DOCTOR ON CALL

with

Drugs of Choice

STANDARD TREATMENT PROTOCOLS

BASED ON CURRENT MEDICAL DIAGNOSIS **&** TREATMENT
2024 **And** STANDARD MEDICAL GUIDELINES IN PAKISTAN

Dr M. Aali Farooq
Dr M. Sufyan Akhtar

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(STANDARD TREATMENT PROTOCOLS)

Based on Current Medical Diagnosis & Treatment & Current Standard Medical Guidelines in Pakistan

EDITION

2024

By

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STANDARD TREATMENT PROTOCOLS PAKISTAN

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PREFACE TO FIRST EDITION

Embarking on the journey from studying pharmacology to actually practicing medicine is a monumental leap for doctors. This thrilling transition, often a solo venture into the dynamic world of healthcare, can be both exhilarating and daunting. Our book recognizes the diverse experiences during residencies and the palpable gap between textbook knowledge and the pulse of real-world medical scenarios.

Picture this: a guide that not only demystifies the complexities of medicine but also sparks your confidence in applying your hard-earned knowledge. We're not just offering treatment guidelines; we're handing you a treasure trove of sample prescriptions—complete with potent drug combinations, precision dosages, and treatment timelines.

In the labyrinth of medicine, where the sheer number of drugs can be overwhelming, we've got your back. Our aim is to empower you to make informed decisions, steering clear of pitfalls. Plus, we're ditching the dry generics and embracing the familiar trade names in our prescriptions, all while reminding you to choose quality over brand loyalty.

But here's the kicker: adaptability is key! As you gain experience, feel free to remix and tailor our sample prescriptions to fit the unique pulse of your local medical landscape. We're not just presenting information; we're cultivating a dynamic, evolving resource.

Designed for the go-getters in both the hustle of the hospital and the variety of general practice, this book isn't just a guide—it's your trusty sidekick. Keep it within arm's reach on your desk; let it be your beacon in the sea of medical complexities.

Oh, and we're not stopping there. We're not just tossing this book into the sea of information; we're riding the waves of progress. With updates every year and a fresh edition every two years, we're committed to keeping you at the forefront of the latest in medicine.

But wait, there's more! We want to hear from you. Yes, you! Share your experiences, drop your insights, because this isn't just a book; it's a community. Together, let's create a resource that's not only informative but vibrant, dynamic, and as exciting as the journey you're on!

M Sufyan Akhtar
M Aali Farooq
Lahore, 2024

DISCLAIMER

This book contains drug names, dosages, indications, and duration of their use in various diseases. All efforts have been made to ensure that the information contained is correct and reflects accepted practice standards. However, no warranty is made, express or implied, and the reader should consult standard texts of medicine and pharmacology and the package inserts about the effects, reactions, interactions, precautions, indications, contra-indications and dosages of the drugs that are being used in any patient. No legal responsibility or financial liability would be acceptable for any error or omission, or for any eventuality arising from the use of any drug, drug combination, dosage or duration, any recommendation, treatment strategy or information contained in this book.

Only one trade name of a particular drug has been used to avoid confusion; although this choice has been based on the efficacy and quality of the drug, this does not in any way endorse one brand name over another.

Authors

ACKNOWLEDGEMENT

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TABLE OF CONTENT

APPROACHING A PATIENT

HISTORY TAKING

Importance of history-taking in healthcare:

1. **Diagnostic Aid:** Patient history often offers vital clues aiding in the diagnosis of illnesses and medical conditions.
2. **Understanding Patient Concerns:** Helps in comprehending patient's primary concerns, symptoms, and their impact on daily life.
3. **Establishing Rapport:** Builds a trusting relationship between the patient and the healthcare provider, leading to better communication.
4. **Risk Assessment:** Assists in evaluating risk factors associated with various health conditions, aiding in preventive measures.
5. **Treatment Decisions:** Guides treatment plans based on the patient's history, including allergies, prior illnesses, and medication use.
6. **Identifying Red Flags:** Detects warning signs or symptoms that require immediate attention or further investigation.
7. **Monitoring Progress:** Enables healthcare providers to track changes in a patient's health over time and adjust treatment accordingly.
8. **Holistic Approach:** Offers a comprehensive view of the patient's health, considering biological, psychological, and social aspects.
9. **Cost-Effective:** Helps in efficient utilization of resources by narrowing down diagnostic tests and procedures based on gathered information.
10. **Educational Tool:** Provides an opportunity to educate patients about their conditions, medications, and preventive measures.

General Approach for History Taking:

1. Introduce yourself by stating your name and professional designation (e.g., "Hello, I'm Dr. [Name], from the Medicine department").
2. Confirm the patient's identity by verifying their name and date of birth.
3. Interact with the patient in a friendly and relaxed manner, ensuring they feel comfortable.
4. Seek permission to discuss the reason for the visit eg: (Is that ok if I ask you some questions about your vomting?").
5. Maintain confidentiality and respect the patient's privacy throughout the interaction.
6. Try to empathize and understand the patient's perspective and concerns.
7. Assess the patient's mental state, noting any signs of anxiety, irritability, or distress.
8. Position the patient comfortably, sitting about a meter away from you and at the same eye level.
9. Practice active listening, allowing the patient to express themselves fully.
10. Use clear and simple language while asking questions, avoiding medical jargon, and employ open-ended queries. Summarize information periodically for clarity.

Components of History Taking

- Personal Data
- Chief Complaint (CC)
- History of Present Illness (HPI)
- Past Medical History (PMH)
- Medication History
- Family History

- Social History
- Review of Systems (ROS)
- Allergies
- Immunization History
- Psychosocial History
- Nutritional History
- Gynecological/Obstetric History (for female patients)
- Surgical History
- Developmental History (for pediatric patients)

Personal Details:

Name
Age:
Gender:
Address:
Occupation
Religion
Marital status
Date of Admission
Mode of Admission

Chief Complaint (C/C):

Understanding the primary reason for the patient's visit or the main issue they want to address.
Some important points & Questions:

1. Why are you here at the hospital today?
2. What brings you to the hospital?
3. How can I assist you?
4. What seems to be bothering you?

- Each complaint should be written in one line.
- If there are more than one complaint, list them in order of severity or duration.

Chief Complaint (Symptoms) - Duration

- Stomach pain - 2 days
- Headache - 1 week
- Difficulty breathing - 2 hours
- Rash on the arm - 4 days

Gastrointestinal System

System/Gastrointestinal System	
Symptoms	**Possible History Findings**
Dental/Gums Problems	Toothache, bleeding gums, sensitivity to hot or cold, history of dental procedures
Tongue Problems	Ulcers, coating, swelling, changes in taste, history of tongue injuries or infections
Heartburn/Indigestion/ Flatulence	Frequency, triggers (food, stress), relief measures, associated symptoms like regurgitation
Nausea/Vomiting	Frequency, triggers, nature of vomiting (e.g., bile, food), associated symptoms
Abdominal Pain/Tenderness	Location, intensity, duration, factors worsening or relieving pain, history of trauma
Abdominal Spasm	Frequency, triggers, duration of spasm, associated symptoms
Diarrhea/Constipation	Frequency, consistency, color, triggers, any blood or mucus, changes in bowel habits
Hematemesis	Frequency, amount and color of blood in vomit, presence of associated symptoms
Melena	Frequency, volume, consistency, any associated symptoms, medications or dietary habits
Hematochezia	Frequency, volume, color of blood in stool, associated symptoms, recent dietary changes
Jaundice	Onset, any associated symptoms like itching, changes in urine or stool color
Dysphagia	Solid or liquid dysphagia, painful swallowing, sensation of food getting stuck
Anorexia	Changes in appetite, any associated symptoms, recent weight loss or gain
Color of Stool	Changes in stool color, consistency, presence of blood or mucus, recent dietary changes

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+ 50 More Pages of History & Ward Procedures

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STANDARD TREATMENT
PROTOCOLS
PAKISTAN

EMERGENCY MEDICINE

→ Diarrhoea is present if one of the following criteria is fulfilled:
  » Frequent defecation>3 times per day
  » Altered stool consistency: water content>75%
  » Increase in stool quantity: more than 200-250 g per day
→ Acute diarrhoea: lasting<14 days
→ Persistent diarrhoea: lasting > 14 days
→ Chronic diarrhoea: lasting > 30 days

Complaint of (C/O)

» Acute or chronic diarrhoea
Further possible symptoms

- Fever
- abdominal pa3in and cramping
- Blood in stool
- Nausea and vomiting in cases of gastroenteritis
- Signs of dehydration in severe cases → Asses through level of dehydration
- Chronic cases: malnutrition and in children. failure to thrive

>>Disease courses can range from mild to severe with need of hospitalization.

