/kg, repeated if necessary after 2-6 hours. Cerebral oedema by I.V injection 10 mg then 4 mg by I.M every 6 hours for 2-10 days. Intra-articular 0.8-4 mg, injections to be repeated every 3-5 days to every 2-3 weeks. Eye drops, apply 4-6 times/day or in severe conditions every hour until controlled then reduce frequency.

**Indications:** Cerebral oedema, congenital adrenal hyperplasia, prevention of nausea and vomiting of cancer chemotherapeutics, intra-articular and topically in eye inflammations (uveitis, scleritis and to reduce post-operative inflammation) or intra-lesional.

**Contraindications:** Systemic fungal infections, administration of live virus vaccines to patients receiving an immuno suppressive dosage of dexamethasone.I.M use in idiopathic thrombocytopenic purpura and pregnancy.

**Precautions:** It is especially imp. To tell your physician about abdominal enlargement or pain, acne or other skin problems in back or rib pain.

**Adverse effects:** perineal itching or burning can occur after I.V administration.

**Drug Interactions:** Alcohol, aspirin, anti inflammatory medications, warfarin, insulin, Thiazide diuretics, Phenobarbitane, rifampin, ephedrine, oral contraceptives, cholestyramine, colestipol.

**Patient Instructions:**
- Do not stop taking it suddenly, if you have been taking this drug for more than 1 or 2 weeks.
- Never increase the dosage or take the drug for longer than prescribed.
- You should not be vaccinated or immunized.
- Blood sugar can be monitored.
- An ophthalmologist should examine your eyes.
(E.) – [C] – 2- **Prednisolone:**

**Dose:** 10-20 mg (up to 60 mg)/day, maintenance 5-15 mg/day (Cushingoid side effects increases with doses above 7.5 mg/day).

**Indications:** In physiological doses for replacement therapy in adrenal insufficiency. In pharmacological doses to induce palliative anti-inflammatory or immuno-suppressant effects.

**Contraindications:** Unless life saving, corticosteroid therapy should be contraindicated in peptic ulcer, psychoses and osteoporosis. Corticosteroids should be used with great caution in severe hypertension, congestive heart failure, diabetes mellitus, infectious disease, glaucoma, undiagnosed red eye, ocular herpes simplex, chronic renal failure, elderly or active tuberculosis.

**Precautions:** Rapid withdrawal may precipitate adrenal insufficiency, hypotension and death. During long courses of corticosteroid therapy monitor: blood pressure, blood glucose, potassium and ask for symptoms of gastric discomfort or back-pain.

**Adverse effects:** Diabetes mellitus, osteoporosis (specially in elderly), mental disturbances, spread of infection, peptic ulceration, Cushing syndrome, suppression of growth in children, affect fetal adrenal development and steroid cataract (daily oral prednisolone for years). Joint damage after repeated intra-articular injection and glaucoma after topical dexamethasone or prednisolone for weeks). Sodium and water retention, potassium depletion and hypertension (highest incidence with hydrocortisone, less with prednisolone and least with dexamethasone).

**Drug Interactions:** Barbiturates, carbamazepine, phenytoin, primidone, rifampicin, thiazide furosemide, NSAIDs, anti-coagulants, anti-diabetics, anti-hypertensives and anti-muscarinics.

**Patient instructions:** similar to Dexamethasone.

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(E.) - [D] - **Female Sex Hormones**

(E.) - [D] - **Norethisterone:**

**Dose:** 5 mg tablets /12 hours for 3 weeks.

**Indications:**
- Metropathia hemorrhagic (dysfunctional uterine bleeding) as uterine haemostatic agent.
- Deficient endometrial luteal phase of the cycle e.g. premenstrual syndrome.
- Dysmenorrhea and endometriosis (to suppress ovulation)

**Adverse effects:** oedema, nausea, headache, and cholestatic jaundice.
(E.) – [E] - Contraceptive

(E.) – [E] - 1. Medroxy Progesterone Acetate:
**Dose:** In dysfunctional uterine bleeding and amenorrhoea 2.5-10 mg/day for 5-10 days starting on the assumed 16th or 21st day of the cycle. In mild and moderate endometriosis 10 mg 3 times / day or 100 mg every 2 weeks by I.M. injection for 90 consecutive days. In breast carcinoma, 0.4-1.5 gm/day, in renal, endometrial and prostatic carcinoma 100-500 mg/day.
**Indications:** In dysfunctional uterine bleeding, amenorrhoea, endometriosis, palliative treatment of some neoplasms and progesterone only contraceptives.

(E.) – [E] - 2. Ethinyl Oestradiol:
**Dose:** In replacement therapy, 10-50 micro gram / day on a cyclical basis and in conjunction with a progestogen for part of the cycle (in females with uterus). In primary amenorrhoea 50 micro gram 3 times/ day for 14 days every 4 weeks followed by progesterone for the next 14 days. In prostatic cancer 0.15-2mg/day, in breast cancer 1 mg 3 times/day.
**Indications:** Menopausal and post amenorrhea, oestrogenic component in some contraceptives, palliative treatment of some malignant neoplasms of prostate and breast in postmenopausal females and with norethisterone for disorders of menses. Contraindications, Precautions, Side effects, Drug Interactions, Patient Instructions (Similar to oestradiol).

(E.) – [E] - 3. Oestradiol:
**Dose:** As oily solution to provide a depot for I.M injection every 3-4 weeks.
**Indications:** Menopausal, post-menopausal and menstrual symptoms arising from oestrogen deficiency. Also used in the prophylaxis of post-menopausal osteoporosis.
**Contraindications:** pregnancy, estrogen-dependent carcinoma, history of thrombo-embolism, Dubin-johnson and Rotor syndromes, porphyria, sickle cell anemia, undiagnosed vaginal bleeding, and deterioration of otosclerosis.
**Precautions:** Prolonged exposure to unopposed oestrogen may predispose to endometrial carcinoma in post-menopausal females. Breast-feeding, diabetes, epilepsy, asthma, hypertension, vascular headache, cardiac or renal diseases, and history of jaundice.
**Adverse effects:** Nausea, vomiting, weight gain, breast enlargement, withdrawal bleeding, sodium and water retention with oedema and hypertension (minimal with replacement therapy), in liver disorders.
Jaundice, thrombosis, rashes, chloasma, depression, headache and endometrial carcinoma in postmenopausal females.

**Drug Interactions:** Cyclosporin, rifampicin, ampicillin, tetracyclines, oral anticoagulants, tricyclic antidepressants, antidiabetics, griseofulvin, antihypertensives, carbamazepine, phenytoin, primidone, phenobarbitone, diuretics and theophylline.

- Report if severe or persistent headache or vomiting, speech impairment, chest or abdominal pain.
  - Take with food, milk or antacid.
  - Avoid excessively hairy, oily or irritated areas.
  - Do not apply to breast or waistline.
  - Rotate sites with an interval of at least 1 week between applications to particular sites.

**Patient Instructions:**

*(E.) - [E] – 4- Progesterone:*

**Dose:** In dysfunctional uterine bleeding 5-10 mg/day I.M. injection for 5-10 days before the anticipated onset of menses. Habitual and in vitro fertilization 25-100 mg twice/week increased to daily if necessary from about the 15 Th day of pregnancy or embryo transfer. In pre-menstrual syndrome or puerpural depression 200-400 mg (once or twice / day) on day 14 of cycle and continued till onset of menses.

**Indications:** Dysfunctional uterine bleeding, habitual abortion, Invetro fertilization (IVF) procedures, pre-menstrual syndrome, puerpural depression and incorporated in intrauterine contraceptive devices.

**Contraindications:** Undiagnosed vaginal bleeding, missed or incomplete abortion, breast carcinoma, disturbances in lipid profile and porphyria (progesterone).

**Precautions:** Breast feeding, diabetes, hypertension, renal, hepatic or cardiac disease.

**Adverse effects:** Acne, urticaria, oedema, weight gain, GIT upsets, premenstrual symptoms, irregular menses.

**Drug Interactions:** Cyclosporin, rifampicin, ampicillin, tetracyclines, oral anticoagulants, tricyclic antidepressants, antidiabetics, griseofulvin, antihypertensives, carbamazepine, phenytoin, primidone, phenobarbitone, diuretics and theophylline.

**Patient Instructions:** similar to medroxy progesterone.
(E.) – [F] - Ovulatory stimulants

(E.) – [F] - 1- Clomiphene:

Dose: 50 mg/day for 5 days starting on the 5th day of the menstrual cycle. In absence of ovulation a second course of 100 mg/day for 5 days may be given. Long-term cyclical therapy is not recommended.

Indications: Treatment of anovulatory infertility, in conjunction with gonadotrophine in vitro- fertilization programmes.

Contraindications: Patients with liver disease or a history of liver dysfunction, endometrial carcinoma, ovarian cysts, undiagnosed uterine bleeding and during pregnancy.

Precautions: Patient should be warned of the possibility of multiple pregnancies. Pain may indicate the development of cystic ovaries. Visual disturbances necessitate drug withdrawal.

Adverse effects: Reversible ovarian enlargement, flushing, breast engorgement, pelvic discomfort, nausea and vomiting.

Drug interactions: Not well documented.

Patient instructions:

- This medication must not be taken during pregnancy or when pregnancy is possible.
- Use reliable form of birth control while taking this drug.
- While balanced diet, mild exercise and avoid pregnancy, caffeine, and alcohol.
- Report any symptoms like yellow skin or eyes, blurred vision.
- Careful while driving or carrying heavy equipment as blurred vision

(E.) – [G] - Thyroid Hormones

(E.) – [G] - 1- Thyroxin:

Dose: Tablets 0.05 & 0.1 mg. Initial 0.1 mg before breakfast & maintenance 0.025-0.05 mg / day.
(Slow onset 48 hours 9 days & duration 2-3 weeks with 1/2 life 7 days).

Indications:

- Hypothyroidism (medical or surgical), cretinism, myxedema, panhypopituitarism as replacement therapy.
- Endemic goiter to inhibit TSH production.
- Sterility, habitual abortion, psoriasis.

Precautions: In elderly & cardiac disorders (angina, heart failure) May induce physical dependence.

Adverse effects: Sign & symptoms of hyperthyroidism minus exophthalmos e.g. dyspnea, tachycardia, anxiety. Atrial fibrillation in old age.

(E.) – [G] - 2- Levothyroxine sodium:
Dose: Initially 100 micrograms/day preferably on empty stomach (25-50 micrograms in elderly and in cardiac patients) increased by 25-50 micrograms at intervals of 2-4 weeks, reaching a usual maintenance dose of 100-200 micrograms /day.

Indications: Hypothyroidism, diffuse non-toxic goiter, Hashimoto's thyroiditis and thyroid carcinoma.

Contraindications: Acute MI, thyrotoxicosis uncomplicated by hypothyroidism

Precautions: Cardiovascular disorders, prolonged myxoedema and and adrenal insufficiency.

Adverse effects: Symptoms of hyperthyroidism, arrhythmia, angina pain, tachycardia, excitability, flushing, diarrhea and loss of weight.

Drug interactions: Phenylbutazone, cholestyramine, rifampicin, oral anticoagulants, phenytoin, phenobarbitone, carbamazepine and propranolol, digitalis glycoside, iron salts, thiophylline.

Patient instructions:
- Medication needs to be taken for life.
- Take at same time each day in morning before breakfast.
- Not to take for weight control.
- Partial hair loss in child in first few months of therapy.

(E.) - [H]-Drugs for hyperthyroidism

(E.) – [H] -1- Carbimazole:

Dose: Initially 30-60 mg/day and maintained until plasma thyroxin level is normalized. Therefore, the dose is gradually tapered to a usual maintenance of 5-15 mg/day. Child, 15mg/day and adjusted according to response.

Indications: Hyperthyroidism in hope to induce life-long remission, as an adjunct to radioiodine treatment, prior to partial thyroidectomy or in hyperthyroid crisis.

Precautions: Large goiter, pregnancy and breast-feeding. Patient should be instructed to report any sore throat or rash.

Adverse effects: Rash, nausea, and vomiting and mild leucopenia. Agranulocytosis is the most serious side effect.

(E.) – [H] - 2- Propyl-thiouracil:

Dose: Initial ( 2 months ) 200-600 mg / day & maintenance 50-200 mg /day ( tablets 50 mg ) . Therapy is controlled by increase weight, decreased pulse rate & ankle reflex time.

Action: Inhibits peroxidase enzyme blocking active iodine formation or by blocking iodine incorporation into organic precursors by combination with active iodine.
**Adverse effects:** Failure (10%), G.I.disturbance (3%) nausea, colic, diarrhea & hypersensitivity(Rash, agramilocytosis (0.5%), lymphodenopathy, jaundice, anemia), goitrogen effect. 
**Precautions:** Pregnancy & lactation, fetal goiter may occur if the drug is given during pregnancy with abnormal presentation of the head (extension of the head).

(E.) – [I] – Hypothalamic Hormones
(E.) – [I] - 1- Octreotide:
**Dose:** Parenteral, (amp. 0.1 mg & 0.2 mg vial).
**Action:** Anti-growth hormones.
**Indications:** Prevention & treatment of acromegally and gigantism due to increase somatotropic hormone.

(E.) – [J] - Anterior Pituitary Hormones
(E.) – [J] -1- Tetracosatrin (synthetic ACTH):
**Dose:** Parenteral,(1 mg ampoule) every 3-7 days.
**Indications:**
- Stimulates suprarenal cortex to secrete glucocorticoid cortisone uses: replacement therapy with Prolonged glucocorticoid therapy to avoid suprarenal depression after drug withdrawal.
- Inflammatory or allergic cases.
- To test adrenocortical function to differentiate between Cushing’s disease due to hyperplasia (Increase stimulation) and carcinoma (no effect).

(E.) – [K] – Anti-Parathyroid Hormone
(E.) – [K] – 1- Calcitonin:
**Dose:** (amp.50 & 100 I.U. & nasal spray 50,100&200 I.U nasal spray), I.M. or S.C. 100 u/day with adequate ca & vit D. Intranasal spray 200 u in alternating nares.
**Action:** Maintains calcium blood level, homeostasis by inhibiting the lione eroding osteoclasts & bone resorption.
**Indications:**
- In hypercalcemic state (hyperparathyroidism, vit. D intoxication & idiopathic hypercalcemia in infancy) & osteolytic bone metastasis.
- To prevent or retard osteoprosis due to old age, immobilization & chronic corticosteroid therapy.
**Adverse effects:**
- Spray:Rhinitis, epistaxis, arthralgia, headache &bach pain.
- Injection:Flushing (hands & face) nausea, vomiting & local irritation(10%)
(Gyn.) – [A] – Drug Acting On Uterus

(Gyn.) – [A] – 1 - **Ergotamine preparations:**

**Dose:** 1-2mg repeated half an hour later if necessary (max. 6 mg/day and 12 mg/week)

Co-administration of caffeine (100 mg) enhances the effect of ergotamine.

**Indications:** Treatment of migraine and cluster headache.

**Contra indications:** Severe hypertension, sepsis, peripheral vascular disease, pregnant, ischaemic heart disease, porphyria.

**Precautions:** Should be administered with care in severe hyperthyroidism and anemia and should not be used for prophylaxis. Discontinue in cases of numbness or tingling of extremities.

**Adverse effects:** Nausea and vomiting, weakness and muscle pain, symptoms of peripheral vasoconstriction and CVS disturbances, drug dependence.

**Drug interactions:** Caffeine, beta-blockers and macrolide antibiotics.

**Patient instructions:**
- Avoid any food to which you are allergic, and make your headache worse.
- Avoid exposure to cold.
- Elderly patients are more sensitive.