Dx: Approach to diarrhoea

On Examination

Diarrhoea: The excretion of more than 250g of stool per day.
Dysentery: Diarrhoea that contains blood. mucus. and pus.
Gastroenteritis (acute enteritis); inflammation of the intestines manifested as diarrhoea accompanied by nausea and vomiting.
Food poisoning: It is a gastroenteritis that occurs suddenly and is often associated with abdominal pain and cramping.

Management Protocols

Features	Mild dehydration	Moderate dehydration	Severe dehydration
Mental status	Normal/awake	Restless, Irritable	lethargic/unconscious
Eyes	Normal	Sunken	sunken
Thirst	Drinks normally	Thirsty, drink eagerly	Not able to drink/poorly
Skin pinch	Goes back rapidly	Goes back slowly	Goes back very slowly
Management plan according WHO guidelines	**Plan A:** Treat diarrhoea at home Give food and fluid/ORS Follow-up after 5 days if not improving	**Plan B:** Give fluid and food Consider ORS therapy Give Zinc supplement Follow-up after 5 days if not improving	**Plan C:** Admit the patient Intravenous rehydration-give R/L OR N/S 100ml/kg Reassess patients every 1-2 hours. After 3 to 6 hours evaluate the patient then choose an appropriate treatment plan.

Evaluation of gastroenteritis in ER

It is not usually possible. or necessary. to identify the causative: organism in the Emergency Room. Rather the focus should be on identifying whether the organism is invasive or toxigenic.

STANDARD TREATMENT PROTOCOLS PAKISTAN

Approach to diarrhea

Management Protocols

Organism/ disease	Source/transmission	I.P	Presentation
Camphylobacter jejuni (camphylobacter enteritis/ camphylobacteriosis)	Unpasteurized milk Contaminated water Animal dropping	2-4 days	Duration: up to a week High fever with aches and dizziness Inflammatory bloody diarrhoea Severe abdominal pain (RIF)
Salmonella species (Salmonellosis/ Salmonella gastroenteritis)	Contaminated water Foodborne: poultry, raw eggs and milk	0-3 days	Duration: 3-7 days, highly contagious Fever (usually resolves within 2 days) severe vomiting and inflammatory (watery-bloody) diarrhoea
Shigella species (shigellosis/bacillary dysentery)	Faeco-oral (poor hygiene) Oral-anal sexual contact Contaminated water/food	0-2 days	Duration: 2-7 days High fever Tenesmus, abdominal cramps Profuse inflammatory, mucoid-bloody diarrhoea
Vibrio cholerae (cholera)	Faeco-oral Contaminated water Undercooked seafood	0-2 days	Low-grade fever Vomiting Profuse rice water stools
Yersinia enterocolitica (Yersiniosis)	Contaminated water/food Unpasteurized milk Raw/undercooked pork	4-6 days	Low-grade fever, vomiting Inflammatory diarrhoea (may be bloody in severe cases)
Clostridium perfringens	Undercooked food Reheated/poorly Refrigerated meat	6-24 hr	Duration:<24 hrs Initial symptoms: profuse vomiting, later: diarrhoea (watery),Upper abdominal pain
Staph.aureus	Dairy products, custard, mayonnaise, Cooked meats	1-6hr	Initial symptoms: profuse vomiting, later: diarrhoea (watery),Upper abdominal pain
Bacillus cereus (aka Chinese restaurant syndrome)	Reheated rice sauces	1-6hr	Initial symptoms: profuse vomiting, later: diarrhoea(watery) Upper abdominal pain
E.coli (EHEC,0157:H7) Usually occurs at outbreak	Faecal-oral Contaminated food	2-10 days	Bloody diarrhoea Fever, dehydration Abdominal tenderness
Escherichia coli (ETEC) MCC organism of travellers' diarrhoea	Recent travel	3-4 days	Fever Watery diarrhoea Abdominal cramping Nausea and possibly vomiting

Dx: Approach to diarrhoea

On Examination

1) Stool analysis:

- Stool D/R: Finding leukocytes in the stool sample is diagnostic for an invasive diarrhoea.
- Patients with a history of antibiotic usc within the preceding 2 weeks should have a stool sample sent for a C. difficile toxin assay.
- Stool Culture and sensitivity (toxin detection in stool cultures)
- Stool microscopy in certain cases (e.g ova and parasites)

2) Blood Test:

- CBC(elevated WBC count)
- Urea, creatine and electrolytes (Deranged)
- ABGs (Metabolic acidosis)

3) Abdominal X-ray:
Colonic dilation

Management Protocols

Emergency Management

I. Maintain double large bore IV line
2. Correction of electrolyte imbalances
3. Check Vitals 2 Hourly
4. Assess Fluid Deficit/ Degree of Dehydration

Degree of Dehydration	Fluid Deficit	Signs/Symptoms
Mild (Also classified as No dehydration)	3-5%	- Restlessness - Excessive Thirst - Oliguria - Fever +
Moderate (Also classified as Some dehydration)	5-10%	- Tachycardia - Oliguria - Irritable - Sunken eyes and fontanel - Decreased tears - Dry mucus membrane - Mile tenting of skin - Delay in CFT - Cool & pale
Severe	10-15%	- lethargic - Rapid & weak pulse - Decreased BP - No urine output - Very sunken eyes & fontanel - No tears - Tenting of skin - CFT - very delayed - Cold & mottled skin - Parched mucus membranes

Phase 1 : (Shock Therapy)
Restoration of volume - 1 to 2 hrs
20ml / Kg N.Saline or R.L. rapid IV

Phase 2:
Replacement of ½ the calculated fluid loss
(Deficit + Maintenance) in first 8 hrs

Phase 3:
- Replacement of ½ the calculated fluid loss
(Deficit + Maintenance) in next 16 hrs
- Replacement of K+ (after voiding with a max. of 40mEq/L)
Half the potassium deficit is replaced in 1st day

$$\text{Dehydration}(\%) = \frac{Body\ weight - change\ in\ weight}{Body\ weight} X100$$

Fluid deficit in ml = % dehydration x weight in kg x 10

Dx: Approach to diarrhoea

Management Protocols

Weight (kg)	Hourly	Daily
<10 kg	4 mL/kg/hr.	100 mL/kg/day
10 –20 kg	40 mL + 2 mL/kg for every kg >10 kg	1000 mL + 50 mL/kg/day for every kg >10
>20 kg	60 mL + 1 mL/kg for every kg >20 kg	1500 mL + 20 mL/kg/day for every kg > 20

SHIGELLA INFECTIONS

Mild case

- **Oral Fluids (ORS) (IV Fluids if patient is vomiting or is severely dehydrated)**
- **(Antidiarrheals must not be given)**

Severe cases, in addition to fluids

- **Tab. Ciprofloxacin 500 mg (Novidat)**
  1+0+1 BD PO for 3-5 days **(DOC)** **OR**
- **Tab. Cotrimoxazole 160/800 mg (Septran DS)**
  1+0+1 BD PO for 5 days **OR**
- **Tab. Amoxicillin 500 mg (Amoxil)**
  1+0+1 BD PO for 5 days **OR**
  Tab Azithromycin 500mg
  1+0+0 OD PO for 3 days

CAMPYLOBACTER ENTERITIS

Mild case

- **Oral fluids (IV fluids if patient is vomiting or is severely dehydrated)**

If there is fever or severe diarrhea, in addition to fluids

- **Tab Azithromycin (Azomax) 500 mg**
  1+0+0 OD PO for 5 Days OR
- **Tab. Cotrimoxazole 160/800 mg (Septran DS)**
  1+0+1 BD PO for 5-7 days

YERSINIA ENTEROCOLITIS

Mild case

- **Oral fluids (IV fluids if patient is vomiting or is severely dehydrated)**

If there is fever or severe diarrhea, in addition to fluids

- **Tab. Amoxicillin 500 mg (Amoxil)**
  1+1+1+1 QID PO for 5 days

TRAVELER'S DIARRHEA

- **Tab. Ciprofloxacin 500 mg (Novidat)**
  1+0+1 BD PO for 3-5 days
- **Tab. Cotrimoxazole 160/800 mg (Septran DS)**
  1+0+1 BD PO for 5-7 days

ENTEROHEMORRHAGIC E. COLI

Antimicrobials are not recommended. Just symptomatic management is recommended.

Dx: Approach to diarrhoea

Management Protocols

PSEUDOMEMBRANOUS ENTEROCOLITIS

- **Tab Metronidazole (flagyl) 400 mg**
  1+1+1 TDS PO for 10-14 days

Severe or non responder **Add**

- **Inj vancomycin (vancocin) 500 mg**
  1/4th of injection PO qid for 10-14 days

GIARDIA LAMBLIA

- **Tab Metronidazole (flagyl) 400 mg**
  1+1+1 TDS PO for 5 days OR
- **Tab Tinidazole (Prevent) 1g**
  2+0+0 OD PO for 3 Days OR
- **Tab. Nitazoxanide 500 mg (Izato)**
  1+0+1 BD PO for 3-5 days

AMEBIASIS

- **Tab Metronidazole (flagyl) 400 mg**
  2+2+2 PO for 5-7 days OR
- **Tab Tinidazole (Prevent) 1g**
  2+0+0 PO for 3 Days OR
- **Tab Diloxanide Furoate 500mg +Metronidazole 400mg (Entamizole)**
  1+1+1 TDS PO for 8 days

ENTERIC FEVER

- **Cap cefixime (cefspan) 400 mg**
  1+0+1 BD PO for 10- 14 days OR
- **Tab ciprofloxacin (mytil) 500 mg**
  1+0+1 BD PO for 10- 14 days*(in patients older than* 14 *years)* OR
- **Inj ceftriaxone (rocephin) 1 g**
  IV bid for 10-14 days

In severe typhoid fever with CNS manifestations or DIC add

- **Inj Dexamethasone (decadron)**
  3 mg/kg as loading dose over 30 minutes followed by 1 mg/kg 6 hourly for 24-48 hours

Carrier

- **Tab Ciprofloxacin (mytil) 250 mg**
  1+0+1 BD PO for 10- 14 days*(in patients older than* 14 *years)*

Primary or spontaneous peritonitis

- **Inj ceftriaxone (rocephin) 1 g**
  IV bid for 10-14 days

Secondary peritonitis

- **Inj gentamicin (genticyn) 80 mg**
  1+1+1 TDS IV
- **Inj Metronidazole (Flagyl) 500 mg**
  1+1+1 TDS IV

OR

Dx: Approach to diarrhoea

Management Protocols

- **Inj imipenem (tienam) 500- 1000 mg**
  IV infusion 8 hourly

CHOLERA

- **Inj R/L 1000 ml (fluid of choice)**
  IV continuous (according to fluid deficit plus maintenance fluid)
  Note: Continuous fluid is recommended until signs of fluid overload initiate
  Upto 50L fluid may be required in 2-5 days.

Antibiotics only help reducing the severity and duration

- **Inj. Ciprofloxacin 1g (Novidat) or Inj Doxycycline 300mg**
  IV Stat (Single Dose)
- **Tab. Tetracycline 250 mg**
  1+1+1+1 QID PO for 5-7 days

Indications for empirical antibiotic therapy for acute infectious diarrhoea

1. In general, antibiotic treatment is not recommended for most cases of acute watery diarrhoea.
2. Empirical antibiotic therapy can be considered in the following cases:
   (1) If bloody or mucoid stool and fever, or Shigellosis symptoms (frequent scanty bloody stools, fever, cramping abdominal pain, and tenesmus are present and
   (2) in traveller's diarrhoea accompanied by high fever above 38.5'C or septic findings.
3. Antibiotic treatment is recommended for immune-suppressed patients with bloody diarrhoea.
4. For empirical antibiotic therapy, use fluoroquinolone antibiotics or azithromycin upon consideration of distribution and antibiotic sensitivity of pathogens in local communities or areas where the patient travelled.
5. Rifaximin may be used for suspected infection with non-invasive bacteria without bloody diarrhoea.
6. The use of antibiotics is not recommended for patients with suspected STEC infections.

Antidiarrheals

- **Kaolin & Pectin suspension 450ml (Keptin)**
  60-120ml after every stool OR
- **Tab. Diphenoxylate 2.5mg (Lomotil)**
  1+1+1 TDS until diarrhea is controlled. OR
- **Cap. Loperamide 2mg (Imodium)**
  1-2 Capsules after each stool (Max Dose 8mg/day).
- **Cap. Racecadotril (Hidrasec) 100mg** OR
  1+1+1TDS PO until symptoms improved.

STANDARD TREATMENT PROTOCOLS PAKISTAN

A 35-year-old patient named John is brought into the ER by paramedics. John is experiencing continuous convulsions that have lasted for more than 30 minutes. His family reports that he has a history of epilepsy but has never had a seizure episode this severe or prolonged before.

Complaint of (C/O)

The diagnosis is established after 5 minutes in generalised tonic-clonic seizures a 10 minutes in focal impaired awareness seizures

Dx: Status Epilepticus (Seizures/Fits)

On Examination (O/E)

- Continuous Focal or Generalized tonic , Clonic or Tonic-Clonic Fits

Investigational Findings

- CBC
- Serum Urea, creatinine, and electrolytes (SUCE)
- LFTs
- Blood sugar level,
- Calcium, magnesium, Phosphorus,
- ABGs.

Management Protocols

1. Airway:

- Ensure patient is maintaining own airway.
- Assess and secure stable airway.
- Suction of the airway to clear secretion - reduced aspiration
- Intubate (ETT) the patient if status epilepticus or trauma.

2. Breathing: Check SpO2 and Give high flow 02 as appropriate → Oxygen saturation should be monitored continuously.

3. Circulation:

- Start 0.9% Normal Saline (0.9% N/S) x IV x Stat.
- **Correction of hypoglycemia:** 25% Dextrose x 50-100ml x IV

Active Seizures:

- ***Inj Midazolam 5mg/5ml (Dormicum)*** at Dose 0.5mg/kg, up to 10mg x IV
  (Inj. midazolam 10mg x IM is more effective and at least as safe as 4 mg of IV)

OR

- ***Inj Diazepam 10mg/2ml (Valium)*** x diluted in 8ml 0.9%NS or D5%W x (2mg upto 10 mg) x IV over 5 min Repeat after 15 minutes (maximum dosage 20mg)

If Seizures Continues

- ***Inj. Phenytoin 250mg (Epigran)*** x 2-Ampule in 100ml N/S x slow IV (Over 15-20 minutes)
  Dose: Phenytoin: 15 mg/kg IV infusion at 50mg/min
  Repeat the dose If not control.

OR

- ***Inj. Levetiracetam 500 mg (Epilapsa, Lerace) 2-4g***
  Diluted in 100 ml N/S x IV over 10 minutes.
  Dose: 30-60 mg/kg over 10-15 minutes

OR

- ***Inj Sodium valproate***
  (30 mg/kg over 15 minutes)

Dx: Status epilepticus (seizures/fits)

On Examination	Management Protocols

- ***Inj Phenobarbital 200 mg/1 ml***
  20 mg/kg x (1-1.5g) x Diluted in 100m l N/S x IV

If these measures fail, general anaesthesia with ventilatory assistance may be required:

- ***Inj. Midazolam (Dormicum)*** may provide control of refractory status epilepticus; the suggested loading dose is 0.2 mg/kg, followed by 0.05-0.2 mg/kg/hour.
- ***Inj. Propofol***
  (1-2 mg/kg as an IV bolus, followed by infusion at 2-15 mg/kg/h depending on response
- ***Inj. Pentobarbital***
  may be considered as the 3rd line (5-15 mg/kg intravenously, followed by 0.5-4 mg/kg/h).

Discharge Medication

1. ***Tab. levetiracetam 500 mg*** (Lerace, Epilapsa)
   1+0+1 BD PO
   (Usual dose/day 1000mg to 3000mg)

OR

2. ***Tab. Sodium Valproate 500mg*** (Epival, Dapakan) x 1+0+1/1+1+1, BD/TDS PO
   (Usual dose/day 1500mg to 2000mg)

OR

3. ***Tab. Carbamazepine 400mg*** (Tegrol, 5eizunil)
   1+0+1 BD PO
   (Usual dose/day 400 mg to 1600mg)

OR

4. ***Tab. Brivaracetam 25mg or 50mg*** (Brivace, Brivatam)
   1+0+1 BD PO
   (Usual dose/day 50mg to 200mg)
5. ***Tab. Clonazepam 0.5mg, 2mg*** (Rivotril, Naze)
   0+0+1 HS PO