(Gyn.) – [A] – 2 - **Oxytocin:**

**Dose:** Slow I.V. infusion, as a solution containing 1 unit / liter 1-3 minute adjusted according to response.

**Indications:** In induction and augmentation of labour, to control postpartum hemorrhage and Uterine hypotonicity in the third stage of labour, and to promote lactation in case of faulty milk ejection.

**Contraindications:** Women with severe toxemia, hypertonic uterine dysfunction, predisposed to uterine tear (high parity, uterine scar). Placenta praevia, mechanical obstruction of delivery and obvious fetal distress.

**Precautions:** Should be given in induction before head engagement. Hypertension and pressor drugs (reduce rate of infusion).

**Adverse effects:** Severe uterine contractions leading to uterine tear and fetal asphyxia, maternal hypertension, and arrhythmia.

**Drug Interactions:** pressor drugs and oxytocics.

**Patient Instructions:**
- Clear nasal passages, first sit, do not lie down or tilt head back, hold bottle upright into vertical Position (nasal spray).
- Early contractions will feel like strong menstrual cramps.
In view of their severe toxicity, the prescription of these agents should be restricted to lifethreatening conditions and their use and administration confined to experienced staff in specialized centers.

**General precautions:** These agents should not be administered during acute infections, with live vaccines, pregnancy or breast-feeding.

**Common adverse effects:** Nausea and vomiting, depression of normal cell division in bone marrow, GIT mucosa, skin, gonads, fetus. Hyperurecaemia (leading to renal failure), hypercalcaemia and alopecia. Severe pain and tissue necrosis may follow extravasations, locally.

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**M. – [A] - Alkylating Agents**

**M. – [A] - 1- Cyclophosphamide:**

**Dose:** low dose regimen: 2-6 mg/kg week in a single I.V dose or divided oral doses. Moderate dose regimen: 10-15 mg/kg/week in a single I.V dose and a high dose regimen 20-40 mg/kg/week in a single I.V dose every 10-20 days. Child is given initial doses of 2-8 mg/kg/day, I.V oral, maintenance doses of 2-5 mg/kg twice weekly oral. For bone marrow transplantation, 60 mg/kg/day may be given for 2-4 days.

**Indications:** Malignant tumors including lymphoma, myeloma and several solid tumors. As an immuno-suppressant agent in polymyositis, vasculitis, systemic lupus erythematosus, nephritic syndrome and in bone marrow and organ transplantation.

**Contraindications:** Hemorrhagic cystitis, acute systemic or urinary infections drug or radiation-induced urothelial toxicity, porphyria, pregnancy, breast-feeding and use of live vaccines.

**Precautions:** Adequate hydration and the addition of mesna is recommended to protect against hemorrhagic cystitis. Used cautiously in diabetic. Dose is reduced in elderly, debilitated, in liver or renal dysfunction or adrenalectomy. Frequent blood counts are recommended.

**Adverse effects:** Leucopenia, severe and hemorrhagic cystitis, alopecia, hyperpigmentation, and GIT disturbance and hepatotoxicity.

**Drug interactions:** Allopurinol and suxamethonium.

**Patient instructions:**

- Drink 2-3 quarts of fluids daily & urinate frequently.
- Do not take oral doses at bedtime.
- Report any blood in the urine.
Ifosfamide:

**Dose:** 8-10 gm/m² body-surface divided over 5 days. Courses may be repeated at intervals of 2-4 weeks depending on blood counts.

**Indications:** In the treatments of several solid tumors, sarcoma and lymphoma.

**Contraindications:** Hemorrhagic cystitis, acute systemic or urinary infections, drug or radiations – induced urothelial toxicity, porphyria, pregnancy, breastfeeding and use of live vaccines.

**Precautions:** Adequate hydration and the addition of mesna is advised to prevent hemorrhagic cystitis. Reduce dose in renal impairment.

**Adverse effects:** Myelosuppression, hemorrhagic cystitis (may involve the kidneys), alopecia, hyperpigmentation and GIT disturbance, CNS side effects (confusion and lethargy) and hepatotoxicity.

**Drug interactions:** Allopurinol and suxamethonium.

**Patient instructions:** Similar to cyclophosphamide.

Chlorambucil:

**Dose:** (Tablets 2 mg & 5 mg) 3-4 mg /m²/day orally.

**Action:** It is nitrogen mustard derivative. Alkylating agent forms reactive intermediates that cross-link DNA.

**Indications:**
- Immunosuppressive in autoimmune diseases (hemolytic anemia, thrombocytopenia, purpura, SLE, lupus nephritis, glomerulonephritis, nephrotic syndrome, rheumatoid arthritis, ulcerative colitis, grons disease, vasculitis, disseminated sclerases.
- Malignant hemopoietic disorders (chronic leukemia, Hodgkins lymphoma, lymphosarcoma).
- Neuroblastoma.
- Disseminated cancer (Breast, lung ovary & testis).

**Adverse effects:** Trancient myelosuppression, dermatosis, vomiting & cholinergic stimulation (Quaternary nitrogen) & pulmonary fibrosis.

Carboplatin:

**Dose:** Parenteral, 50,150 & 450 mg vial (lyophilized & non - lyophilized). Targeted by calvert equation to AUC 5-7.5 I.V.

**Action:** cross-link DNA & intrastrand adducts.

**Indications:** Cancer esophagus, lung, ovary, testes & bladder.

**Major toxicity:** Myelosuppression (especially thrombocytopenia), nausea & vomiting.

Cisplatin:
**Dose:** A single I.V infusion of 50-120 mg/m² in 2 L of saline or glucose infused over 6-8 hours, repeated every 3-4 weeks. Reduce dose if given with other chemotherapeutics.

**Indications:** In the treatment of advance ovarian carcinoma and of small-cell lung cancer and as an alternative in other solid tumors.

**Contraindications:** Patients with renal or hearing impairment or bone marrow depression.

**Precautions:** Maintain adequate hydration of the patient during drug infusion. Renal, hematological, auditory and neurological functions should be monitored during therapy and dose adjusted accordingly.

**Adverse effects:** Severe nausea, vomiting and nephrotoxicity (less with carboplatin), bone marrow depression, hypomagnesaemia, ototoxicity (severe in children) and neuropathies.

**Drug interactions:** Nephrotoxic and ototoxic drugs.

**Patient instructions:** Similar to mitomycin

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(M.) – [A] – 6 - **Asparaginase:**

**Dose:** I.V infusion of 1000 units/kg/day for 10 days in a solution of saline or glucose 5 % given over 30 minutes.

**Indications:** Induction of remission in childhood acute lymphoblastic leukemia in combination with other drugs.

**Contraindications:** Pancreatitis.

**Precautions:** A test dose of 50 units is recommended to test for allergy. Pre-treatment with asparginase may be associated with increased risk of allergic reactions. Administered cautiously in-patient with liver dysfunction.

**Adverse effects:** Anaphylaxis, liver, renal or pancreatic dysfunctions, GIT upsets and acute leucopenia.

**Drug interactions:** Methotrexate and vincristine.

**Patient instructions:** Similar to cisplatin.

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(M.) – [B] - vinca Alkaloids and Etoposide

(M.) – [B] – 1- **Vincristine:**

**Dose:** I.V injection of solution containing 0.01-1 mg/ml saline. In acute Leukemia, for induction of remission in children, 50 mg/kg/week, increasing by weekly increasing by weekly increments of 25 mg/kg to a maximum of 150 mg/kg. In adults, 25-75 mg/kg/weekly.

**Indications:** Acute leukemia and lymphomas (Hodgkin’s and Burkitt’s) and some solid tumors.

**Contraindications:** Patients with the demyeling form of Charcot – Marie – Tooth syndrome and the intrathecal route.

**Precautions:** Add laxatives or enema to avoid constipation. Given
cautiously in elderly or patients with re-existing neuromuscular disorder. Reduce dose in hepatic disease. Avoid extravasations. Blood counts are needed before each course.

**Adverse effects:** Myelo-suppression (less than vinblastine). Neurological and neuromuscular affects are more severe and are dose – limiting (impaired walking, convulsions), hypertension, constipation, abdominal pain, alopecia, and urinary disturbances.

**Drug interactions:** Asparaginase.

**Patient instructions:** Similar to cyclophosphamide.

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**Vinblastine:**

**Dose:** I.V solution containing 1mg/ml in saline. Weekly injections of 100 mg/kg raised by increments of 50 mg/kg to a maximum weekly dose of 500 mg/kg. A maintenance dose is then given of 10 mg once or twice / month.

Child, initially, 2.5mg/m2 body-surface increased by 1.25mg/m2/week to a maximum of 7.5 mg/m2.

**Indications:** In the treatment of testicular cancer and lymphomas (Hodgkin’s disease and mycosis fungoides) and in some inoperable solid tumors.

**Contraindications:** In elderly patients with cachexia or skin ulceration or by intrathecal route.

**Precautions:** Should not be injected in extremities with poor circulation to minimize risk of thrombosis. Avoid extravasations. Blood counts are needed before each course. Reduce dose in hepatic impairment.

**Adverse effects:** Myelo-suppression (leucopenia), GIT toxicity (stomatitis, bleeding, nausea and vomiting), CNS toxicity (central and peripheral neuropathy) and inappropriate secretion of anti-diuretic hormone.

**Drug interactions:** Mitomycin, paracetamol.

**Patient instructions:** Similar to cyclophosphamide.

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**Etoposide:**

**Dose:** Slow I.V infusion in saline or 5 % glucose of 50-120-mg/m2-body surface/day for 5 days. Courses may be repeated after 3-4 weeks.

**Interactions:** Usually with other anti-neoplastics in refractory tumors of the testis and cancers of lungs. Also tried in other solid tumors, some childhood neoplasms, lymphomas and acute non-lymphocytic leukemia.

**Contraindications:** Not given to patients with hepatic dysfunction or by intrathecal route.

**Precautions:** Should be given by infusion over at least 30 minutes to avoid hypotension. Avoid extravasations.

**Adverse effects:** Myelo-suppression (mainly leucopenia), GIT disturbances (after oral administrations), peripheral and central neuropathies, alopecia, disturbance of liver function and cardiotoxicity.
Drug interactions: With vincristine ---> possible synergistic neuropathy. 
Anthracyclines ---> cardiomyopathy 
Also interact with cyclosporine, phenytoin, Phenobarbital.

Patient instructions:
- Report any signs of infection such as fever, shaking Chills.
- Avoid use of aspirin-containing products & alcohol.
- Hair loss can occur.
- Dose should never be doubled or extradoses taken.

(M.) – [C] - Anti-metabolites
(M.) – [C] – 1- Fluorouracil:
Dose: 12mg/kg/day I.V for 3-4 days. With no evidence of toxicity, this may be followed by 6mg/kg on alternate days for 3-4 other Nate days for 3-4 other doses. I.V infusion, 15mg/kg/day infused in 500 ml saline or glucose 5%, infused over 4 hours and repeated on successive days until toxicity occurs or a total of 12-15 gm has been given.
Indications: Solid tumors (breast and colon) and applied topically in solar keratoses and superficial neoplasm's of the skin.
Precautions: Slow infusion decreases hematological toxicity. Frequent blood counts are necessary. Doses should be halved in patients with a poor nutritional state, hepatic or renal dysfunction or after major surgery.
Adverse effects: Myelo-suppression, GIT toxicity, cerebral ataxia and ocular irritation.
Drug interactions: Cimetidine.
Patient instructions: similar to cyclophosphamide.

(M.) – [C] – 2- Methotrexate:
Dose: Leukemia in children, 15 mg/m2 weekly in combination with other drugs. Psoriasis, 10-25 mg/week.
Indications: Choriocarcinoma, some solid tumors, non-Hodgkin lymphomas and as a maintenance therapy in childhood acute lymphoblastic leukemia. Intrathecal methotrexate is used in the CNS prophylaxis of childhood lymphoblastic leukemia and as a therapy for established meningeal carcinoma or lymphoma. Also used in severe psoriasis and rheumatoid arthritis.
Contraindications: Severe renal impairment, significant pleural effusion or ascitis, porphyria.
Precautions: Frequent blood counts are necessary. Folinic acid supplementation decreases side effects. Reduce dose in renal impairment. Maintain adequate flow of alkaline bomb.
**Adverse effects:** Myelosuppression (leucopenia, thrombocytopenia and anemia), GIT disturbances, stomatitis and diarrhea are early signs of toxicity and treatment should be interrupted.

**Drug interactions:** NSAIDs, trimethoprim, co-trimoxazole, pyrimethamine, probenecid, and etretinate (anti-psoriasis).

**Patient instructions:** Similar to cyclophosphamide.

(M.) – [D] – **Cytotoxic Antibiotics**
They interfere with replication of cells by DNA damage; they form one group of cytotoxic drugs
(Anti-neoplastic).

(M.) – [D] – 1- **Doxorubicin:**

**Dose:** Given as a single agent in doses of 60-75 mg/m2 body-surface as a single dose through a running I.V infusion of saline or glucose 5 % repeated every 3 weeks. The maximum total dose should not exceed 550 mg/m2. Doses decreased if given with other anti-neoplastic drugs.

**Indications:** In the treatment of acute leukemia, lymphomas, sarcomas, neuroblastoma and some solid tumors.

**Contraindications:** Previously serious allergy to the drug or any component of the formulation.

**Precautions:** Pregnancy & lactation.

**Adverse effects:** Emetic potential, acute back pain, flushing, chest tightness, mild anemia, diarrhea, opportunistic infections, myelosuppression (Neutropenia).

**Drug interactions:** Not all studied.

**Patient instructions:** Similar to etoposide.

(M.) – [D] – 2- **Mitomycin:**

**Dose:** Initially, 10-20 mg/m2 body surface given as a single dose through a running I.V infusion and repeated every 6-8 weeks. Subsequent doses are adjusted according to the effect on bone –marrow.

**Indications:** In the palliative treatment of GIT, bladder tumors.

**Contraindications:** Impaired renal functions or coagulation disorders.

**Precautions:** The simultaneous use of radiotherapy should be avoided. Frequent blood counts are necessary. Avoid extravasations.

**Adverse effects:** Delayed bone –marrow depression, renal and pulmonary damage.

**Patient instructions:** Similar to idorubicin.

(M.) – [D] – 3- **Epirubicin:**
**Idarubicin:**

**Dose:** Given in doses of 12-mg/m² bodies – surface daily for 3 days through a running I.V infusion of saline or glucose 5% over 5-15 minutes repeated. A total cumulative dose of 0.9 – 1 gm/m² should not exceed.

**Indications:** Used alone or in combination to induce remission in patients with acute non-lymphoblastic leukemia and in the management of some solid tumors.

**Contraindications:** Patients with heart disease.

**Precautions:** The simultaneous use of radiotherapy should be avoided. Patient who already received irradiation or elderly should be treated cautiously. Dose should be halved in patient with moderate liver dysfunction and those with severe impairment given a quarter of the dose. Frequent blood counts and assessment of cardiac functions are necessary. Avoid extravasations.

**Adverse effects:** Nausea, vomiting, myelosuppression, cardiomyopathy (more with doxorubicin), alopecia and mucositis

**Drug interactions:** Clindamycin, daunorubicin, cyclophosphamide, methotrexate and streptozocin.

**Patient instructions:** Similar to epirubicin.

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**Paclitaxel:**

**Dose:** Parenteral, (30mg vial). 135 mg/m² I.V. over 3 or 24 hours every 3 weeks.

**Action:** Promotes microtubule assembly & arrests cell cycle in G2 & M phases

**Major Toxicity:** Hypersensitivity reactions, cardiac disturbances, sensory neuropathy, myalgia & arthropalgia.

**Indications:** Cancer ovary, bladder, lung & breast.
(M.) – [F] - Hormone & Hormone Inhibitors

(M.) – [F] - 1- Tamoxifen:

Dose: In the treatment of breast cancer, 20-40 mg/day. In infertility, 10 mg twice /day on day 2,3,4 and 5 of the menstrual cycle (increase to 40 mg on the next cycle if necessary).