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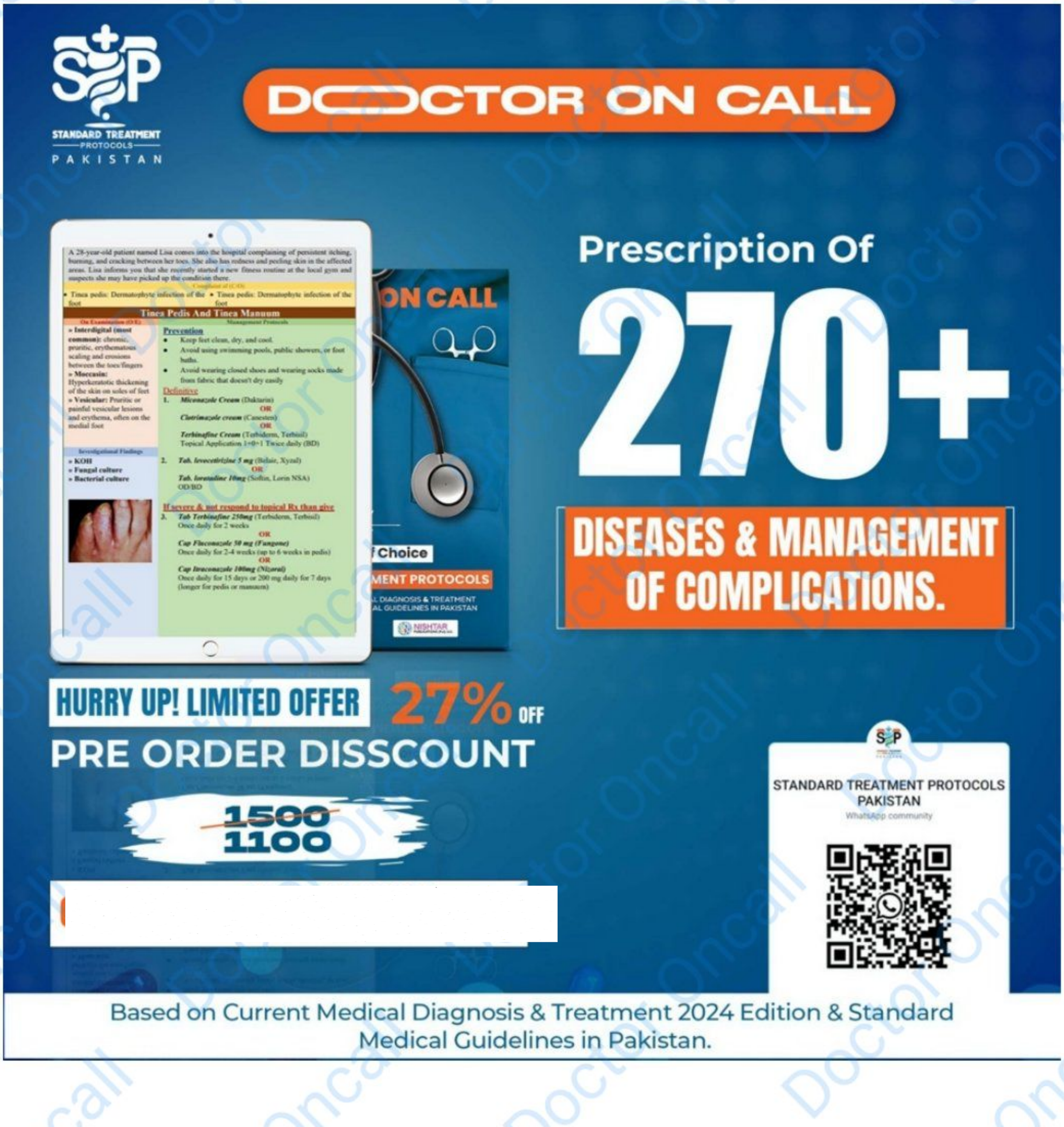

+ Standard Management Options for 47 more Medical Emergencies

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STANDARD TREATMENT
PROTOCOLS
PAKISTAN

INPATENT AND OUTDOOR MANAGEMENT

A 35-year-old male resident of Boston, Massachusetts, presents with fever and cough. He was well until 3 days earlier, when he suffered the onset of nasal stuffiness, mild sore throat, and a cough productive of small amounts of clear sputum. Today, he decided to seek physician assistance because of an increase in temperature to 38.3°C and spasms of coughing that produce purulent secretions. On one occasion, he noted a few flecks of bright-red blood in his sputum.

Complaint of (C/O)

- High Fever with chills
- Shortness of Breath
- Severe malaise
- Productive cough with purulent sputum
- Tachypnea and Dyspnea

Dx: Community acquired pneumonia

On Examination (O/E)

- Yellowish greenish sputum
- Decreased Breath sounds
- Enhanced Bronchophony
- Tactile fremtius
- Dullness on percussion
- Pleuritic chest pain
- Fatigue,Headaches.
- Increased Vocal Resonance

Investigational Findings

- **CBC** shows inc WBCs.
- Inc **CRP** ,Inc **ESR**
- **Inc PCT** to diagnose Lower respiratory Tract Infections
- **ABGs** shows Dec pO2 , deranged LFTs and urea , creatinine and electrolytes
- **Chest X ray** PA and Lateral View

Findings:

- **Lobar pneumonia:** Opacity of 1 or more pulmonary lobes
- **Bronchopneumonia :** Poorly defined patchy infiltrates
  Presence of air bronchograms
- **Atypical pneumonia :** Diffuse reticular opacity
  Absent consolidation

Management Protocols

Prevention:

- Avoid Triggering factors
- Avoid Alcohol long term use /Avoid Smoking
- Treatment includes 5-10 days.

Definitive :

CAP, not hospitalized with No comorbidities

ANTIBACTERIALS:

- ***Cap Amoxicillin 500 mg***
  1+1+1 TDS for 7-10 days. OR
- ***Tab Clarithromycin 500 mg***
  1+0+1 BD for at least 7 days. OR
- ***Cap Doxycycline 100 mg***
  1+0+1 BD for at least 10 days OR
- ***Tab Azithromycin 500 mg***
  PO x 1, then 250mg OD 5 days

CAP, not hospitalized with comorbidities.

1. ***Cap Levofloxacin 500 mg | Tab Moxifloxacin 400mg***
   1+0+0 OD for 10-14 Days

OR

- ***Cap Amoxicillin 500 mg + Clavulanic acid 125mg***
  1+1+1 TDS for 10 days

PLUS

2. ***Tab Azithromycin 500 mg | Clarithromycin 500 mg***
   PO x 1, then 250mg OD for 7-10 days | 1+0+1 BD for 7 -10 days

OR

- ***Inj Erythromycin 500mg***
  IV QID 5-7 days if Mycoplasma or Legionella Suspected (violent episodic cough preceded by fever)

OR

- ***Inj Cefotaxime 1-2 g | Inj Ceftazidime 1-2g***
  IV TDS | BD 5 days (if Staph infection is suspected)

Management Protocols

3. ***Tab Paracetamol 500 mg***
   2+2+2 TDS for 7 Days
4. ***Syp Muconyl | Ventolin Expectorant***
   2+2 TSF BD | 2+2+2 TDS
5. ***Syp Acefyl | Pulmonol | Cosome E***
   2+2+2 TSF TDS (Not indicated in guidelines)

CAP with severe infection with comorbidities or immunocompromised should be hospitalized:

- High Concentration Oxygen to maintain Saturation above 92%
- Send Blood & Sputum Culture and then start Antibiotics.

1. ***Inj Cefotaxime 1 gm***
   1+1+1 IV TDS 8 hourly

OR

- ***Inj Ceftriaxone 1 gm***
  1+0+0 IV BD

PLUS

2. ***Inj Clarithromycin 500 gm***
   1+0+1 IV BD

OR

- ***Inj Levofloxacin 750mg***
  1+0+0 IV BD for minimum 5 days
  Continue the Management according to Culture & Sensitivity upon reporting.

OR Monotherapy with

3. ***Inj Ampicillin + Sulbactam 2 gm***
   IV 1+1+1 TDS 8 hourly x 4 days

then

- ***Tab Azithromycin | Inj Azithromycin 1gm IV (if severe)***
  STAT and then 500 mg next day OD for next 4 days

OR

- ***Tab Levofloxacin, Moxifloxacin as above.***

After clinically stable (T<100.00F, HR<100 beats/min, RR<24/min, SBP>90mm of Hg, O2 saturation>90%) and able to tolerate oral intake, switch to oral antibiotics for remainder of therapy

Supportive Management

4. ***Inj Paracetamol 1 g***
   1+1+1 TDS during admission
5. ***Nebulization with Ventolin & Clenil***
   2+2+2 TDS
6. ***Syp Acefyl | Pulmonol | Cosome E***
   2+2+2 TDS (Not indicated in guidelines)

Nosocomial/Hospital Acquired Pneumonia (Antipseudomonal Antibiotics are indicated)