Indications: As an adjuvant endocrine therapy in early breast cancer and for palliation in late cases. It is also used to stimulate ovulation in women with anovulatory infertility.

Contraindications: Pregnancy, porphyria.

Precautions: In women with functioning ovaries.

Adverse effects: Hot flushes, vaginal bleeding, amenorrhea, GIT upsets, exacerbations of bony pains and hypercalcaemia in patients with bone metastasis, visual disturbances and increased tendency to thrombo-embolism.

Drug interactions: Oral anticoagulants.

Patient instructions: Similar to asparginase.

(M.) – [G] - Immunosuppressive

(M.) – [G] -1- Cyclosporin:

Dose: Organ transplantation; 14-17.5 mg/kg/day as a single dose by mouth form day before transplantation followed by 14-17.5 mg/kg/day for 1-2 weeks post-operatively, then tailed off at intervals of 1 month in steps of 2 mg/kg/day to 6-8 mg/kg/day for maintenance. Lower doses are given if corticosteroids are given concomitantly. In prevention of graft-versus-host disease; 3-5 mg/kg/day by I.V infusion over 2-6 hours from day before transplantation to 2 weeks post-operatively, then 12.5 mg/kg/day by mouth for 3-6 months and then tailed off.

Indications: It is used in organ and tissue transplantation for the prophylaxis of graft rejection or in the management of rejection in patients previously treated with other immuno-suppressants. It is also used in some autoimmune disorders (Behet disease and aplastic anemia).

Contraindications: Porphyria, pregnancy and breast-feeding.

Precautions: Monitoring of drug concentration is mandatory in all patients. Dosage reduction in renal impairment.

Adverse effects: Nephrotoxicity, hypertensions, electrolyte disturbances, GIT disorders, hepatotoxicity, neurotoxicity and tremor, parasthesias in extremities and convulsions. Increased incidence of the development of lymphoma.

Drug interactions: Amino glycosides, ciprofloxacin, co-trimoxazole, rifampicin, erythromycin, phenobarbitone, phenytoin, primidone, amphotericin, fluconazole, ketoconazole, ACE inhibitors, calcium channel blockers, potassium sparing diuretics, danazol, potassium salt and progesterone.

Patient instructions: Similar to tamoxifen.
10-(N. &B.R.) Nutrition and blood restorative Drugs

(N. &B.R.) – [A] – {a} - Vitamins
(N. &B.R.) – [A] – {a} – 1- Beta-carotene:
A) It is in form of fibers included in different formulations given before meals in treatment of obesity or given with other vitamins & herbs as anti-oxidant and tonic.
B) It is converted to vitamin A in intestinal wall & yields 2 molecules.

(N. &B.R.) – [A] – {a} – 2- Folic Acid:
Dose: Folate-deficient megaloblastic anemia 5mg/day for 4 months, up to 15mg/day in malabsorption states. In prophylaxis, 5mg/day or even weekly. In pregnancy 200-500 micrograms/day.
Indications: Folate-deficient megaloblastic anemia occurring with poor nutrition, malabsorption syndromes, antiepileptic drugs, and in pregnancy. Prophylaxis of folic acid deficiency in chronic hemolytic states, renal dialysis and pregnancy.
Contraindications: Undiagnosed megaloblastic anemia, alone in Addisonian pernicious anemia , other vitamin B deficient state and malignancy .
Precautions: Women receiving antiepileptic therapy need counseling before starting .
Adverse effects: Rarely G.I.T upsets and hypersensitivity reactions
Drug interactions: Antiepileptic drugs.

(N. &B.R.) – [A] – {a} – 3- Vitamin A:
Dose: In treatment of xerophthalmia 200,000 units of vitamin A should be given on diagnosis. The dose is repeated next day and an addition dose given 2 weeks later. Child less than 1 year, given half the dose.
Indications: Prophylaxis and treatment of vitamin A deficiency states especially in susceptible periods (infancy, pregnancy and lactation) or in patients with steatorrhea, severe biliary obstruction or liver cirrhosis. In some skin disorder e.g. acne, psoriasis and Dariers disease.
Contraindications: Breast feeding, hepatic disease, hypercholesterolemia, hypertriglyceridemia, sunburn, retinoid hypersensitivity, infants, eczema.
Precautions: Large doses during the first trimester of pregnancy.
Adverse effects: Large doses may lead to hypervitaminosis A characterized by dry pruritic skin, disturbed hair growth, anorexia, edema, lip fissures and pathological hepatic changes. In infants signs of increased intracranial tension are early signs of toxicity.
Drug interactions: Benzoyl peroxide, cimetidine, diltiazem, erythromycin,
verapami, salicylic acid, rifampin, ketoconazole, Phenobarbital.

Patient instructions:
- Do not take more than the recommended doses.
- Notify your doctor if signs of overdose occur nausea, vomiting, headache, dizziness, and blurred vision.

(N. &B.R.) – [A] – {a} – 4- Vitamin E:
Dose: 100 mg capsules and fort 400 IU capsules. Daily requirement 10-30mg.
Action: Anti-oxidant & anti-sterility.
Indications: Vitamine supplements, muscular dystrophy, peripheral vascular disease cardiopathies & megaloblastic anemia.

(N. &B.R.) – [A] – {a} – 5 - Vitamin B12 Cyanocobalamine:
Dose: In treatment of deficiency states 250-1000 micrograms on alternate days for 1-2 weeks then 250 micrograms/week till blood counts return to normal. Maintenance dose is 1000 micrograms/month in presence of neurological deficits 1000 micrograms are given on alternate days till signs of improvement occur. In prophylaxis of vitamin B12 deficiency 250-1000 micrograms/month.
Indications: Prophylaxis and treatment of vitamin B12 deficiency states, which may occur in strict vegetarians, malabsorption syndromes, following gastrectomy and in pernicious anemia.
Precautions: Should be administered after confirmation of diagnosis. Not used in megaloblastic anemia of pregnancy.
Adverse effects: Hypersensitivity reactions.
Drug interactions: Aminoglycosides, aminosalicylic acid, anticonvulsants, biguanides, chloramphenicol, cholestyramine, cimetidine, colchicines, potassium salts, methyldopa and oral contraceptives.

(N. &B.R.) – [A] – {a} – 6- Cholecalciferol & Ergocalciferol:
Dose: In prevention of vitamin D deficiency 10 micrograms (400 units)/day. In treatment up to 1mg (40,000 units)/day. In treatment of hypocalcaemia up to (200,000)/day.
Indications: Prophylaxis and treatment of vitamin D deficiency states and in hypocalemia of hypoparathyroidism.
Contraindications: Hypercalceamia, metastatic calcification.
Precautions: Breast-feeding with large doses. With the administration of large doses check plasma calcium concentrations.
Adverse effects: Overdose may lead to anorexia, lassitude, nausea, vomiting, diarrhea, thirst, weight loss and increased calcium and phosphate in plasma and urine.
Drug interactions: Barbiturates and anticonvulsants, digitalis glycoside, thiazide diuretics, verapamil, mineral oil.
Patient instructions:
- Avoid simultaneous use of mineral oil while taking vitamin D.
- Avoid use of nonprescribing drugs including magnesium-containing antacids, multivitamin Containing vitamin D.

(N. &B.R.) – [A] – {a} – 7- N. &B.R.a 7- Vitamin B complex:
Indications: Deficiency states, which may be severe with chronic alcoholism. All items see vitamin B6, B12.

Dose: 10 mg tablets and 1 & 10 mg amp (1-50 mg repeated after 8h I.M or I.V)
Action: Stimulates hepatic synthesis of coagulanting factors, prothrombin.
Most rapid action (Within 4 hrs) & not toxic.
Indications: In bleeding disorders due to deficiency of uptake or malabsorption from intestine in obstructive jaundice (injection) & coumarine anticoagulant toxicity.

(N. &B.R.) – [A] – {a} – 9- Vitamin C Ascorbic Acid (Tab):
Dose: Prophylaxis of vitamin C deficiency states 25-75 mg/day. Treatment of scurvy up to 1gm/day in divided doses.
Indications: Treatment of scurvy, to control idiopathic methemoglobinemia and in urine acidification. (The use of vitamin C in respiratory infections and wound healing is not yet scientifically proved).
Precautions: Use with caution in kidney stones or a history of kidney stones, vitamin c appears in milk, consult your doctor before you begin breast-feeding.
Adverse effects: Large doses for long time lead to kidney stones (oxalate), rebound scurvy in persons taking large doses and suddenly stop and in the off-spring of mother taking large doses.
Drug interactions: The following drugs interact with vitamin c: Contraceptives, sulfonamides, warfarin.

(N. &B.R.) – [A] – {b} - 1- Calcium Salt
(N. &B.R.) – [A] – {b} - 1- Calcium Gluconate:
Dose: In osteoporosis oral 800mg/day. In hypocalcaemia tetany or hyperkalemia, initial I.V injection of 10ml (2.25 mmol) following by continuous I.V infusion of 40ml (9mmol)/day.
Indications: Prevention and treatment of deficiency childhood, pregnancy, lactation and old age, osteoporosis, hypocalcaemic tetany, hyperkalaemia and in cardiac resuscitation.
**Contraindications:** Conditions associated with hypercalcemia, hypercalciuria (some firms of malignant disease)

**Precautions:** In parenteral injection, monitor calcium plasma concentration. Avoid I.M injection in children.

**Adverse effects:** Bradycardia, arrhythmia and irritation after I.V administration.

**Drug interactions:** Tetracycline, cardiac glycosides and thiazide diuretics.

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(N. &B.R.) – [A] – {b} - 2- Ferrous Salt

(N. &B.R.) – [A] – {b} - 2- **Iron (ferrous Salts):**

**Dose:** Therapy 120-180mg/day in divided doses. Prophylaxis 60mg/day. Child therapy in divided doses up to 1-year 36mg/day; 1-5 year’s 72mg/day; 6-12 years 120mg/day.

**Indications:** Iron deficiency anemia.

**Contraindications:** Haemosiderosis, hemochromatosis, patient receiving repeated blood transfusion, parenteral iron therapy.

**Precautions:** Should not be administered for longer than 6 months, pregnancy, peptic ulcer, regional enteritis, and ulcerative colitis.

**Adverse effects:** G.I.T upset in the form of altered bowel habits, nausea and epigastric pain.

**Drug interactions:** Magnesium trisilicate, tetracyclines, ciprofloxacin, levodopa, penicillamine, zinc.

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(N. &B.R.) – [A] – {b} - 3- **Zinc Salt:**

**Dose:** Effervescent tablets 1 tablet in water 1-3 times/day after meals.

**Indications:** Zinc deficiency, which may occur with inadequate diet intake, malabsorption states or increased body loss in trauma and burns and with I.V feeding.

**Contraindications:** Fluoroquinolones (ciprofloxacin), tetracyclines (oxytetracyclin).

**Precautions:** Allergy to zinc supplements, not recommended during pregnancy.

**Adverse effects:** Abdominal pain and dyspepsia.

**Drug interactions:** Iron, tetracyclines, ciprofloxacin and penicillamine.

**Patient instructions:**
- If stomach upset or nausea occurs, take with food or liquid.
- Avoid taking with foods high in bran, calcium, phosphorus or phytate.

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(N. &B.R.) – [B] – 1- **Potassium Chloride 15% (parental):**

**Dose:** 10-40 m Eq / hr. I.V.

**Indications:** In electrolyte imbalance.
Contraindications: Several renal impairment with concomitant oliguria, hyperkalemia, renal failure, anuria, trauma, use of potassium sparing diuretics.

Precautions: the concentration of the i.v. Infusion not exceeds 3.2 gm/ml, pregnancy category c, lactation, and decreased renal functions.

Adverse effects: minor: diarrhoea, nausea, stomach pains, vomiting. Major: anxiety, bloody or black, tarry stools, confusion, difficulty in breathing, unusual weakness, abdominal pain.

Drug interactions: amiloride, spironolactone.triameterene leads to hyperkalemia. Digoxin leads to heart problems.

Dose: In prophylaxis, 2-4 gm/day (smaller doses are given in renal impairment). For treatment, 10-15 gm/day for days or weeks.

Indications: In prophylaxis and treatment of potassium depletion.

Contraindications: Renal failure and in cases where plasma potassium concentration is above 5 mmol/L.

Precautions: Intestinal stricture and history of peptic ulcer.

Adverse effects: Nausea, vomiting, oesophageal and small bowel ulceration.

Drug interactions: ACE inhibitors, cyclosporin, and potassium sparing diuretics.

Patient instructions:
- Take after meals with food and full glass of water.
- Swallow tablets whole, without chewing, sucking or crushing.
- Warn patient not to use salt substitutes and to avoid salt free food.
- Avoid ingestion of large amounts of potassium through excessive intake of foods such as avocados, bananas, broccoli.

(N. &B.R.) – [B] – 3- Sodium Bicarbonate 4.2 % and 8.4 %:
Dose: In severe acidosis, sodium bicarbonate 1.26 % should be infused with isotonic saline.

A total volume up to 6 L (4L sodium chloride and 2 L sodium bicarbonate) may be necessary in adults. In severe acidosis without depletion 50 ml of 8.5% are I.V. Administered.

Indications: Treatment of metabolic acidosis and in the emergency management of hyperkalemia.

Contraindications: Loss of chloride from vomiting, hypertension, hypocalcemia, convulsions or CHF.

Precautions: Monitor plasma pH.

Drug interactions: amphetamine, dextroamphetamine, ephedrine, pseudoephedrine, dobutamine, dopamine, and ketoconazole, lithium.

Patient instructions: Do not take with milk.

(N. &B.R.) – [B] – 4 - Ringer lactate solution:
Indications: Diabetic ketoacidosis.

Contraindications:
- Metabolic acidosis and impaired hepatic function.
- Avoid OTC medications containing sodium bicarbonate.
- Not to use maximum dose of antacids for more than 2 weeks

Precautions: Allergy to pyridoxine. Pyridoxine appears in breast milk, consult your doctor before begin breast-feeding.

Adverse effects: Large doses (2mg/day) for a long time lead to severe peripheral neuropathy.

Drug interactions: Levodopa, isoniazid, penicillamine and oral contraceptives.

Patient instructions:
- Enteric-coated tablets do not cut, crush or chew, swallow whole with a glass of water.
- Common source of vitamin B6. (Liver, eggs, meat, whole-grain, bread and cereals, soyabeans, vegetables).

(N. &B.R.) – [B] – 5 - Sodium Chloride 0.18%+dextrose 5%:
Indications: Replacement of fluid and electrolytes in case of combined sodium chloride and water depletion as in persistent vomiting.

Precautions: Restrict intake in renal impairment, heart failure and in hypertension, peripheral and pulmonary oedema and toxemia of pregnancy. Jugular venous pressure should be assessed.

Adverse effects: Administration of large doses may give rise to sodium accumulation and oedema.

(N. &B.R.) – [B] – 6 - Sodium Chloride 0.9 % and 0.45 %:
Dose: In severe depletion (4 _8 L) give 2-3 l of 0.9 % over 2-3 hours thereafter at slower rates.

Indications: Sodium depletion as in gastroenteritis, diabetic ketoacidosis, ileus and ascites.


Adverse effects: Administration of large doses may give rise to sodium accumulation and oedema
**Plasma proteins and plasma expanders**

1. **Human Albumin (4-5%)**
   - **Dose:** Plasma albumin level 2.5+ or-0.5 g/100 ml.
   - **Indications:** Acute or sub-acute loss of plasma volume in burns, trauma and complications of surgery and in plasma exchange.

2. **Human Albumin (20-25%)**
   - **Dose:** Total plasma protein level 5.2 g / 100 ml, this is best achieved with albumin 25% solution.
   - **Indications:** Severe hypoalbuminemia associated with decreased plasma volume and generalized oedema and as adjunct in the management of hyperbilirubinemia by exchange transfusion in the newborn.
   - **Contraindications:** Heart failure and severe anemia.
   - **Precautions:** History of CVS disorders, risk of further hemorrhages or shock due to rise in blood pressure. Correct dehydration when administering the concentrated solution.
   - **Adverse effects:** Hypotension after rapid infusion. Allergic or pyogenic reactions fever and chills.
   - **Patient instructions:** Monitor for dehydration, patient may require additional fluids. Do not administer if solution is cloudy. Administer slowly. Do not dilute.

3. **Dextran 70**
   - **Dose:** I. V. Infusion after moderate to severe haemorrhage, 500-100 ml rapidly initially followed by 500 ml later if necessary. In severe burns, up to 3000 ml in the first few days with electrolytes.
   - **Indications:** In short-term blood volume expansion and in the prophylaxis of post surgical thrombo-embolic disease.
   - **Contraindications:** Severe congestive heart failure, renal failure, bleeding disorders such as thrombocytopenia.
   - **Precautions:** Congestive heart failure, renal impairment. Blood samples for cross matching should ideally be withdrawn before dextran infusion.
   - **Adverse effects:** Rarely anaphylactic reaction, urticarial and other hypersensitivity.
   - **Drug interactions:** Dextran may interfere with blood group cross matching or biochemical measurements and these should be carried out before the infusion is begun.
(S.M.D.) –[A]-Central muscle relaxants
(S.M.D.) – [A] -1- Orphenadrine:
Dose: 100 mg tablets orally 2-3 times daily.
Indications: Skeletal muscle spasticity, painful muscle spasms in neuromuscular, musculoskeletal disorders e.g. myalgia, rheumatic diseases.
Contraindications: Myasthenia gravis, motor weakness, myopathy with decreased muscle tone.

(S.M.D.) –[B]-Peripheral muscle relaxants
They are injected intravenously as anesthetic adjuvants to produce muscle relaxation during general anesthesia.
(S.M.D.) – [B] – 1- Pancuronium Bromide:
Dose: Adult & children I.V 0.06-0.1mg/kg, neonate I.V 0.02 mg/kg.
Indications: Induction of non-depolarizing muscle relaxation of medium duration.
Contraindications: Severe respiratory insufficiency.
Precautions: Hepatic impairment, respiratory insufficiency, history of asthma or hypersensitivity, to neuromuscular blockers. Reduce dose in obesity and in renal impairment. Patients should have their respiration assisted or controlled until drug is antagonized.
Adverse effects: Dose-related tachycardia, slight hypertension.
Drug interactions: Aminoglycosides, clindamycin, lincomycin, polymyxins, verapamil, quinidine, propranolol, cholinergics, parenteral magnesium and lithium.
Patient instructions:
- Reassure patient that breathing will return to normal after pancuronium is discontinued.
- Maintain calm environment.
(S.M.D.) – [B] – 2- Atracurium Besylate:
Dose: 25-50 mg amp. Initial dose 0.5mg/kg, onset 2-3 min & duration 20-45min.
Indications: They are anesthetic adjuvents in thoracic & upper abdominal operations. Aids endoscopy (laryngo-, broncho- & esophagoscopy), for endotracheal intubations, ECT therapy, orthopedic manipulations (fractures or dislocations), stabilization of chest wall in chest crush injury, control muscle spasms in acute convulsive states (tetanus, drugs...), to rest motor endplate in myasthenia gravis crisis.
Drug interactions: Ether, chlorpromazine & aminoglycosides (potentiation)
Antagonists: Neostigmine methyl sulphate 1-2.5 mg with atropine 1mg to
avoid excessive vagal stimulation.

**Elimination:** Renal (<5%) & ester hydrolysis in plasma (Hoffmann elimination is pH & temperature-dependent process) with laudanosine product which has CNS stimulant in high concentration, under goes renal & hepatic elimination.

(S.M.D.) – [B] – 3- **Gallamine Triethiodide:**

**Dose:** 40mg I.V (1mg/kg for adults & 4mg/year age for children) as non-depolarizing muscle relaxant. It has 1/5 curare activity, rapid immediate onset (2-3 min), and duration 15-30 min with selective parasympatholytic action on heart → sinus bradycardia & arrhythmias.

**Contraindications:** In patients sensitive to iodides and renal disorders (mainly renal excretion).

(S.M.D.) – [B] – 4- **Neostigmine :**

**Dose:** For several of non-depolarizing neuro-muscle blockers:I. V injection,1-5 mg after or with atropine sulphate 0.6-1.2 mg. Others, oral, 15-30 mg with a total dose of 75-300 mg/day (usually maximum tolerated dose is 180 mg / day).

**Indications:** Reversal of non-depolarizing neuro-muscle blockers and in myasthenia gravis. As antidote for certain muscle relaxant drugs used during surgery. to prevent and treat distension and urinary retention following surgery.

**Contraindications:** Intestinal or urinary obstruction, recent intestinal or bladder surgery.

**Precautions:** Asthma, bradycardia, recent myocardial infarction, epilepsy, Parkinsonism, hypotension, vagotoniapeptic ulceration and in pregnancy.

**Adverse effects:** nausea, vomiting increased salivation, diarrhoea and abdominal cramps, muscle spasm. **overdose:** cholinergic crisis, rash associated with bromide salt, hypotension.

**Drug Interactions:** Qunidine, clindamycin, lincomycin, polymyxins, propranolol, chloroquine, muscle relaxants (depolarizing and non-depolarizing) and lithium.

**Patient Instructions:**
- Inform physician if adverse effects occur.
- Long term use may induce tolerance, which requires dosage adjustment.
(S.M.D.) – [C]-Antirheumatics
(S.M.D.) – [C] – {a} – Non steroidal anti-inflammatory Drugs (NSAIDS)

(S.M.D.) – [C] – {a} – 1- **Acetyl Salicylic Acid:**

**Dose:** 300-900 mg every 4-6 hours, when necessary, maximum 4 mg daily.

**Indications:** Used for mild to moderate pain, fever, inflammation and the prevention of myocardial infarction and stroke.

**Contra indications:** GIT ulcer, gout, bleeding tendencies and allergy. Children under 12 years and with breast-feeding, pregnancy, asthma and nasal polyps.

**Precautions:** Asthma, allergic diseases, impaired liver and kidney functions. Prolonged medication with salicylates requires medical supervision.

**Adverse effects:** GIT disturbances, increased bleeding time, Reye syndrome, and precipitation of allergic attacks. Chronic over dosage leads to salicilism.

**Drug interactions:** Antacids, anticoagulants, anti-epileptic, cytotoxic, diuretics, uricosuric, metoclopramide, domperidone and alcohol.

**Patient instructions:**
- Take with food or after meals.
- Do not crush or chew.
- Take with a full glass of water.
- Do not use if it has strong vinegar like odour.
- Do not place or dissolve on an oral lesion.

(S.M.D.) – [C] – {a} – 2- **Diclofenac:**

**Dose:** 75-150 mg/day in 2-3 divided doses after meals.

Children (over 1 year): 1-3 mg/kg/day in divided doses.

**Indications:** For the relief of pain and inflammation.

**Contraindications:** GI ulceration, porphyria.

**Precautions:** Long-term treatment with diclofenac should be accompanied with blood counts.

**Adverse effects:** GI ulceration, hypersensitivity reactions.

**Drug interactions:** Digoxin, lithium, methotrexate, cyclosporin and triamterene and salicylates.

**Patient instructions:** Similar to ibuprofen.

(S.M.D.) – [C] – {a} – 3- **Ibuprofen:**

**Dose:** 1.2-1.8 gm/day in divided dose preferably after meals (max.2.4 gm/ day)
Adverse effects: GIT ulceration, hypersensitivity reactions.

Drug interactions: Antihypertensives, cardiac glycosides, cytotoxics, diuretics and lithium.

Patient instructions: Do not take part in any activity that requires alertness. Tell your dentist that you are taking that drug as it prolongs leeding time.

(S.M.D.) – [C] – {a} – 4- **ketoprofen:**
Dose: 50 to 100 mg twice daily with food.

Indications: Management of mild to moderate pain and antipyretic.

Contraindications: Should not be given to patients with known hypersensitivity to aspirin and pregnancy.

Precautions: May provoke bronchospasm in patients with asthma, should be given cautiously to elderly and patients with history of peptic ulcer, cardiovascular, liver or kidney disorders.

Adverse effects: GIT ulceration, hypersensitivity reactions

Drug interactions: Probenecid, lithium and methotrexate.

Patient instructions: Stomach problems if you drink alcohol while being treated with this medication.

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(S.M.D.) – [C] – {b} – **Analgesic Antipyretics**

(S.M.D.) – [C] – {b} – 1- **Paracetamol:**
Dose: 0.5-1 gm every 4-6 hours with a max. Of 4 gm/day. Children under 3 months 10 mg/kg, 3months-1 year: 60-120 mg/kg, 1-5 years: 120-250 mg/kg and 6-12 years. 250-500 mg/kg. These doses may be repeated every 4-6 hours if necessary with maximum of 4 doses.

Indications: Management of mild to moderate pain and pyrexia, acute migraineous attacks, tension headache.

Contraindications: Should not be given to patients with hepatic and renal damage and alcoholism.

Precautions: hepatic impairment, renal impairment, alcohol dependence, pregnancy and breast-feeding.

Adverse effects: Rashes, blood disorders and acute pancreatitis after prolonged use. Acute poisoning may lead to liver damage.

Drug interactions: Anion exchange resin, metoclopramide and domperidone.

Patient instructions:
- Do not exceed the maximum recommended daily dosage of 4 gm.
- Do not use with other anti-inflammatory agents.

(S.M.D.) – [C] – {c} – **Anti-migraine**

(S.M.D.) – [C] – {c} – 1- **Ergotamine tartrate:**
**Dose:** 1-2mg repeated half an hour later if necessary (max.6 mg/day and 12 mg/week) co-administration of caffeine (100 mg) enhances the effect of ergotamine.

**Indications:** Treatment of migraine and cluster headache.

**Contra indications:** Severe hypertension, sepsis, peripheral vascular disease, pregnancy, ischaemic heart disease, porphyria.

**Precautions:** Should be administered with care in severe hyperthyroidism and anemia and should not be used for prophylaxis. Discontinue in cases of numbness or tingling of extremities.

**Adverse effects:** Nausea and vomiting, weakness and muscle pain, symptoms of peripheral vasoconstriction and CVS disturbances, drug dependence.

**Drug interactions:** Caffeine, beta-blockers and macrolide antibiotics.

**Patient instructions:**
- Avoid any food to which you are allergic, and make your headache worse.
- Avoid exposure to cold.
- Elderly patients are more sensitive.

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**(S.M.D.) – [C] – {c} – 2- Sumatriptan:**

**Dose:** 100 mg tablets and 0.5 mg ampoule S.C. injection. Oral: 25-100-mg. injection 6-12 mg (response rate at 2 hour, 75%).

**Indications:** Migraineous headache. it is effective when the prodromal symptoms starts and second dose after 2-4 hours then every 6-8 hours until symptoms subside.

**Adverse effects:** nausea, vomiting, malaise, dizziness, pain and redness at site of injection (40 %), chest pressure (5%).

**Contraindications:** Coronary artery disease, hypertension, peripheral or cerebral vascular disease.

**Drug interactions:** Ergot alkaloids, lithium, antidepressants (MAOIs and SSRIs) serotonin syndrome.

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**(S.M.D.) – [D] – Antigout**

**(S.M.D.)–  [D] - 1- Allopurinol:**

**Dose:** 100-300 mg tablets 2-3 times/day depending on the level of uric acid in the blood then maintaince 100 mg/d when the serum level is between 3-8 mg. It is combined with clochicine to avoid acute exacerbation as anti-inflammatory).

**Action:** It blocks uric acid synthesis by increase oxypurines clearance greater than uric acid.

**Indications:** In chronic gouty arthritis and marked elevation of uric acid in blood (hyperuricemia) e.g.1-cytotoxic drugs (massive breakdown of purine in nucleoproteins as an end product) e.g. Leukemia. 2-Decreased uric acid
excretion e.g. chronic renal failure (end-stage). 3-Endogenous metabolic error e.g. glycine, uric acid or disturbed glutamine metabolism.

**Adverse effects:** Skin rash and precipitation of acute gouty attack.

(S.M.D.) – [D] - 2- **Colchicine:**

**Dose:** 1 mg initially, followed by 0.5 mg every 2-3 hours until relief of pain or vomiting or diarrhea occurs. Do not repeat within 3 days.

**Indications:** Treatment of acute gout, short-term prophylaxis during initial therapy alluprinol and uricosuric drugs. It is also useful in amyloidosis, familial Mediterranean and Beheet disease.

**Contraindications:** Severe GIT, cardiac, hematologic, liver or renal disease. Pregnancy and breast-feeding.

**Precautions:** Frequent blood counts are recommended on chronic use.

**Adverse effects:** Nausea, vomiting, and abdominal pain. Excessive doses may lead to diarrhea and GIT bleeding. On prolonged use blood disorders may develop.

**Drug interactions:** cyclosporin, cynacoblamin, diuretics and NSAIDS and alcohol.

**Patient instructions:**
- It is imp to understand how to take it and when it should be stopped.
- If you miss a dose; do not double the next dose.
12- (OPH.) Ophthalmic preparations

((OPH.) – [A] – Antivirals
((OPH.) – [A] – 1- Acyclovir: (See acyclovir)

((OPH.) – [B] – Local Anaesthetics
((OPH.) – [A] – 1- Benoxinate (oxybuprocaine):
Action: It is soluble primary local anaesthetic.
Uses:
- For ophthalmic use. Produce little or no mydriasis. (0.4% solution)
- Skin ointment e.g. dermatosis, itching (1%).
- Urethral instrumentation (0.2%).

((OPH.) – [C] – Antibiotics
((OPH.) – [C] – 1- Chloramphenicol (0.5 and 1%): See chloramphenicol.
((OPH.) – [C] – 2- Oxytetracycline HCL (1%): See Tetracycline.
Eye Drops: Apply at least every 2 hours then reduce frequency as infection is controlled and continue for 48 hours after healing.
Eye ointment: Apply either at night (if eye drops are used during day) or 4-6 times/day (alone).

((OPH.) – [D] – Steroids

((OPH.) – [E] – Sulfonamides

((OPH.) – [F] – Antihistaminics and / or Decongestants
((OPH.) – [F] – 1- Phenylephrine:
Action: It is a mono-hydroxy-phenyl alkylamine has a direct sympathomimetic action mainly on alpha-receptors & little beta effect on the heart.
Uses:
- Vaso-constrictor, nasal decongestant & mydriatic (irritant).
- In hypotensive states.

Dose:
- local: 0.5 – 1 % solution (nasal drops & spray).
- Injection I.M. 5 -10 mg.
- Included in nasal & throat decongestant mixtures.