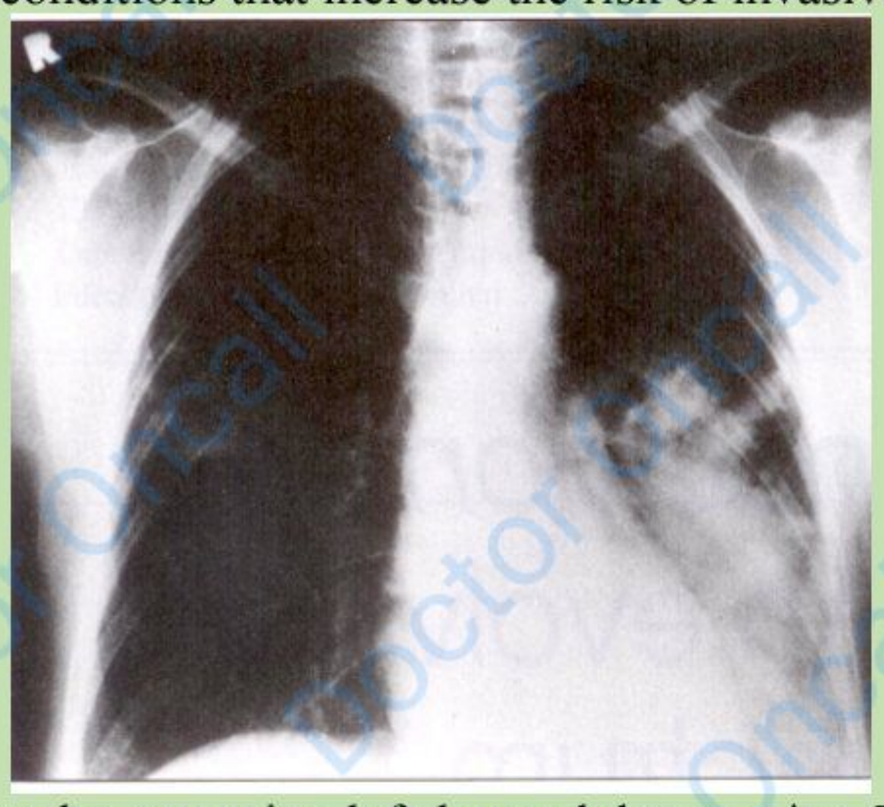
1. ***Inj. Piperacillin + Tazobactam 4.5 gm***
   1+1+1 TDS for 10 Days for 10 Days

ADD IF MRSA

2. ***Inj. Vancomycin 500mg / Linezolid 600mg***
   1+1+1 TDS / 1+0+1 BD for 10 Days

Management Protocols

- PPV23 vaccine is recommended for all adults ≥65 years of age and in younger patients with a number of conditions that increase the risk of invasive pneumococcal disease.



Chest radiography . Note the extensive left lower lobe opacity. There is a barely visible opacity on the right

Pneumonia is an infection of pulmonary parenchyma that causes them to function abnormally.

• Classified as typical or atypical, although the clinical presentations are often similar.

Approximately 20-33% of episodes result in hospitalization

Types of Organisms causing Pneumonia with their Specific drugs

Typical:

- Up to 70% usually caused by **Streptococcus pneumonia** (Augmentin, Clarithromycin, Moxifloxacin, Ciprofloxacin)
- **Staph Aureus** in Diabetic or Hospitalized Patient (Cloxacillin 500mg PO | IV QID , Vancomycin, Linezolid)
- **H. Influenza** (Augmentin, Clotrimazole, Clarithromycin)

Atypical:

30-40% ("My Lungs Contain Viruses")

- **Mycoplasma pneumoniae** (Clarithromycin, Azithromycin, Doxycycline)
- **Legionella pneumophila** in immunocompromised patient (Clarithromycin, Azithromycin, Doxycyline, Clotrimazole)
- **Klebsiella in** debilitated patient (Ceftriaxone but resistance reported, Imipenem is most effective)
- Chlamydia pneumoniae
- Viruses: Influenza, Adenovirus

Complications

Lung abscess, pleural effusion, empyema. These patients need to be referred to district hospital.

Mixed Flora Combination

- **Ceftazidime + metronidazole (or clindamycin) + Gentamicin**
- **Aztreonam + metronidazole (or clindamycin) + Gentamicin**
- Fluoroquinolone + metronidazole (or clindamycin) + Gentamicin
- **Imipenem + Gentamicin**

A 13-month-old Canadian born, male infant is evaluated for a prolonged fever and cough following a three-week visit to his grandparents in Kenya. A Mantoux (5 tuberculin units) test produces 22 mm of induration at 72 h. A chest x-ray is reported probably normal, the radiologist notes poor inspiration and vessel crowding.

Complaint of (C/O)

- Weight loss
- Low Grade fever
- Night sweats
- Anorexia

Dx: Pulmonary Tuberculosis

On Examination (O/E)

- Dyspnea
- Productive cough for more than 3 weeks
- Chest pain
- Weight loss
- Lymphadenopathy
- Generalized malaise and fatigue

Investigational Findings

- **Chest X ray AP , LATERAL view:** Middle or lower lung infiltrate
- Upper lobe infiltrate of latent TB reactivation
- Consolidation
- Cavitatory lesions
- Collapse
- Hilar lymphadenopathy
- Pleural effusions
- **Ghon complex** :Sequeale of primary TB infection (lobar or perhilar lymph node involvement).
- **Skin tuberculin test**
- **QuantiFERON-TB Gold (QFT)** is a simple blood test that aids in the detection of Mycobacterium tuberculosis, the bacteria which causes tuberculosis (TB)

Management Protocols

Prevention:

- Avoid triggering factors i.e Close contacts of a person with infectious TB disease.
- Avoid Alcohol long term use /Avoid Smoking.

Definitive:

Fixed Drug Combinations

If Weight is 40-54 Kg

- ***Tab Myrin P Forte | Tab Pire 4 plus | Tab Rifa 4s***
  3+0+0 OD before breakfast for 2 Months

Then

- ***Tab Myrin | Tab Pire 3 | Tab Rifa***
  3+0+0 OD before breakfast for 4 Months

If Weight is 55-70 Kg

- ***Tab Myrin P Forte | Tab Pire 4 plus | Tab Rifa 4s***
  4+0+0 OD before breakfast for 2 Months

Then

- ***Tab Myrin | Tab Pire 3 | Tab Rifa***
  4+0+0 OD before breakfast for 4 Months

If Weight is More than 70 Kg

- ***Tab Myrin P Forte | Tab Pire 4 plus | Tab Rifa 4s***
  5+0+0 OD before breakfast for 2 Months

Then

- ***Tab Myrin | Tab Pire 3 | Tab Rifa***
  5+0+0 OD before breakfast for 4 Months

Supportive

- ***Tab Vita-6 (Pyridoxine) 60mg***
  1+0+0 OD before breakfast for 6 Months

In children:

Isoniazid: 10 mg/kg (range 7–15 mg/kg)
Rifampicin: 15 mg/kg (range 10–20 mg/kg)
Ethambutol: 20 mg/kg (range 15–25 mg/kg)
Pyrazinamide: 35 mg/kg (range 30–40 mg/kg)

In Cavitary Pulmonary Tuberculosis Duration of Therapy is extended to 9 Months

Ethambutol should be carefully given in Renal Failure and Children

STANDARD TREATMENT PROTOCOLS PAKISTAN

Dx: Pulmonary Tuberculosis

Management Protocols

Follow up:

- CBC, LFT, RFT should be a routine initially if normal then Sputum Culture should be done monthly unless it became negative. If not possible Sputum Examination should be done at 2,5 & 6 Months. If Sputum Culture remain positive at or beyond 3 Months or Sputum Examination remain positive after 5 months, then treatment failure or resistance should be expected.
- Culture and sensitivity should be sent, and patient should be managed accordingly.

In Case of Relapse or Treatment Failure

- If sensitivity facility not available and in case of relapse, then RIF + INH + PAZ + EMB + Streptomycin for 3 Months then RIF + INH + EMB for 5 Months

In Case of Resistance

Isoniazid Resistance

- ***Tab Myrin P Forte*** | ***Tab Pire 4 plus*** | ***Tab Rifa 4s*** for 2 Months

Then

- ***Tab Myrin*** | ***Tab Pire 3*** | ***Tab Rifa*** For 7 Months

Isoniazid + Rifampicin Resistance

1. ***Tab PZA (pyrazinamide) 500 mg***
   OD before breakfast for 12-18 Months according to weight
2. ***Tab myambutol (ethambutol) 400 mg***
   OD before breakfast for 12-18 Months according to weight
3. ***Tab Streptomycin 1g***
   OD before breakfast for 12-18 Months according to weight
4. ***Tab Ofloxacin 400mg***
   OD before breakfast for 12-18 Months according to weight

Resistance to all drugs

3 Drugs from

1. ***Tab Ethionamide 500mg***
   OD before breakfast for 24 Months according to weight
2. ***Tab Cycloserine 250 - 750 mg***
   OD before breakfast for 24 Months according to weight
3. ***Tab Para-Aminosalicylic acid***
   OD before breakfast for 24 Months according to weight
4. ***Tab Ofloxacin 400mg***
   OD before breakfast for 24 Months according to weight

1 Drug from

1. ***Inj. Amikacin 15 mg/kg***
   1+0+0 IV OD for 24 Months
2. ***Inj. Kanamycin 5-7.5mg/kg***
   1+0+1 BD | 1+1+1 TDS IV for 24 Months
3. ***Inj. Capreomycin 1g***
   1 twice or thrice in week for 24 Months

Dx: Pulmonary Tuberculosis

Management Protocols

Tuberculosis with Hepatic Disease

1. ***Tab Streptomycin 1g***
   OD before breakfast for 12-18 Months according to weight
2. ***Tab Ofloxacin 400mg***
   OD before breakfast for 12-18 Months according to weight
3. ***Tab myambutol (ethambutol) 400 mg***
   OD before breakfast for 12-18 Months according to weight

Tuberculosis in Pregnancy

1. ***Tab Ethambutol 400mg***
   OD before breakfast for first 2 Months according to weight
2. ***Cap Rifampicin 600 mg***
   OD before breakfast for 9 Months according to weight
3. ***Tab INH(Isoniazid) 100 mg***
   OD before breakfast for 9 Months according to weight

Supportive

1. ***Tab Clarithromycin 500 mg***
   1+0+1 BD for at least 7-10 days for superadded bacterial infection
2. ***Tab Paracetamol 500 mg***
   2+2+2 TDS for 7 Days
3. ***Syp Muconyl | Ventolin Expectorant***
   2+2 TSF BD | 2+2+2 TDS
4. ***Syp Acefyl | Pulmonol | Cosome E***
   2+2+2 TSF TDS (Not indicated in guidelines)
5. ***Syp Mosegar/Tres Oris (Appetizer for decreased appetite)***

Mrs C J is a 71 year old woman who presents for follow up. She complains of hard stools over the past weeks. She tried using fiber and increase her fluid intake with no positive results. She gave history of hypertension, **Chronic** renal insufficiency and had a stroke one year ago with little or no residual. What will be the likely diagnosis?

Complaint of (C/O)

- Abdominal pain
- Inability to defecate for weeks/days .

Dx: Adult Constipation

On Examination (O/E)

- Abdominal tenderness
- Normal Bowel Sounds
- Distended abdomen
- Pain during defecation
- Digital Rectal Examination shows hard ,impacted stools distending the rectum .

Investigational Findings

Do complete baselines:
CBC for anemia
UREA, CREATININE for any infection or hydronephrosis

Do X Ray of Abdomen Erect and supine
Findings:
- Dilated Bowel loops
- Fecal shadow in colon and rectum
- Air fluid levels may be visible .

DO USG Abdomen & Pelvis:
Determining the location of fecal retention

Management Protocols

Prevention:

- Lifestyle modification. Exercise
- Diet modification-High fibre, plenty of water.
- Take enough time in washroom -no rush and no destruction.
- Use Esophagal/Husk
- Increase Water intake.

Definitive :

- Treat the underlying cause.
- Discontinue constipation causing Drugs.
- Diet modification-High fibre, plenty of water.
- ***Ispaghul Husk***
  2-4 TSF PO at Bedtime **OR**
- ***Tab Bisacodyl 5mg (Dulcolax)***
  0+0+2 2-4 Tablets PO HS OD OR
- ***Syp Lactulose | Lactitol (Duphalac | Lacasil)***
  2-5 TSF PO BD/TDS **OR**
  Avoid in Diabetics
- ***Tab/Syp/Drops Sodium Picosulphate (Tab, Syp Laxoberon | Sikilax drops)***
  In diabetic patients
  0+0+2 HS /20 drops PO HS **OR**
- ***Tab Docusate 100mg (Abotilium)***
  1+1+1 PO TDS **OR**
- ***Syp MgOH + Liquid Paraffin (Cremaffin)***
  1-5 TSF PO TDS **OR**
- ***Tab Sennoside 7.5mg (Senokot)***
  2-4 Tablets PO HS OD

If Acute onset or not relieved by above Medication

- ***Glycerin Suppositories***
  1-4 Tablets PR STAT **OR**
- ***Sodium Phosphate (Kleen Enema) 120ml***
  1 Bottle PR STAT

In Suspected Intestinal Obstruction/Absolute Constipation. Do not give any thing oral. **Consult General Surgeon.**

Investigational Findings	Management Protocols

• Dosage/Warnings of Enema :

1. Using more than one enema in 24 hours can be harmful.
2. Not for more than 3 days
3. Use in caution: kidney disease and heart diseases, > 55 years

• Contraindication of enema :

1. high amount of phosphate in the blood.
2. Low amount of calcium in the blood.
3. An increased sodium level in the blood. dehydration.
4. Method of removing waste/poison from blood with dialysis.
5. Sudden and serious symptoms of heart failure called acute decompensated heart failure.
6. Appendicitis.

• Indication of enema :

Indications for the use of enemas include to:
Evacuate the bowel before surgery
X-ray or for bowel examinations such as an endoscopy.
Treat severe constipation when less invasive methods have failed..

ER management of Absolute Constipation

- Admission
- Secure IV line and send all **BASELINES.**
- ***Keep NPO***
- If possible, get USG done for any abnormality.
- Maintain Fluid & Electrolyte Balance
- ***Inj. Ondansetron 8mg / Metoclopramide*** IV STAT
- ***Inj. Drotaverine (No-spa) 40mg*** Diluted in 100ml 0.9% NS x IV STAT
- ***Inj. Ketorolac 30mg*** Diluted in 4 ml 0.9% NS x IV Stat Slowly

If not respond or severe pain

- ***Inj. Tramadol 100mg/2ml + inj. Dimenhydrinate 50mg/1ml*** Diluted in 100ml 0.9 Normal Saline x IV STAT
- ***Inj. Cefepime 2g*** IV STAT then TDS
- ***Inj. Metronidazole 2g*** IV STAT then TDS
- Rule out intestinal/rectal pathology first

KALEEN ENEMA:

Procedure:

Remove the cap from the nozzle of the enema. Gently insert the tip of the nozzle into the anus, and continue inserting it 10 centimeters (3–4 inches) into the rectum. Slowly squeeze the liquid from the container until it is empty, then gently remove the nozzle from the rectum. Wait for the enema to take effect

INITIATING THERAPY :

- Start with life style modification .
- ***Probiotics*** with breakfast .
- ***Psyllium 30 g*** a day --with plenty of water ,once constipation resolved can decreased to 21 g a day (OTC)
- ***Prune juice*** before bed
- If no positive effect in 3 days start PEG 17g a day .
- If Constipation persists in a week then Consult the practioner.

And start first line treatment for better results.

Complaint of (C/O)

- **Nonspecific symptoms are fatigue, headache, epistaxis.**

Dx: Chronic Hypertension

Management Protocols

Nonpharmacological

- Reduce dietary sodium intake to no more than 100 mmol per day (2.4 g sodium or 6 g sodium chloride).
- Adopt DASH eating plan-diet rich in fruits, vegetables, with low fat dairy products with a reduced content of saturated and total fat.
- Lifestyle modification — exercise consisting of vigorous aerobic exercise like brisk walking, swimming or jogging at least 20 to 30 minutes on most days of the week with the heart rate reaching 65-70% of maximal heart rate.
- Weight control using a combination of dietary and exercise measures to maintain normal body weight (body mass index 18.5-24.9 kg/m^2).
- Moderation of alcohol consumption — limit alcohol to no more than 2 drinks (1 oz or 30 ml ethanol; e.g. 24 oz beer, 10 oz wine, or 3 oz 80-proof whiskey) per day in most men and to no more than 1 drink per day in women and lighter weight persons.
- Cessation of smoking.
- Yoga.
- Control of other risk factors.

Pharmacological

BP Classification	Systolic BP mmHg*		Diastolic BP mmHg*	Life-style modification	Management* Initial drug therapy	
					Without compelling indication	With compelling indications§
Normal	<120	and	<80	Encourage		
Prehypertension	120-139	Or	80-89	Yes	No antihypertensive drug	Drug(s) for the compelling indication**
Stage 1 hypertension	140-159	Or	90-99	Yes	Thiazide type diuretic for most; may consider ACEI, ARB, beta blocker, CCB or combination	Drug(s) for the compelling indication Other antihypertensive drugs as needed
Stage 2 hypertension	≥ 160	Or	≥ 100	Yes	2-drug combination for most (usually thiazide type diuretic and ACEI or ARB or beta blocker or CCB)♠	Drug(s) for the compelling indication Other antihypertensive drugs as needed

ACEI: Angiotensin converting enzyme inhibitor; ARB:Angiotensin receptor blocker; CCB: Calcium channel blocker

*** Treatment determined by highest BP category**

Management Protocols

** Treat patients with chronic kidney disease or diabetes to BP goal of less than 130/80 mmHg

§ Compelling indications — heart failure, post-myocardial infarction, high coronary disease risk, diabetes, chronic kidney disease, recurrent stroke prevention (for details see respective section).