(OPH.) – [G] – preparations for Glaucoma
(OPH.) – [G] - 1- Timolol (0.25% - 0.5%):
Dose: One drop twice daily.
**Indications:** Management of open angle glaucoma and some cases of secondary glaucoma.

**Contraindications:** Since systemic absorption may occur, these eye drops are contraindicated in asthma, obstructive lung disease, bradycardia, heart block or heart failure.

**Precautions:** Older people (risk of keratitis) if used in angle -closure glaucoma, use with miotic and not single.

**Adverse effects:** Allergic conjunctivitis, transitory dry eye, transient stinging and granulomatous anterior uveitis (with Metipranolol), burning, pain, itching keratitis, diplopia & allergic blepharitis.

**Drug interactions:** If systemic absorption occurs, these drugs can interact with other drugs (Alcohol, anesthetics, amiodarone, lidocaine, rifampicin, fluoxamine, anti-diabetics), anxiolytics, hypnotics, cardiac glycosides, cholinergics, anti-psychotics, ergotamine, sympathomimetics, theophyllin, thyroxine, cimetidine, diuretics, and carbenoxolone.

**Patient instructions:**
- Do not allow the tip of the dispensing container to contact the eye, to avoid bacterial contamination.
- If more than 1 topical ophthalmic drug is being used, the drugs should be administered at least 10 minutes
- Contact lenses should be removed; lenses may be reinserted 15 minutes following administrations.
- Protect from light.

*(OPH.) – [G] – 2- **Metipranolol:***

**Dose:** 1 drop should be taken at bedtime.

**Indications:** For the treatment of intra-ocular pressure in chronic open-angle glaucoma.

**Contraindications:** Bronchial asthma, severe chronic obstructive pulmonary disease, sinus bradycardia, second-degree and third degree atrioventricular block, cardiac failure, cardiogenic shock.

**Precautions:** Pregnancy category C, patient with cerebrovascular insufficiency, bronchial disease, and sulfite sensitivity, thyroid disorder, diabetes mellitus & may mask hypoglycemic symptoms in patients with insulin-dependant diabetes.

**Adverse effects:** Ocular effect includes burning, stinging at instillation, photophobia, and excessive lacrimation.

*(OPH.) – [G] - 3- **Betaxolol:***

Cause temporary blurred vision; serious systemic reactions include bronchospasm, bradycardia, CHF, heart block, cerebrovascular ischemia & depression.
Drug interactions: Oral B-adrenergic blocking agents, calcium channel blockers, digoxin, and quinidine.

Patient instructions:
- Wash hands before drug administration, not allow dropper to come into contact with any surface including eyelashes.
- Report these symptoms to physician, eye infection, inflammation, rash, itching or decrease vision or sudden eye pain occurs.
- Monitor glucose level carefully.

(OPH.) – [H] – Miotics
(oph.) – [H] -1- Pilocarpine:
Dose: Apply drops 3-6 times/day.
Indications: To reduce intra-ocular pressure in open angle glaucoma, as a part in the emergency treatment of closed angle glaucoma prior to surgery, to antagonize the effect of mydriatics and cycloplegics on the eye and in some surgical procedure in the eye.
Contraindications: Acute iritis, acute uvitis and some cases of secondary glaucoma.
Precautions: Used with severe cautions in patients with history of retinal detachment, young patients with high myopia. Miosis may cause difficulty with dark adaptation, high or low cranial abrasion, asthma, hyperthyroidism, peptic ulcer, Parkinson’s disease, U.T obstruction.
Adverse effects: Ciliary’s spasm, ocular pain and irritation, blurred vision, myopia and browache.
Drug interactions: Beta-blockers, topical NSAIDs.
Patient instructions:
- If over dosage occurs, flush eyes with water.
- Caution while driving at night or performing tasks in poor illumination.
- Keep bottle tightly closed when out of use.
- Wash hands with soap & water.

(OPH.) – [I] – Mydriatics
(oph.) – [I] - 1- Atropine:
Dose: Uveitis, 1-2 drops 4 times/day. Child, 1 drops 3 times/day. Refraction in children, 1 drops 2 times/day for 3 days of examination and then one hour before examination.
Indications: To produce cycloplegia for refraction in young children, in children with convergent strabismus. In iridocyclitis to prevent posterior synechiae.
Contraindications: Glaucoma. Not use in infants below 3 months with an association between cycloplegia and amblyopia.
Precautions: Atropine ointment is preferred in children below 5 years. Avoid driving is allowed 1-2 hours after mydriasis.

Adverse effects: Contact dermatitis, toxic systemic reactions may occur in extremes of age, nasal congestion, altered taste, may precipitate acute narrow-angle glaucoma in old patients.

Drug interactions: Haloperidol, phenothiazines.

Patient instructions:
- Dim room lighting to comfortable level or provide sunglasses if necessary.
- Provide lubricating eye drops in xerophthalmia.
- Notify physician in ocular pain.
13- (E.N.T.) – Ear, Nose & Oropharynx Drugs

(E.N.T.) – [A]-Antibiotics

(E.N.T.) –[A] -1-Chloramphenicol (E.D):
Dose: Apply 2-3 times / day.
Indications: Used in eye infections and bacterial infections of the outer ear, severe life-threatening infections caused by haemophilus influenza, typhoid fever, cerebral abscess, relapsing fever, gangrene.
Contraindications: Perforated tympanic membrane, trivial infections, prophylactic use, fungal disease of ocular structure, and mycobacterial infection of eye.
Precautions: Pregnancy and lactations, liver disease especially cirrhosis, ascites and jaundice or patients receiving other bone marrow depressants, G-6-PD deficiency.
Adverse effects: Headache, mental confusion, delirium, reversible bone marrow depression with reticulacytopenia, decrease hemoglobin, thrombocytopenia and mild leukopenia, aplastic anemia occurs rarely and can be fatal, fatal cardio-vascular -respiratory collapse in neonates given excessive dosages (Baby grey syndrome).
Drug interactions: Inhibits CYP2CG and increase serum concentrations of phenytoin, warfarin and sulfonylurea, Phenobarbital and rifampin can decrease serum levels of chloramphenicol.
Patient instructions:
• Take drug orally 1 hour before or 2 hour after meals.
• Inform patients that ophthalmic solution may cause blurred vision for few minutes.
• Instruct patient to report these symptoms to physician bleeding, fever, sore throat, itching, nausea, vomiting, diarrhea.

(E.N.T.) – [B]- Decongestants

(E.N.T.) – [B]- {a} – Sympathomimetic (Local)
(E.N.T.) – [B]- {a} – 1- Oxymetazoline:
Action: Sympathomimetic for topical use.
Use: Nasal decongestant. In common colds, flu & allergic rhinitis.
Dose:
• Nasal drops 0.025% (Infantile) & 0.05% (Adult).
• Nasal spray 0.05% & gel.
Precautions:
• In patient with hypertention.
• Congestive rebound & not for chronic use.
(E.N.T.) – [B]- {a} – 2- Xylometazoline:
Action: Sympathomimetic for topical use.
Use: Nasal decongestant
Dose:
- Nasal drops 0.5% (Infantile) & 1% (Adult).
- Nasal spray 1%.
Precautions:
- In patient with hypertension.
- Congestive rebound & not for chronic use.

(E.N.T.) – [B]- {a} – 3- Tetrahydrozoline:
0.05%, 0.5% eye and nasal drops.

(E.N.T.) – [B]- {b} - Systemic antihistamines
(E.N.T.) – [B]- {b} – 1 - Clemastine:
Dose: 1 mg tablets, 0.5 mg /5ml syrup & 1 mg. amp .1-2 doses /day & when needed.
Action: Systemic anti-histaminic.
Indications: Similar to diphenhydramine.
Adverse effects: Less sedation & psychomotor impairment.

(E.N.T.) – [B]- {b} – 2- Cyproheptadine:
Dose: Tablets 4 mg. Syrup 2 mg / 5ml syrup.
Actions: Systemic Anti-histaminic.
Indications: Similar to diphenhydramine.
Adverse effects: Less sedation & psychomotor impairment.

(E.N.T.) – [B]- {b} – 3- Dimethindene + Phenylephrine + Neomycin:
Nasal spray.
Action: Decongestant, anti-allergic & antiseptic nasal spray.

(E.N.T.) – [B]- {b} – 4- Diphenhydramine:
Dose: Syrup 3 times / day.
Indications: Nasal pharyngeal allergy, hay fever, pruritus, urticaria, medication allergies & common cold.
Adverse effects: Sedation, hypnosis & psychomotor impairement.
Precautions: Machinery workers & driving that need alertness.

(E.N.T.) – [B]- {b} – 5- Fexofenadine:
Dose: 120 mg. Tablets / day.
Actions, Indications, Side effects: Similar to Acrivastine.
(E.N.T.) – [B]- {b} – 6- **Ketotifen:**
Dose: 1 mg. Tablets, 1 mg /5ml syrup, 1 mg /1ml. Drops 1-2 times /day.
**Action, Indications, Side effects:** Similar to clemastin.

(E.N.T.) – [B]- {b} – 7- **Phenylpropanolamine + Caffeine + Pheniramine + Mepyramine.**
Antiseptic & Anti-allergic drops.
Dose: Drops, tablets & syrup 3 times / day.
**Indications:** Flu & common cold.

(E.N.T.) – [B]- {b} – 8- **Promethazine:**
Dose: 5mg /5ml syrup & 25 mg amp.
**Action:** Systemic anti-histaminic.
**Indications, Side effects, Precautions:** Similar to diphenhydramine.

(E.N.T.) – [B]- {b} – 9- **Loratadine:**
Dose: Loratadine tablets & syrup should be taken once daily.
**Indications:** Long - acting antihistamine, symptomatic relief of seasonal allergic rhinitis.
**Contraindications:** Allergic reactions to cyproheptadine, azatadine, astemazol, brompheniramine, carbenoxamine, clemastine, hydroxyzine.
**Precautions:**
- If you have ever had asthma, blood vessel disease, glaucoma, high blood pressure, kidney, liver disease, peptic ulcers, inform your doctor.
- Nursing mothers not do use
**Adverse effects:** Anxiety, depression, feeling faint, shortness of breath, change in menstruation, breast pain, constipation, dry mouth, rash, urine discoloration, yellowing of eyes or skin.
**Drug interactions:** MAO inhibitors, tricyclic antidepressant, CNS depressant.
**Patient instructions:**
- Wear protective clothing and use an effective sunscreen.
- If there is constipation, increase the amount of fiber in your diet, exercise & drink more water.
- If you feel dizzy site & be careful on stairs.
- Should always be administration on an empty stomach.

(E.N.T.) – [B]- {b} – 10- **Terfenadine:**
Dose: 60 mg & 120 mg. Tablets, 30 mg / 5ml suspension 3 times / day.
**Action, Indications, Side effects & Precautions:** Similar to diphenhydramine.
**Systemic decongestants**

1. **Carbinoxamine + Phenylephrine:**
   - **Systemic nasal decongestant & anti-allergic.**
   - **Dose:** Capsule 3 times / day.

2. **Chlorpheniramine + Phenylephrine:**
   - **Systemic nasal decongestant & anti-allergic.**
   - **Dose:** Syrup 3-4 times / day.
   - **Indications:** Common cold.

3. **Budesonide**
   - **G.I.T.**
   - **Dose:** 50 microgram / dose as nasal aerosol and 200 microgram / dose aerosol.
   - **Action:** Plain nasal corticosteroid.
   - **Indications:** Nasal allergy (50 microgram). Anti-asthmatic corticoid by 200-microgram inhalation.
   - **Adverse effects:** Inhalation leads to hoarseness of voice and fungal infection in throat.

4. **Diphenylpyraline + Isopropamide + phenylpropanolamine:**
   - **Systemic nasal decongestant & anti-allergic.**
   - **Dose:** Capsules 3 times/day.
   - **Indications:** Common cold & Throat congestion.

5. **Pseudoephedrine:**
   - **Systemic nasal, throat decongestant & bronchodilator.**
   - **Dose:** Tablets 3-4 times / day.
   - **Indications:** Common cold & allergic bronchitis.

6. **Pseudoephedrine + tripolidine:**
   - **Systemic nasal decongestant, anti-allergic and bronchodilators.**
   - **Dose:** Tablets & syrup.
   - **Indications:** Common cold, allergic rhinitis & bronchitis, high fever & antitussive.

7. **Acrivastine:**
   - **Action:** Systemic anti-histaminic (long duration).
   - **Dose:** 8 mg. capsule 1-2 / day.
   - **Indications:** Similar to diphenhydramine.
   - **Adverse effects:** Less psychomotor impairment & less sedation.

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(E.N.T.) – [C] – 8- **Astemizole:**
**Dose:** 10 mg tablets & suspension / day.
**Action, Indications, Side effects:** Similar to acrivastine.

(E.N.T.) – [C] - 9 – **Naphazoline HCL + Chlorpheniramine maleate:**
**Dose:** 2-3 drops 3-4 times daily.

**Indications:** Nasal congestion due to common cold & sinusitis, to promote nasal or sinus drainage, to relieve air block, pressure pain in air travel.

**Contraindications:** Breast feeding (oral agents only), coronary artery disease, glaucoma.

**Precautions:** Angina, diabetes mellitus, dizziness, hyperthyroidism, insomnia, prostatic hypertrophy, nursing women, patients of 60 years & older.

**Adverse effects:** Nervousness, dizziness, sleeplessness with excessive eye sensitivity to light, use of topical decongestants more likely in infants & in nasal discharge, hypertension, rebound congestion, convulsions, depression, anorexia, tremor, headache, weakness.

**Drug interactions:** Furazolidone, guanethidine, MAOIs, Methyldopa, tricyclic anti-depressants, rawolfia alkaloids.

**Patient instructions:**
- Recline on a bed, hang your head over the edge.
- Remain in this position for several minutes after using the drops.
- Turn your head from side to side.
- Do not use by more than 1 person ---> may spread infection.

(E.N.T.) – [C] – 10- **Cetrizine:**
**Systemic anti-histaminic (long duration)**
**Dose:** 10 mg tablets 1-2 / day.
**Indications & Side effects:** Similar to astemazole.
14-(D.)-Dermatological Drugs

(D.) – [A]-Antibiotics

(D.) – [A] - 1- Tetracycline:
Dose: Apply 1-3 times / day.
Indications: Acne vulgaris, impetigo and susceptible skin infections.
Contraindications: Hypersensitivity to any tetracycline.
Precautions: Overgrowth of non-susceptible organisms may occur. Stains clothing.
Adverse effects: Rarely local hypersensitivity reactions.
Drug interactions: May interfere with bactericidal actions of penicillins.
Patient instructions:
  • Topical medication may stain clothes.
  • Avoid exposure to sunlight and to use sunscreen or wear protective clothing to avoid photosensitivity
  • Notify the patient that topical use many result in burning sensation.

(D.) – [A] – 2- Fucidic acid:
Action: Bactericidal antibiotic by interrupting protein synthesis and by inhibiting translocation on the ribosome (erythromycin – like).
Preparations: Topical ointment & cream 2%.
Use: Pyodermia, infected wound.

(D.) – [A] - 3- Clindamycin:
Dose: 1% gel to be applied on dry skin and cover all the infected area from 2-3 times daily.
Indications: Used for the treatment of acne vulgaris.
Contraindications: Allergic reactions to clindamycin.
Precautions: Tell your physician if you are pregnant or breast-feeding.
Adverse effects: Dry skin, oily skin, itching.
Drug interactions: If you are use another topical medication it is best to apply them at different times to reduce skin irritation, alcohol-containing preparations, and medicated cleanser.
Patient instructions: You should avoid getting this medication in your eyes, nose, or mouth.

(D.) – [A] – 4- Doxycycline:
Dose: Adult and child over 8 years 200mg on first day then 100mg daily.
Indications: Pelvic inflammatory disease and other infections of skin by susceptible organisms.
Precautions: Hepatic impairment, breast-feeding, photosensitivity reported.
Adverse effects: GIT disturbance, erythema, photosensitivity, headache, visual disturbance, hepatotoxicity & pancreatitis.
Drug interactions: Possibility of reduced contraceptive effect.
Patient instructions:
  - Capsules should be swallowed whole with plenty of fluid while sitting or standing.
  - May be given with milk or food.

(D.) – [B] – Sulphonamides
   (D.) – [B] – 1- Silver Sulphadiazine:
   Action: Broad spectrum against gram-positive bacteria (strept, staph. & cl.welcii) and gram negative bacteria (neisseria & enterobacteria). Non-irritant with high penetration.
   Use: Topical cream 1% in Burns & wounds.

(D.) – [C] - Local Anti-fungals
   (D.) – [C] – 1- Econazole:
   Action: Fungicidal against dermatophytes and candida.
   Use: Topical for cutaneous fungus infection as 1% cream, topical powder & topical spray.

(D.) – [C] - 2- Clotrimazole:
   Dose: Apply 2-3 times / day for 14 days after lesions have healed.
   Indications: Ringworm infections (other than nail and scalp ring worms) and in candidial skin infections.
   Contraindications: Allergy to clotrimazole.
   Precautions:
     - Pregnancy (category B).
     - Use with caution in liver disease.
     - Do not use in children under 2 years of age.
   Adverse effects: Occasional skin irritation or sensitivity, erythema, stinging, blistering, peeling, edema, and pruritus.
   Patient instructions:
     - Avoid contact with eyes, do not use on scalp or nails.
     - Avoid use of occlusive wrappings or dressing.
     - Continue use until a full course of therapy is completed.

(D.) – [D] – Antiviral
   (D.) – [D] – 1- Acyclovir:
Dose: Apply on the skin to cover all the infected area for 3 hour to 6 times / day for 7 days.
Indications: Treatment of initial episodes of herpes genitalis and some mucocutaneous HSV infections in immunocompromised patients.
Contraindications: Allergy to the drug.
Precautions:
- Pregnancy (category c), lactation (excreted in breast milk)
- Care must be taken to avoid getting drug in eyes.
- Sexual intercourse must be avoided when lesions are present
Adverse effects: Topical applications to herpes lesions can be painful, Burning or stinging and pruritis.
Drug interactions: Zidovudine increase propensity for lethargy, do not add acyclovir to biologic or colloidal fluids.
Patient instructions:
- Avoid sexual intercourse.
- Teach patient to apply ointment with finger cot or glove.
- Start treatment as soon as symptoms occur.

(D.) – [E] – Antiparasites
(D.) – [E] -1- Benzyl Benzoate:
Dose: In scabies apply 25% over the whole body (excluding head and neck), repeat without bathing on next day and wash off 24 hours later.
Indications: Scabies and pediculosis.
Contraindications: Inflamed or broken skin.
Precautions: Children, avoid contact with eyes.
Adverse effects: Local irritation particularly in children.

(D.) – [E] - 2- Permethrin:
Dose: Apply to clean damp hair and leave for 10 minutes, rinse and dry.
Indications: Pediculosis (lice but less effective against eggs).
Contraindications: Inflamed or broken skin.
Precautions: Avoid contact with eyes, in children below 2 years use only under medical supervision
Adverse effects: Pruritis, erythema, stinging of scalp.
Drug interactions: Tell your doctor if you are taking over-the-counter medications.
Patient instructions:
- Avoid contact with open cuts, eyes, nose, mouth or other mucous membranes.
- If contact occurs the eye and the drug flush the eye thoroughly with tap water for several minutes
- Discontinue use if severe irritation develops.
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- Change clothing and bed linens the morning following applications.

(D.) – [F] - Corticosteroids

(D.) – [F] -1- Betamethasone cream (potent):
Dose: Apply thinly 2-3 times / day reducing strength and frequency as condition responds.
Indications: Severe inflammatory skin disorders e.g. eczema unresponsive to less potent corticosteroids.
Contraindications: Untreated bacterial, fungal or viral skin infection. It is not used on face, grain or axilla or for ophthalmic treatment.
Precautions: Application of more than 100gm / week of 0.1% preparation is likely to cause adrenal suppression.
Adverse effects: Spread and worsening of untreated local infection, thinning of the skin, increased hair growth, perioral dermatitis and acne.
Drug interactions: Does not interact with any other medications as long as it is used according to directions.

Patient instructions:
- Should be stored at room temperature (never frozen).
- If irritation develops, immediately discontinue its use and notify your doctor.
- It is not for use in the eyes or mucous membranes.
- If this medication is used on a child’s diaper area, do not put tight-fitting diapers on plastic parts on the child.

Dose: Apply thin 2-3 times / day reducing strength and frequency as condition responds.
Indications: Mild inflammatory skin disorders.
Contraindications: Untreated bacterial, fungal or viral skin lesions, ulcerative skin lesions.
Precautions: The same as Betamethasone.
Adverse effects: Spread and worsening of untreated infections, thinning of skin, irreversible striae atrophica, increased hair growth, perioral dermatitis, acne at site of application, mild depigmentation and vellus hair.

(D.) - [G]-keratolytic

(D.) – [G] -1- Coal Tar products:
Dose: Apply 1-3 times / day starting with the lowest strength.
Indications: Chronic eczema and psoriasis, it has both anti-pruritic and keratolytic properties.
Contraindications: Not applied on broken or inflamed skin.
Precautions: Coal tar stains skin, hair and fabric.
Adverse effects: Skin irritation, acne-like eruptions, and photosensitivity reactions, stain skin, hair and fabric.
Drug interactions: No interactions.
Patient instructions:
- Discontinue the use if skin irritation, rash or photosensitivity reactions occur
- Avoid contact with broken or inflamed skin.

(D.) – [H] – Protectives and Soothing agents
(D.) – [H] -1- **Zinc Oxide:**
Action: It has local astringent action.
Dose: To be applied on the skin 2-3 times daily.
Indications: Topical in combination as anti-haemorrhoidal, protective emollient and anti-pruritic as single preparations 20% ointment.
Contraindications: None.
Precautions: Contact sensitivity to lanolin and wool alcohol present in ointments may occur.
Adverse effects: Local sensitivity reactions.
Drug interactions: Zinc forms complexes with tetracyclines.
Patient instructions:
- If irritation develops while using this medication, immediately discontinue its use and notify your doctor.
- Use this medication only for your current condition. Do not use it for another problem or give it to other to use.

(D.) – [H] – 2- **Dexpanthenol:**
Function: It is related to a vitamin (Pantothemic acid) included with multivitamin combinations in syrup form. It is one member of the vitamin B complex that enters in the formation of co-enzyme A in some important metabolic pathways e.g. acety-COA & aceto-acetyl COA in fat metabolic pathways & Krebs cycle.

(D.) – [H] –3- **JoJoba oil + Zinc Oxide:**

(D.) – [I] – Local Antipruritic
(D.) – [I] –1- **Crotamiton:**
Dose: Topical for head lice ---> apply 1% cream rinse to hair one time after washing hair , leave for no longer than 10 minutes & rinse with water
Indications: Active against lice(including unwatched eggs)&mites(e.g scabies)
Contraindications: Documented allergy to any pyrethroid or vehicle component
Precautions: Pregnancy, breast-feeding, avoid contact with eyes.
Adverse effects: transient burning, stinging, tingling occurs in about 10% of patients. Itching, edema & erythema are often symptoms of scabies skin irritation.
Drug interactions: No interactions.
Patient instructions:
- Wash hair & towel dry.
- Apply cream rinse to saturate hair, scalp, especially behind ears & on the nape of neck.

(D.) – [J] – Local Acne
(D.) – [J]-1- Benzoyl peroxide:
Dose: Apply once daily for the first few days increase frequency of application from 2 to 3 times daily
Indications: Mild to moderate acne vulgaris and oily skin.
Contraindications:
- If severe diarrhea, stomach pain & cramps or bloody stools occur.
- Allergy to benzoic acid, cinnamon or any ingredients of the medications.
Precautions: Do not treat diarrhea associated with benzamycin use without consulting your doctor.
Adverse effects: Excessive dryness, peeling, facial swelling, oiliness, redness, edema stinging, burning on application, excessive hair growth, and loss of skin pigment.
Drug interactions: Dietary supplements with benzoyl peroxide.
Patient instructions:
- Keep away from eyes, mouth, lips, inside the nose, highly inflamed or damaged skin.
- If dryness, itching, swelling, redness.
- Use moisturizers, cool compresses, or topical steroids.
- Water-based cosmetics may be used after benzoyl peroxide use.
- Cleansers (washes and bar soap) use once or twice daily on affected skin.

(D.) – [K] – Antiseptic & Disinfectants
(D.) – [K] – 1- Povidone iodine:
Action: Topical antiseptic & disinfectant.
Uses: For cleansing skin & wounds. In burns, infected skin abrasions and ulcers by dressing.
Preparation: paint 10%, solution 7.5% and 4% for shampoo & soap liquid.
15- (Vac.) - Vaccins and sera

General Contraindications:
Acute illness, sensitivity to the contained antibody, pregnancy, and individual with impaired immunity (after radiotherapy, corticosteroids or other immuno-suppressants) or malignant neoplasms.

General Precautions:
Store under the conditions recommended in the manufacturer’s leaflet. Opened multi-dose vials should be discarded within one hour (if no preservatives is added) or after 3 hours (if a preservative is added). Ampoules should be adequately shaken before use.

General Side effects:
Local reaction at site of injection with inflammation and lymphangitis may be followed with fever, headache and malaise.

(Vac.) – [A] – Serums & Immunoglobulins

(Vac.) – [A] – 1- *Vac.x-Anti-D (Rho) Immunoglobulin:*
Dose: For rhesus-negative women, 500 units by i.m. Injection following birth of rhesus-positive infant, 250 units before 20 weeks gestation.
Indications: To prevent a rhesus negative mother from forming antibodies against fetal–positive cells which may pass into the maternal blood during childbirth or abortion.
Contraindications: Hypersensitivity to human antibody products.
Precautions: Give drug cautiously to person receiving anticoagulant therapy.
Adverse effects: Hypersensitivity reactions.
Drug interactions: live vaccines.
Patient instructions: Take analgesics e.g. paracetamol for local pain at site of injection.

Dose: As a single dose of 20 units/kg, half infiltrated through the wound half by I.M injection at another site.
Indications: In the post-exposure therapy of rabies at the same time of vaccine administration.

(Vac.) – [A] – 3- *Antiscorpion serum:*
Dose: The indicated dose on the label should be administered into the site of sting or as much as possible to the site and the remainder is administered by I.M injection in a convenient proximal site.
Indications: To Prevent symptoms provided the dose is given with the least possible delay.

(Vac.) – [A] – 4- *Anti-snake venom Serum polyvalent:
**Dose:** 2 ampoules diluted with 2-3 volumes saline and given with I.V infusion may be repeated after 1-2 hours if no clinical response has occurred.

**Indications:** Management of bites of venomous snakes.

(Vac.) – [A] – 5- **Antitetanus Immunoglobulin:**

**Dose:** In Passive immunization, 250 units by I.M injection. In some cases (24 hours have elapsed since the wound has been sustained, a high risk of contamination or following burns) 500 units should be given irrespective of the immunization history. For treatment 30-300 units/kg by I.M injection into different sites.

**Indications:** In passive immunization against tetanus in tetanus-prone wounds, in un-immunized persons, in persons with unknown immunization history or who received the last dose of tetanus vaccines more than 10 years previously. In the treatment of tetanus.

(Vac.) – [A] – 6- **Diphtheria Antitoxin:**

**Dose:** For the treatment of diphtheria of mild to moderate severity, 10,000-30,000 units by I.M injection. In severe cases 40,000-100,000 units. Doses above 40,000 units should be given I.V about 0.5-2 hours after the initial portion has been given I.M.

**Indications:** In the passive immunization in suspected cases of diphtheria (given without waiting for the bacteriological confirmation of the infection).

**Precautions:** A test dose should always be given.

(Vac.) – [A]- 7- **Immunoglobulin (Human normal I.M):**

**Dose:** To control an outbreak of hepatitis A under 10 years and above 500 mg. In travelers to endemic areas, for periods abroad of 2 months or less 125 mg in children below 10 years and 250 mg in 10 years old and up. For period abroad if 3-5 months 250 mg in children below 10 years and 500 mg in 10 years old and up . To prevent an attack of measles, in children under 1 years 250 mg, 1-2 years 500 mg and 3 years and over 750 mg. To allow an attenuated attack of measles, in children under 1 years 100 mg, 1 years and up 250 mg . To prevent a clinical attack of Rubella during pregnancy 750 mg.

**Indications:** To provide passive immunization against hepatitis A, measles and rubella and to provide protection against infection in patients with mild hypogammaglobulinemia.

(Vac.) – [A]- 8- **Immunoglobulin (Human normal I.V):**

**Indications:** Replacement therapy for patient with congenital Gammaglobulinemia and for the treatment of idiopathic thrombocytopenic purpura.
(Vac.) – [B] – Vaccines

1. **Rabies Vaccine:**
   - **Dose:** In post-exposure treatment, after cleaning of the wound with water and soap, I.M or deep S.C. 6 doses each of 1 ml on days 0, 3, 7, 14, 30 and 90 (Rabies immunoglobulin should be given). Pre-exposure prophylaxis, 3 dose by I.M or deep S.C injection of 1 ml on days 0.7 and 28 with booster doses every 2 or 3 years.
   - **Indications:** Active immunization against rabies as a part of post-exposure treatment in patients who have been bitten by a rabid animal (confirmed or suspected rabies) or as a pre-exposure prophylaxis in high-risk persons.

2. **BCG (bacillus Calmette-Guerin) vaccine:**
   - **Dose:** 0.1 ml (infants below 3 months 0.05 ml) by intradermal injection
   - **Indications:** Contacts of those with active respiratory tuberculosis, newborn infants and health service stuff.
   - **Precautions:** A skin test for hypersensitivity to tuberculoprotein is first given (except in new-born infants).
   - **Adverse effects:** At the injection site, a small scare appears in a week, progressing to a papule or a benign ulcer after 3 weeks and heals in 6-12 weeks.

3. **Diphtheria-tetanus Vaccine (DT):**
   - **Dose:** In primary immunization in children 0.5 ml by I.M or deep S.C injection at 2 months followed by the second dose after 4 weeks, and a third dose after another 4 weeks. A reinforcing dose is given at school age.
   - **Indications:** Routine immunization in babies when the pertussis vaccine is contraindicated.

4. **Diphtheria-Pertussis-Tetanus Vaccine (DPT):**
   - **Dose:** In primary immunization in children 0.5 ml by I.M or deep S.C injection at 2 months followed by the second dose after 4 weeks, and a third dose after another 4 weeks. A reinforcing dose is given at school age.
   - **Indications:** Routine immunization in babies in the form of the triple vaccine.

5. **Hepatitis B Vaccine:**
   - **Dose:** 3 doses, the second and third doses are given 1 and 6 months after the first dose respectively, of 10 microgram for all those under 10 years, 20 microgram for older children and adults.
   - 40 microgram are given for immuno-compromised and dialysis patients as two injections in different sites. The doses are given by I.M injection in the deltoid region in adults and in the antero-lateral aspect of the thigh in children.
   - **Indications:** Active immunization against hepatitis B to high-risk persons.
(health-care personnel, laboratory workers, patients requiring hemodialysis or receiving regular blood transfusion, contacts of hepatitis B patients, parenteral drug abusers, travelers to endemic areas, in infants born to persistent carrier mothers or Hbs-Ag positive mothers).