♣ Initial combined therapy should be used cautiously in those at risk for orthostatic hypotension.

Antihypertensive drug choices: Additional considerations

(a) Diuretics—elderly, obese, congestive heart failure (CHF).

(b) Beta-blockers—young, coronary artery disease (CAD), vascular headache, associated atrial fibrillation (AF).

(c) Calcium channel blockers (CCB)—old age, CAD, atrial fibrillation (AF), paroxysmal supraventricular tachycardia (PSVT).

(d) Angiotensin converting enzyme inhibitors (ACEI)—young, left ventricular failure (LVF), diabetes.

(e) Angiotensin II receptor antagonists (ARB)—same as ACEI.

(f) Alpha-blockers—prostatism, diabetes, dyslipidaemia.

(g) Combined alpha and beta blockers—pregnancy.

(h) Old drugs—alpha-methyl dopa (pregnancy), clonidine-refractory cases.

Fully additive drug combinations

- Diuretic + beta-blocker.
- Diuretic + ACEI.
- CCB + beta-blocker.
- CCB + ACEI.

Questionable drug combinations

(a) Nonadditive

- beta-blocker + ACEI
- ARB + ACEI.

(b) Side effects additive

- beta blocker + Verapamil/Diltiazem (older CCB).
- alpha blocker + CCB.

Drug combinations for patients with associated conditions

- HT with angina – Beta blocker + CCB
- HT with heart failure – Diuretic + ACEI
- HT with diabetes mellitus – ACEI + CCB
- HT with COAD – Diuretic + CCB

- Thiazide diuretics should be used with caution in patients with gout or history of hyponatraemia.
- Beta blockers should be avoided in patients with bronchial asthma, reactive airways disease, or second- or third-degree heart block.
- ACEI should not be used in patients with a history of angioedema.
- Aldosterone antagonists and potassium sparing diuretics can cause hyperkalaemia and should generally be avoided in patients who have serum potassium values of more than 5.0 mEq/L while not taking medications.

STANDARD TREATMENT PROTOCOLS PAKISTAN

Management Protocols

A step care approach to the initiation and titration of antihypertension medications

Step 1	ACE inhibitor/ARB **or**[3] Calcium channel blocker **or** Thiazide diuretic[4]
Step 2	ACE inhibitor/ARB **plus** Calcium channel blocker **or** thiazide diuretic[5]
Step 3	ACE inhibitor/ARB **plus** calcium channel blocker **plus** thiazide diuretic
Step 4	ACE inhibitor/ARB **plus** calcium channel blocker **plus** thiazide diuretic **plus** spironolactone[6]

Choice of antihypertensive agent based on demographic considerations.

	Black, All Ages	All Others, Age < 55 Years	All Others, Age > 55 Years
First-line	CCB or diuretic	ACE inhibitor or ARB[3] or CCB or diuretic[4]	CCB or diuretic[5]
Second-line	ARB[3] or ACE inhibitor[6] or vasodilating beta-blocker[6]	Vasodilating beta-blocker	ACE inhibitor or ARB[3] or vasodilating beta-blocker[7]
Resistant hypertension	Aldosterone receptor blocker	Aldosterone receptor blocker	Aldosterone receptor blocker
Additional options	Centrally acting alpha-agonist or peripheral alpha-antagonist[8]	Centrally acting alpha-agonist or peripheral alpha-antagonist[8]	Centrally acting alpha-agonist or peripheral alpha-antagonist[8]

Preference order for Antihypertensives

There isn't a strict order of preference for antihypertensive drugs, as treatment depends on individual patient factors. However, commonly used classes include:

Thiazide Diuretics: e.g., hydrochlorothiazide

ACE Inhibitors: e.g., enalapril, lisinopril

ARBs: e.g., losartan, valsartan

CCBs: e.g., amlodipine, diltiazem

Beta-Blockers: e.g., metoprolol, atenolol

Alpha-Blockers: e.g., doxazosin, prazosin

Central Alpha Agonists: e.g., clonidine, methyldopa

Direct Renin Inhibitors: e.g., aliskiren

Peripheral Adrenergic Inhibitors: *e.g., reserpine*

Rx:

Young Patient

Young patient (non diabetic)

- ***Tab losartan 25 mg (eziday)***
  1+0+0 OD
  Tab losartan 50-100 mg (eziday)
  1+0+1 BD

If blood pressure not controlled with one drug

- ***Tab losartan 25 mg (eziday)***
  1+0+0 OD
  Tab losartan 50-100 mg (eziday)
  1+0+1 BD
- ***Tab amlodipine (sofvasc) 5 mg, 10 mg***
  5-10 mg 1+0+0 OD

Old Patient

- ***Tab amlodipine (sofvasc) 5 mg, 10 mg***
  5-10 mg 1+0+0 OD

Management Protocols

If blood pressure not controlled with one drug

- ***Tab losartan 25 mg (eziday)***
  1+0+0 OD
  Tab losartan 50-100 mg (eziday)
  1+0+1 BD
- ***Tab amlodipine (sofvasc) 5 mg, 10 mg***
  5-10 mg 1+0+0 OD

Beta-blockers can be added when necessary but should be avoided if there is peripheral vascular disease or incipient heart failure.

Combination drugs

- ***Tab Amlodipine + Valsartan (5/80) mg (Extor, Biforge, Exforge)***
  1+0+0 OD
  Dose can be increased gradually according to response to **(5/160, 10/160)**
- ***Tab Amlodipine + Valsartan + Hydrocholorothiazide (***5/160/12.5 ***mg) (Co-Extor, Triforge, Exforge HCT, Sofvasc HCT) OD***
  1+0+0 OD
  Dose can be increased gradually according to response to (5/160/25mg, 10/160/12.5mg, 10/160/25mg, 10/320/25mg) OD

Diabetic Patient

- ***Tab losartan 25 mg (eziday)***
  1+0+0 OD
  Tab losartan 50-100 mg (eziday)
  1+0+1 BD
  Should not be given if diabetic nephropathy develops
- ***Tab Candesartan 8-16mg (adavent) or Irbesartan 150-300mg***
  1+0+0 OD in morning

If blood pressure not controlled with one drug

- **Tab Candesartan + Hydrochlorothiazide 16mg + 12.5**
  1+0+0 OD
- **Tab Irbesartan + Hydrochlorothiazide 150mg + 12.5**
  1+0+0 OD
  Dose can be increased gradually according to response to (300/12.5mg, 300/25mg) OD

Patient with heart failure

- ***Tab Frusemide 20 mg (lasix)***
  1+0+0 OD in morning
- ***Tab losartan 25 mg (eziday)***
  1+0+0 OD
  Tab losartan 50-100 mg (eziday)
  1+0+1 BD

Patient with ischemic heart disease

- ***Tab atenolol (blokium) 50 mg***
  50-100 mg 1+0+0 OD
- ***Tab amlodipine (sofvasc) 5 mg, 10 mg***
  5-10 mg 1+0+0 OD

STANDARD TREATMENT PROTOCOLS PAKISTAN

Management Protocols

Three drugs combination if the blood pressure is not controlled by two drugs

- ***Tab losartan 25 mg (eziday)***
  1+0+0 OD
  Tab losartan 50-100 mg (eziday)
  1+0+1 BD
- ***Tab amlodipine (sofvasc) 5 mg, 10 mg***
  5-10 mg 1+0+0 OD
- ***Tab amiloride 5 mg + hydrochlorothiazide 50 mg (moduretic)***
  1+0+0 OD

Hypertension with renal failure

- ***Tab amlodipine (sofvasc) 5 mg, 10 mg***
  5-10 mg 1+0+0 OD
- ***Tab metoprolol (mepresor) 100 mg***
  50mg to 200mg 1+0+1 BD
- ***Tab Frusemide 20 mg (lasix)***
  1+0+0 OD to 1+1+0 BD (not given in night)
- ***Tab prazosin (minipress) 1 mg***
  ½ + 0 + ½ ,
  increased gradually (after 1-2 weeks) to
  Tab prazosin (minipress) 2 mg
  3 + 3 + 3 ,
  if the blood pressure is not controlled

Severe hypertension

- ***Tab losartan 25 mg (eziday)***
  1+0+0 OD
  Tab losartan 50-100 mg (eziday)
  1+0+1 BD
- ***Tab amlodipine (sofvasc) 5 mg, 10 mg***
  5-10 mg 1+0+0 OD
- ***Tab amiloride 5 mg + hydrochlorothiazide 50 mg (moduretic)***
  1+0+0 OD
- ***Tab metoprolol (mepresor) 100 mg***
  50mg to 200mg 1+0+1 BD
- ***Tab spiranolactone + frusemide (50 mg + 40 mg)(spiromide)***
  1+0+0 OD
- ***Tab prazosin (minipress) 1 mg***
  ½ + 0 + ½ ,
  increased gradually (after 1-2 weeks) to
  Tab prazosin (minipress) 2 mg
  3 + 3 + 3 ,
  if the blood pressure is not controlled