(Vac.) – [B] – 6- **Influenza Vaccine:**
**Dose:** 0.5 ml as a single I.M or deep S.C injection for adults and children above 13 years. Children, 6 months-3 years 2 doses of 0.25 ml, 3-12 years 2 doses of 0.5 ml 4 weeks or more apart.
**Indications:** Active immunization against influenza in high risk patients (elderly, chronic cardiac or pulmonary disease, diabetes, under immuno-suppressive therapy and residents of closed institutions
**Contraindications:** Allergy to egg.

(Vac.) – [B] – 7- **Measles Virus Vaccine:**
**Dose:** 0.5 ml by deep S.C or I.M injection.
**Indications:** Has almost been replaced by a combined MMR vaccine for all children, but may be used to control measles outbreaks and offered to susceptible persons within 3 days of exposure to measles.
**Advers effects:** Measles-like rash, fever, convulsions and rarely encephalitis.

(Vac.) – [B] – 8- **Measles, Mumps and Rubella Vaccine (MMR):**
**Dose:** 0.5 ml by deep S.C or I.M injection.
**Indications:** To all children during the second year of life. In prophylaxis of measles after exposure and within 72 hr of contact.
**Contraindications:** Children with untreated malignant disease or depressed immunity (under high corticosteroid therapy, immuno-suppressive drugs or radiotherapy). Children who have received another live vaccine within 3 weeks, allergies to neomycin or kanamycin or egg, acute febrile illness, in adults, pregnancy should be avoided for 1 month and not given within 3 months of immunoglobulin injection.
**Precautions:** The parents to children with a history of febrile convulsions should be warned that a febrile response may occur.
**Adverse effects:** Malaise, fever and rash.

(Vac.) – [B] – 9- **Poliomyelitis vaccine (live attenuated):**
**Dose:** Initial course on 3 occasions usually at the same time as routine immunization against diphtheria, pertussis and tetanus at 2,3 and 4 months of age. Bouster recommended at school entry and school leaving. The dose is 3 drops form a multi-dose container or the whole contents of a unit- dose container.
**Indications:** Active immunization against poliomyelitis.
**Contraindications:** Diarrhoea and immunodeficiency disorders.
Precautions: Strict personal hygiene of the contacts of recently immunized babies.

(Vac.) – [B] – 10- Tetanus Vaccine:
Dose: 0.5 ml by deep S.C or I.M injection followed after 4 weeks by a second dose and after a future 4 weeks by a third dose.
Indications: Active immunization against tetanus.
Precautions: Should not be given unless more than 10 years have elapsed since the last reinforcing dose because of the possibility that hypersensitivity reactions may develop.

(Vac.) – [B] – 11- Typhoid Vaccine:
Dose: 0.5 ml by I.M or deep S.C injection, child 1-10 years 0.25 ml. A second dose is given 4-6 weeks later.
Indications: Active immunization against typhoid fever in high-risk persons (medical personnel handling patients or specimens, travelers to endemic areas and contacts of patients).

(Vac.) – [B] – 12- Yellow Fever Vaccine:
Dose: 0.5 ml by S.C injection as a single dose.
Indications: Active immunization against yellow fever in medical personnel handing infected materials or travelers to endemic areas (Africal countries).

Dose: 0.1 ml of a diluted solution of tuberculin purified derive (PPD) containing 100 units/ml.
Indications: To detect tuberculoprotien hypersensitivity prior to BCG vaccination (except in new-born infants) or as an aid to the diagnosis of tuberculosis.

(Vac.) – [B] – 14- Rubella Vaccine:
Dose: 0.5 ml by deep S.C or I.M injection.
Indications: Pre-pubertal girls between 10-14 years and for sero-negative women of childbearing period and medical who might predispose pregnant women at risk of infection.
Precautions: Early pregnancy and within one month of vaccination.

Dose: By deep S.C or I.M injection in a volume of injections as indicated on the formulation label.
Indications: Active immunization against poliomyelitis in persons where the live attenuated vaccine is contraindicated, contacts of immuno-suppressed patients and for symptomatic HIV-positive individuals.
(Vac.) – [B] –16- **Meningococcal Polysaccharide Vaccine:**
Dose: 0.5 ml deep S.C or I.M injection.
**Indications:** Active immunization against Neisseria meningitis infections (meningitis and septicemia) to high-risk person in endemic or epidemic areas.
**Precautions:** Minimum recommended age for administration of the vaccine varies from 2 months to 2 years because of reports of poor immune response in younger infants.

(Vac.) – [B]- 17- **Factor VIII Human anti-hemophilia Factor:**
**Indications:** In control of hemorrhage in hemophilia A.
**Contraindications:** Disseminated intravascular coagulation.
**Precautions:** Intravascular haemolysis may occur after large doses or after frequently repeated doses in patients with blood groups A, B, or AB.
**Adverse effects:** Allergic reactions (chills and fever) and hypofibrinogenaemia.
**Drug interactions:** aminocaproic acid may increase risk of thrombosis.

**Patient instructions:**
- Report any adverse reactions to doctor.
- Avoid activities that could lead to injury.

(Vac.) – [B]-18- **Hyperimmunoglobulins Hepatitis HB:**

(Vac.) – [C]- **Botulism:**
16- (Anesth.) – Anesthetics

(Anesth.) – [A] - Local
(Anesth.) – [A] – {a} – Parenteral
(Anesth.) – [A] – {a} – 1- Bupivacaine (Carbocaine):
Dose: The suggested general maximum single dose is 150 mg followed if necessary by doses of 50 mg / 2 hours, not more than 400 mg should be given daily.
For peripheral nerve block: 12.5-25 mg, for sympathetic nerve block: 50-125 mg, for lumbar epidural block 25-100 mg.
Indications: Bupivacaine is local anaesthetic related to xylocaine with more rapid onset and long duration. It is used for infiltration anesthesia, peripheral and sympathetic nerve block, lumbar epidural block (surgery and labour) and dental or surgical procedures of the maxillary or mandibular regions.
Contra-indications: Intravenous regional anesthesia, hypovolemia, cardiovascular system (C.V.S) disorders and hypersensitivity to the amide group.
Precautions: The dose should be reduced in the elderly, children, in debilitated patients and in cardiac or hepatic disease.
Adverse effects: C.N.S excitation manifested by restlessness, dizziness, tinnitus, blurred vision, nausea and vomiting. C.V.S disturbance as myocardial depression and hypotenstion.
Drug Interactions: Anti-arrhythmic.
Patient Instructions: Avoid contact of this medication with your eyes.
Be sure to wash your hands thoroughly after use. Tell your doctor if u have ever had anemia, or glucose 6 P D Enzyme deficiency.

Dose: By Injection maximum dose is 200 mg or 500 mg with solutions, which also contain adrenalin. Maximum dose of adrenalin is 500 mg. Infiltration anaesthesia:0. 25-0.5 %, with adrenaline 1 in 200000, using 2-50 ml of a 0.5 % solution. Nerve blocks, epidural and caudal blocks with adrenaline 1 in 200000, 1 % to a maximum of 50 ml, 2 % to a maximum of 25 ml. surface anaesthesia, usual strengths 2-4%.
In emergency Ventricular tachyarrhythmias, lidocaine is given as a bolus of 100 mg over few minutes followed by infusion of 2-4mg /min.
Indications: Lidocaine is local anesthetics with rapid onset and an intermediate duration of action. It is used for infiltration anaesthesia, nerve, epidural and caudal block and as a surface anaesthetic. It is used in emergency ventricular tachyarrythmias without heart block. It is used in the management of status epilepticus
Contraindications: Hypersensitivty, porphyria, hypovolemia.
Precautions: Hepatic or renal insufficiency and impaired cardiac conduction.
Adverse effects: Hypotension, Bradycardia, Cardiac arrest and C.N.S stimulation.

Drug Interactions: Other antiarrhythmics, beta-blockers, diuretics and Cimetidine.

Instructions to patients: children under age of 3 months are at increased risk.

(Anesth.) – [A] – {b} – Surface
(Anesth.) – [A] – {b} – 1- *Ethyl chloride (spray):*
  Indications: Local anesthetics in minor surgery (not recommended) and topically for relief of pain.
  Precautions: Highly flammable. It should not be applied to broken skin or mucous membranes.
  Adverse effects: prolonged spraying onto skin can cause chemical frostbite. Hepatotoxic, nephrotoxic and hypotension.

(Anesth.) – [B] – General
(Anesth.) – [B] – {a} – Parenteral
(Anesth.) – [B] – {a} – 1- *Ketamine Hcl:*
Dose: An I.V. dose of 2 mg /kg over 60 sec.will induce surgical anesthesia within 30 sec in lasting for 5-10 min. An I.M.dose of 10 mg/kg will induce anesthesia within 3-4 min lasting 12 -25 min.
  Indications: It is indicated as the sole anesthetics for diagnostic and short surgical procedures (especially in children), for induction of anesthesia to be maintained by other anesthetics or a supplementary anaesthetic.
  Contraindications: Hypertension, increased intra-cranial or intra-ocular pressures. Precautions: Administration should be avoided in patients prone to hallucinations.
  Adverse effects: Emergence reaction on recovery (treated with diazepam), increased muscle tone, hypertension, tachycardia, respiratory depression, increased intra - ocular and cerebrospinal pressures.
  Drug Interactions: Halothane and phenobarbitone.
(Anesth.) – [B] – {a} – 2- **Thiopentone Sodium:**
**Dose:** The dose for induction of anesthesia varies widely, but a typical dose is 100-150 mg injected over 10-to15 sec. Repeated according to response. For children the dose is 2-7 mg/kg. As a sole anesthetic, can be maintained by repeated doses as needed or by continuous I.V infusion of a 0.2-0.4% solution. For the treatment of convulsive states the dose is 75-125 mg I.V.
**Indications:** Thiopentone sodium is used in the induction of general anesthesia or the sole anesthetics in minor surgical procedures of short duration. It is also indicated in the management of convulsive states.
**Contra-indications:** Porphyria and respiratory diseases.
**Precautions:** Shock, dehydration, severe anemia, hyperkalemia, myasthenia gravis, myxedema, severe hepatic or renal diseases.
**Adverse effects:** Extravasation may lead to tissue necrosis; I.V. administration of concentrated solutions may lead to thrombophlebitis, respiratory depression, hypotension, post-operative vomiting, drowsiness and confusion.
**Drug Interactions:** Sulphonamides, antihypertensives, antipsychotics, anxiolytics, hypnotics, beta-blockers and calcium channel blockers.

(Anesth.) – [B] – {a} – 3- **Fentanyl:**
**Dose:** 1 ml / 9 kg body weight I.V. over 5-10 minutes, peak action after 5 minutes with rapid recovery. Droperidol is a neuroleptic drug and both will produce neuroleptic analgesia (dissociative anaesthesia) to permit minor surgical procedures e.g. With nitrous oxide, they induce general surgical anaesthesia for surgical operations.
**Transdermal Fentanyl Patch:** 100 microgram / hr for managed of chronic cancer pain. Onset after 6-12 hr and duration 8-12 hours.
**Indications:** It possesses a narcotic action and when combined with droperidol the preparation is known as Innovar (Fentanyl 0.05 mg + droperidol 2.5 mg / ml).
**Adverse effects:** hypotension, bradycardia and respiratory depression.

(Anesth.) – [B] – {a} – 4- **Midazolam:**
**Dose:** 5-15 mg amp.
**Indications:** sedation, amnesia and anxiolysis. It induces I.V. anaesthesia for minor operations.

(Anesth.) – [B] – {a} – 5- **Propofol:**
**Dose:** 200 mg ampoule.
**Indications:** I.V. induction of anesthesia, maintenance of general anesthesia. They produce a state of light anaesthesia not deep to permit surgery and mainly used in pre-anesthetic medication, simple administration, rapid induction, slower recovery, non-irritant or
explosive...pre-anesthetic and post-operative sedation.

**Adverse effects:** respiratory depression and cannot control depth of anesthesia.

**Halothane:**

**Dose:** Anesthesia may be induced with 2-4% v / v of halothane in oxygen or mixtures of nitrous oxide with oxygen. Anaesthesia is maintained with concentrations of 0.5-2% v / v.

**Indications:** It is used for induction and maintenance of anesthesia in major surgery in combination with oxygen or mixtures of nitrous oxide with oxygen.

**Contra-indications:** A history of unexplained jaundice or pyrexia in a patient following exposure to halothane during labour.

**Precautions:** Careful anaesthetic history should be taken. Repeated exposure to halothane in less than 3 months should be avoided.

**Adverse effects:** Cardiorespiratory depression, ventricular arrhythmias and malignant hyperpyrexia. Severe hepatotoxicity on repeated exposure.

**Drug Interactions:** Antihypertensives, antipsychotics, anxiolytics, hypnotics, beta-blockers, calcium channel blockers, dopaminergic agonists and sympathomimetics.

**Isoflurane:**

**Dose:** Induction should start with isoflurane concentration of 0.5% then increased to 1.5-3% producing anesthesia within 10 min. Anaesthesia is maintained with a concentration of 1-2.5% with oxygen and nitrous oxide.

**Indications:** used for induction and maintenance of general anesthesia.

**Contraindications:** patients prone to hyperpyrexia.

**Precautions:** Induction with isoflurane is as smooth as with halothane and used cautiously in patients with increased intracranial tension.

**Adverse effects:** Respiratory depression, cardiac arrhythmias and malignant hyperpyrexia and increased intracranial tension.

**Drug interactions:** Antihypertensives, antipsychotics, anxiolytics, hypnotics, beta-blockers and calcium channel blockers, dopaminergic agonists, sympathomimetics and muscle relaxants.

**Nitrous oxide:**

**Dose:** Used with mixtures of oxygen (20%) for induction, and up to 50% for maintenance of anesthesia or analgesia in obstetrics or dental operations.

**Indications:** Used for induction and maintenance of anesthesia in conjunction with other anesthesia and in sub anesthetic doses as analgesic.

**Contra-indications:** In patients with air-containing closed space.

**Precautions:** Add muscle relaxants. To avoid diffusion hypoxia, administer
100% O2 after discontinuation of nitrous oxide.

**Adverse effects:** Anaesthetic hypoxia. Prolonged use may lead to megaloblastic anemia, leucopenia and peripheral neuropathy.

**Drug interactions:** CNS depressants.

**(Anesth.) – [C] – Narcotic Analgesic**

*(Anesth.) – [C] – 1- **Butorphanol:***

**Dose:** As analgesics, 1-4 mg I.M OR 0.5-2 MG I.V. Every 3-4 hours. With anaesthesia, 2 mg I.M. as pre-medication 60-90 minutes before surgery, for maintenance in balanced anesthesia 0.5 –1 mg I.V.

**Indications:** Analgesics in moderate to severe pain and as an adjunct to anesthesia.

**Contraindications:** Like morphine. In addition, it should be avoided after myocardial infarction.

**Precautions:** May precipitate acute withdrawal symptoms if given to patients who have recently used opioid analgesics.

**Adverse effects:** Nausea, vomiting, and headache. Less respiratory depression, cardiovascular effects and dependence than morphine.

**Drug Interactions:** Mexiletine, MAOI, anxiolytics, hypnotics, cisapride, domperidone, alcohol, metoclopramide, anesthetics and opioid analgesics.

**(Anesth.) – [C] – 2- **Morphine:**

**Dose:** Acute pain, S.C or I.M. injection of 10 mg every 4 hours if necessary. Child up to one month 150 micro g / kg, 1-12 months 200 micro g / kg, 1-5 years 2.5-5 mg, 6-12 years 5-10 mg. Myocardial infarction, slow i.v, 10 mg followed by 5-10 mg (reduce dose in elderly). Acute pulmonary oedema, 5-10 mg slow I.V. Chronic pain, S.C. or I.M. 5-20 mg regularly every 4 hours.

**Indications:** Analgesic for the symptomatic relief of moderate to severe pain especially that associated with neoplasms, myocardial infarction. Also relieves anxiety and insomnia associated with pain. In biliary and renal colic (add anti-spasmodic). Symptomatic treatment of diarrhea. Relieves dyspnea of left ventricular failure and pulmonary oedema. Treat intractable cough of terminal lung cancer. Pre-operatively as an adjunct to anesthesia.

**Contraindications:** Respiratory depression, during an attack of bronchial asthma, heart failure secondary to lung disease, acute alcoholism or head injuries. Fatal if co administered with MAOI.

**Precautions:** Used with extreme caution in neonates, patients with poor respiratory reserve, hypothyroidism, adrenocortical insufficiency, impaired renal or hepatic functions, prostatic hypertrophy, shock, inflammatory or obstructive bowel disease and myasthenia gravis.

**Adverse effects:** Nausea, vomiting, constipation, drowsiness, difficulty in micturition, biliary or ureteric spasm, dry mouth, Bradycardia, miosis and dependence. Larger doses produce respiratory depression and
hypotension.

**Drug interactions:** Mexiletine, MAOIS, anxiolytics, hypnotics, cisapride, domperidone, metoclopramide, alcohol, anesthetics, buprenorphine, butorphanol, nalbuphine and pentazocine.

**Patient instructions:**
- Take with food or juice.
- Full effectiveness may not occur for 30 -60 minutes after administration.
- Stool softner, fiber laxative, increased fluid intake and bulk in diet.

*(Anesth.) – [C] -3- **Pethidine:**

**Dose:** I.M. or S.C. 25-100 OR i.v. Infusion 25-50 mg. Child, 0.5-2 mg/kg I.M. Obstetric Analgesia, 50-100 mg I.M. OR S.C repeated after 1-3 hours if necessary. Pre-medication 50-100 mg I.M. or S.C 1 hour before operation. Adjunct to nitrous oxide -oxygen anesthesia, 10-25 mg slow i.V.

**Indications:** Relieves most types of moderate to severe pain including labour pains. As pre operative medication, as adjunct to anesthetics and with promethazine to produce basal narcosis.

**Contraindications:** similar to morphine. And it is avoided in supraventricular tachycardia and history of convulsions.

**Precautions:** similar to morphine.

**Adverse effects:** Similar to morphine, but less constipation.

**Drug interactions:** Mexilitine, MAOI, anxiolytics, hypnotics, cisapride, Domperidone, metoclopramide, alcohol, anaesthesia, buprenorphine & butorphanol, Nalbuphine, pentazocine and Cimetidine.

**Patient instructions:** similar to morphone.

*(Anesth.) – [C] –4- **Tramadol:**

**Dose:** 50 mg. capsules and 100 mg ampoules.

**Action:** Narcotic analgesic.

**Indications:** Traumatic and postoperative pain.

**Adverse effects:** Addiction, respiratory depression (less than morphine).
17- (Diag.) Diagnostic Agents

(Diag.) - 1- **Barium Sulphate:**
**Dose:** For x-ray examination of the upper GIT, oral, 40-600gm. For the visualization of the colon, enema, 150-1000gm.
**Indications:** Contrast for the X-ray examination of the GIT.
**Precautions:** Given with care in patients with intestinal obstruction.
**Contraindications:** patients with GIT perforation or at risk of perforation.
**Adverse effects:** Constipation, diarrhoea, cramps, impaction obstruction, appendicitis, ECG abnormality with enema.

(Diag.) – 2 - **Meglumine Diatrizoate:**
**Dose:** In adults with normal renal functions, the average dose is equivalent to 20 gm iodine or 300-mg/kg iodine by I.V route over 1 minute.
**Indications:** Urography, angiography, hysterosalpingography, contrast enhancement during computerized tomography and GIT visualization.
**Contraindications:** known hypersensitivity to contrast media or iodine. In cerebral angiography or computerized tomography in case of subarachnoid hemorrhage.
**Precautions:** An I.V. Test injection of 0.5- 1 ml of the medium can be given to test for allergy. Administered with great caution in patients with history of asthma, liver or kidney dysfunction, severe hypertension, advanced cardiac diseases, pheochromocytoma, sickle cell anemia and hyperthyroidism. Correct water and electrolytes before administration. Adverse effects are treated symptomatically and adequate resuscitative facilities should be available where radiographic procedures are performed.
**Adverse effects:** Nausea, vomiting metallic taste, flushing, weakness, dizziness, CVS disorders, hypersensitivity reactions dyspnea, bronchospasm), pain at site of injection, extravasations which may lead to tissue necrosis or thrombophlebitis.

(Diag.) - 3- **Iodized oil Fluid:**
**Indications:** For lymphangiography and in visualization of sinuses.
**Precautions:** Avoid vascular structures, in areas of hemorrhage or trauma, in patients with thyroid dysfunction or allergy. Interferes with thyroid function for several months.
**Adverse effects:** Pulmonary embolism, hypotension, tachycardia, pulmonary oedema or infarction, chemical pneumonitis and goiter.

(Diag.) - 4- **Iopamidol:**
**Dose:** For myelography, 5-15 ml of a 40.8 % solution, or 5-10 ml of a 61.2 % solution by slow intrathecal administration over 1-2 minutes. For I.V. urography, 40-80 ml of a 61.2-75.5 % solution. For GIT visualization, a
61.2 % solution is administered orally or by enema.

**Indications:** Angiographies, orthography, myelography, urography and for GIT visualization.

**Contraindications:** known hypersensitivity to iodine.

**Precautions:** Patients with history of asthma, allergy, severe hepatic, renal or cardiac disease, hypertension, pheochromocytoma, sickle cell anemia, hyperthyroidism debilitated patients and in extremes of age.

**Adverse effects:** Headache, nausea and vomiting. Backache, neck stiffness, pyrexia, dizziness and leg pain occur less frequently. CVS disorders (chest pain, arrhythmia, hemorrhage, shock and cardiac arrest). CNS disorders (grand mal seizures, visual and speech disturbances an aseptic meningitis. renal disorders (polyuria and haematuria) may also occur.

(Diag.) – 5 - **Fluorescein sodium:**

**Dose:** As a 1-2 % solution eye drops in corneal visualization. A 5-25 % solution in a dose of 500 mg for rapid I.V injection in retinal angiography.

**Indications:** For the detection of corneal lesions and foreign bodies and as an aid in the fitting of hard contact lenses. I.V injection in retinal angiography.

**Precautions:** Facilities for resuscitation should be available whenever florescein is administered intravenously. Causes transient discoloration of skin and urine.

**Adverse effects:** I.V administration may cause nausea and vomiting. Extravasation is painful. Hypersensitivity reactions may develop. Rarely cardiac arrest may occur.
Antidote -1- *Desferrioxamine Mesilate*:
**Dose:** In acute poisoning, oral after gastric lavage, 5-10 gm in 50-100 ml liquid. By I.M. injection 1-2 gm in 10-20 ml of water for injection every 3-12 hours. By I.V. infusion, up to 15 mg/kg/hour (maximum 80 mg/kg/day). Chronic iron overloaded, S.C. infusion 0.5-4 gm over 12 hours are given on 5-7 nights every week.
**Indications:** Removal of iron from the body in poisoning and chronic iron overload.
**Precautions:** Renal impairment. Eye examination is recommended during treatment. Avoid prochlorperazine.
**Adverse effects:** Pain at site of I.M. injection, anaphylactic reaction, hypotension when given by rapid infusion.

Antidote -2- *Dimercaprol*:
**Dose:** I.M. injection of 2.5-3 mg/kg every 4 hours for 2 days, 2-4 times on the third day, then 1-2 times/day for 10 days or till recovery.
**Indications:** Poisoning by antimony, arsenic, bismuth, gold, mercury or thallium. Adjunct to sodium calcium edetate in lead poisoning.
**Contraindications:** Hypertension.
**Adverse effects:** Hypertension, tachycardia, malaise, nausea, vomiting, lacrymation, constriction of throat and chest, pyrexia in children and burning sensation in mouth and eyes.

Antidote -3- *Flumazenil*:
**Dose:** ampoule 0.1 mg / ml.
**Action:** Benzodiazepine antagonist by competitive antagonism with benzodiazepine receptors in CNS.
**Indications:** Benzodiazepine toxicity with marked sedation 2- anesthetic overdose . 3- marked drug sedation in critical care unit.

Antidote –4- *Nalorphine* :
**Dose:** I.M., S.C or I.V., 5-10 mg every 10-15 minutes until respiration is restored or maximum of 40 mg has been given.
**Indications:** To reverse central respiratory depression after opioid over dosage
**Precautions:** It can produce severe withdrawal symptoms in opioid dependent patients. It can exacerbate respiratory depression induced by alcohol or other CNS depressants.
**Adverse effects:** Drowsiness, respiratory depression, miosis, dysphoria and lethargy.

Antidote – 5- *Naloxone*:
**Dose:** I.V 100-200 micro gram, if response is in adequate, increments of 100 microgram every 2 minutes are administered. Further doses by I.M. are injected after 1-2 hours if required. Neonate, I.M., I.V. or S.C 10 microgram /kg repeated every 2-3 minutes.

**Indications:** Reverse opioid central respiratory depression in the treatment of known or suspected opioid over dosage or post-operatively after the use of opioids in surgery.

**Contraindications:** Heart disease, preexisting patients who have received potentially cardio toxic drugs. Physical dependence on narcotics, known or suspected including newborns of dependent mothers.

**Precautions:** In patients physically dependent on opioids or newborn infants to opioid dependent mothers. Cardiac problems or in patients receiving cardiotoxic drugs.

**Adverse effects:** Nausea and vomiting. Hypo or hypertension in patients given naloxone post operatively, sweating, tremor, convulsions, hyperventallation, cardiac arrest.

**Patient instructions:** - Patients should be kept under continued supervision and given repeated doses if necessary.

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**Antidote -6- Pencillamine:**

**Dose:** In poisoning 1-2 gm in divided dose before food until urinary lead is stabilized at less than 500 mg/day. Child,20 mg/kg/day. In rheumatoid arthritis, initially, 125-250 mg before food for 1 month increased by this amount every 4-12 weeks until remission occurs. Usual maintenance dose is 500-750 mg/day. Child, initially,50 mg/day before food 1 month ,increased at 4 weeks interval to a maintenance dose of 15-20 mg/kg/day.

**Indications:** Poisoning by metal ions (copper and lead). Severe active or progressive rheumatoid arthritis,arthritis,juvenile arthritis and in Wilson’s disease.

**Contraindications:** Systemic lupus erythematosus.

**Precautions:** Renal impairment, pregnancy, portal hypertension. Avoid concurrent chloroquine and hydroxychloroquine. Regular blood counts are recommended.

**Adverse effects:** Nausea, anorexia, taste loss, mouth ulcers, hypersensitivity reactions, proteinuria and lupus erythematosus.

**Drug interactions:** antacids, adsorbents, iron and zinc.

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**Antidote -7- Activated Charcoal:**

**Dose:** For reduction of absorption,50 gm every 4 hours, or 25 gm every 2 hours.

**Indications:** For reduction of absorption of orally administered poisons, and inactive elimination techniques in poisoning with aspirin,carbamazepine,digoxin,barbiturates,phenytoin,quinine and theophylline.
**Contraindications:** Not effective for treatment of poisoning with strong acids and alkalies, cyanides, ethanol, methanol, ethylene glycol, iron, or lithium.

**Precautions:**
- Insufficient hydration. 2-Use in patients with decreased bowel motility.

**Adverse effects:** Black stools and emesis in some patients.

**Drug interactions:** Sorbitol, mineral acids, carbamazepine, Phenobarbital, salicylates, theophylline and alcohol.

**Patient instructions:** stools turn black.

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**Antidote -8- Ipecacuanha:**

**Dose:** Adult 20 ml, child: (6-18 months); 10 ml, older child 15 ml. Dose is followed by water and dose repeated after 20 minutes if necessary.

**Indications:** Avoid in poisoning with corrosives, petroleum compounds, in shock, history of convulsions, and cardiovascular disorders.

**Contraindications:** Not to be used if gasoline, oils, kerosene, acids, alkalies, corrosives or strychnine has been swallowed.

**Adverse effects:** Excessive vomiting and mucosal damage. Cardiac side effects if absorbed.

**Drug interactions:** milk, carbonated beverages, Activate charcoal absorb ipecac; give the activated charcoal after successful vomiting has been produced by ipecac.

**Patient instructions:**
- Do not use if poisoned patient is loosing consciousness and in shock.
- Chronic use of it by young women to induce vomiting may result in muscle and heart disorders
- Mothers should have bottle for ipecac for each child in the house.

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**Antidote -9- Atropine Sulphate:**

**Dose:** I. M. or I. V. injection (according to severity) of 2 mg every 20-30 minutes till skin becomes flushed and tachycardia occurs.

**Indications:** Poisoning with organophosphorous insecticides.

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**Antidote -10- DL-Methionine:**

**Dose:** Oral, 2.5 gm every 4 hours for 4 doses starting less than 10-12 hours after ingestion of paracetamol.

**Indications:** Alternative to acetyl cysteine in paracetamol poisoning.

**Contraindications:** Acidosis.

**Precautions:** Liver insufficiency.

**Adverse effects:** Nausea, vomiting, drowsiness and irritability.

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**Antidote -11- Methylthionium chloride (Methylene blue):**
**Dose:** In drug-induced methaemoglobinaemia, I.V. injection of 1% solution of 1-2 mg /kg injected over several minutes, repeated dose after 1 hour if required.

**Indications:** Drug – induced methaemoglobinaemia (as in nitrite poisoning) or idiopathic methaemoglobinaemia.

**Adverse effects:** After I.V. administration of large doses, nausea, vomiting, abdominal and chest pain, mental confusion, profuse sweating and methaemoglobinaemia.

**Antidote – 12 - Sodium calcium Edetate:**

**Dose:** I.V. infusion in adults and children 50mg/kg/day in saline or glucose 5% for up to 5 days, repeated if necessary after 48 hours.

**Indications:** Heavy metal poisoning (lead).

**Precautions:** Renal impairment.

**Adverse effects:** Nausea and cramps. Renal damage may occur with high doses.

**Antidote -13- Sodium Nitrite and Sodium Thiosulphate:**

**Dose:** Sodium nitrite, I.V injection of 10 ml over 3 minutes followed by I.V injection of 25 ml sodium thiosulphate 50% over 10 minutes.

**Indications:** Cyanide poisoning.

**Adverse effects:** Sodium nitrite can cause flushing and headache.

**Antidote -14- Protamine Sulphate:**

**Dose:** 10 mg / ml ampoule or vials.

**Action:** Neutralizes anti – coagulant action of heparin through its positively charged molecule to the negatively charged insulin molecule to form inactive compound.

**Indications:** Severe bleeding due to heparin toxicity with marked prolongation in coagulation time.

**Adverse effects:** Dose must be titrated to just neutralize heparin molecule because its excess has also anticoagulant action with bleeding attacks.