Hypertension in pregnancy

- ***Tablet methyldopa 250mg (aldomet)***
  1+0+1 BD to 1+1+1+1 QID Daily

W.C. is a 56 year-old white male. His history was remarkable in that he had weighed 230 pounds until 2.5-3 years before, when he voluntarily went on a rigid diet and lost 50 pounds over about 1 year. He has maintained his current weight of 180-190 pounds for the last 1.5 years. Six years ago he complained of numbness in his feet and poor healing of cuts and bruises. He was seen by a physician who noted high blood glucose levels and high blood pressure. He was treated with 5 mg glipizide twice a day. He had no family history of diabetes. He denied other symptoms of diabetes

Complaint of (C/O)

- Progressive symmetric loss of sensation in distal lower extremities
- Burning feet
- Sensory loss pattern
- Late stages has pain at rest and at night

Dx: Diabetic neuropathy

On Examination (O/E)

- Decreased propioception
- Motor weakness
- Areflexia
- Dysesthesia
- Stocking glove ,sensory loss
- Late :Pain at rest and at night
- Decreased pain sensation in lower extremities

Investigational Findings

- **SCREENING TESTS :**
- **Tuning fork:**

Shows decreased vibration sense .

- **Monofilament test** decreased pressure sense
- **Pinprick pain** assessment

Decreased sensation

Management Protocols

Prevention:

- Caloric distribution: Carbohydrate 45-65%, Protein 10-35% and 20-35% from fat.
- Eat in small portions, Balance glucose control.
- Avoid Alcohol long term use \ Avoid Smoking
- Reduce weight \Regular exercise.
- Monitor patient's glycemic control.

Definitive :

- **Strict Diabetes & Blood Pressure Control**

Peripheral Neuropathy

1. **Cap Duloxetine 30mg**
   1 + 0 + 0 (Starting Dose)
   Cap Duloxetine 60mg
   1 + 0 + 1 (Maintenance Dose)
   OR
- **Tab Amitriptyline 25 mg**
  0+0+1 OD HS | 1+0+1 BD if needed.
  Anti-depressant
2. **Cap Pregabalin 75 (Hilin)**
   0+0+1 OD (Starting dose)

Postural Hypotension

1. **Cap Fludrocortisone 0.1mg (Florinel)**
   1 + 0 + 0 (Starting Dose)
   1 + 1 + 1 (Maximum)
   ADD / OR
2. **Cap Sodium Chloride 1-4 g**
   1 + 1 + 1 +1 (Starting Dose)

Neurogenic Bladder

1. **Tab Bethanecol 10mg**
   1 + 1 + 1 TDS OR
- Catheter decompression of distended bladder

Dx: Diabetic neuropathy

Management Protocols

Urinary Incontinence

- **Long Term Cathetrization (Silicon)**

Gastroparesis

1. **Tab Metoclopramide 10mg**
   1 + 1 + 1 + 1 TDS 30min before meal & at Bedtime (Max use 3 Months) **OR**
- **Tab Erythromycin 250mg**
  1+1+1 TDS **OR**
- **Inj. Botulism Toxin**
  In Pylorus Sphincter

Diabetic Diarrhea

1. **Tab Metronidazole 400mg (Flagyl)**
   1 + 0 + 1 BD for 7 Days **OR**
2. **Tab Ciprofloxacin 500mg (Novidat)**
   1 + 0 + 1 BD for 7 Days **OR**
3. **Tab Loperamide (Imodium)**
   1 + 0 + 1 BD for 7

Diabetic Constipation

- **Tab Sennoside 7.5mg (Senokot)**
  2-4 Tablets PO HS OD

Excessive Sweating

- **Tab Oxybutynin 5mg (Butyn)**
  1+0+0 OD
  Dose can be increased by 5mg weekly to maximum 30mg
  (Can also be used in overactive Bladder)

Erectile Dysfunction

- **Tab Sildenafil 5mg**
  0+0+1 OD before activity Max 100mg
  Should not be used with Nitrates

A 31-yr-old woman comes to the emergency department because of a severe headache in the occipital region. She says the headache began suddenly about 1 h ago, and she describes it as "the worst headache of my life." She says the pain is constant and is accompanied by nausea but not vomiting. She denies visual symptoms, focal weakness, and problems with gait and balance.She has frequently had similar headaches beginning about 2 yr ago. The headaches have increased in frequency this past week, and this episode is by far the worst. She says the headaches start suddenly, last about an hour, and are associated with palpitations, unexplained anxiety, and light-headedness. She has also had nausea and occasional swelling of the neck during these episodes. The headaches are usually associated with exertion or with straining during bowel movements but sometimes occur without any provocation. She has not been evaluated for these headaches before.

Complaint of (C/O)

A. At least 5 attacks fulfifi lling criteria B-D.
B. Headache attacks lasting 4-72 h (untreated or unsuccessfully treated)
C. Headache has at least two of the following characteristics:
1. **Unilateral location**
2. **Pulsating quality**
3. **Moderate or severe pain**
4. **Aggravation by or avoidance of routine physical activity.**

D. During attack at least one and the following
1. **Nausea and/or vomiting**
2. **Photophobia and phonophobia**

E. Not attributed to another disorder.

• Migraine may also be preceded by focal neurological phenomenon called "aura" most commonly experienced as visual alteration (flfl ickering lights, spots; loss of vision) but it may involve sensory symptoms (pins and needles numbers) or fully reversible dysphasic speech disturbance.

Dx: Migraine Headache

On Examination (O/E)

- Unilateral Headache
- Tyramines
- Crescendo pain
- Sensitive to light
- Sensitive to sound
- Dark, quiet room
- Changes in sharp pattern

History

Aura
- Nausea/Vomiting before onset of pain
- Vomiting
- Stress

Management Protocols

Prevention:
- Avoid Triggering factors.
  - Foods, Alcohol, caffeine, Nicotine and Nitrates.
- Avoid Stress causing factors.
- Regularize sleep patterns.
- Avoid Alcohol long term use /Avoid Smoking.

Definitive:

Acute Attack:
- ***Inj Ketoralac 30mg +Metoclopramide 10mg*** IV Stat slow in 100ml N/S infusion

OR

- ***Inj Diclofenac Sodium 75 mg +Inj Metoclopramide*** 10mg IM Stat

OR

- ***Inj. Prochlorperazine 12.5mg/Chlorpromazine 7.5-20mg + Metoclopramide*** 10mg IV Stat in 100ml N/S over 2 mins

STANDARD TREATMENT PROTOCOLS PAKISTAN

Dx: Migraine Headache

History	Management Protocols
Aura • Nausea/Vomiting before onset of pain • Vomiting • Stress • Change in sleep pattern (too much or too little) • Hormonal changes • Variations in caffeine intake • **Foods:** chocolate, hard cheese, MSG,	**Status Migrainous(A debilitating migraine attack lasting more than 72 hrs):** • ***Inj. Sodium Valproate 500 mg IV*** 8 hourly for 2 days. **Oral For acute attacks(for Home Remedy)** • ***Tab Sumatriptan 85mg +Tab Naproxen Sodium 550 mg*** 1+0+0 OD & SOS for pain relief **OR** • ***Tab Zolmitriptan 2.5mg or Nasal Spray*** 1 every 2 hr (Max 6) until attack persist. **Mild to Moderate Attack:** • ***Tab Paracetamol 1000mg / Tab Mefenamic Acid 500mg / Tab Naproxen sodium 250mg,500mg / Cap Indomethacin 50mg*** 1+1+1 TDS /1+1+1 TDS /1+0+1 BD/1+1+1 for pain relief • ***Tab Metoclopramide 10mg PO stat*** **Options for Prophylaxis:** ➢ ***Tab Inderal 20mg (initial dose)*** ○ 1+0+1 BD ➢ ***Tab Amitriptyline 25mg*** ○ 0+0+1 HS ➢ ***Tab Naproxen sodium 250mg,500mg \Tab Diclofenac Potassium 50 mg*** ○ 1+0+1 BD Pain killer ➢ ***Tab Topiramate 50mg*** ○ 1+0+0 OD or 1+0+1 BD for obese patients ➢ ***Tab Sodium Valproate 250mg*** ○ 1+0+1 BD for obese patients & in refractory cases **Symptomatically:** ➢ ***Cap.Esomeprazole 20mg,40mg / Dexlansoprazole 30mg, 60mg*** ○ 1+0+1 BD / 0+0+1 HS PPI For GI safety. ➢ ***Tab Metoclopramide 10mg*** ○ 1+0+1 BD for Nausea

Consist of Standard Management guidelines to

270+ Commonly presented diseases.

Will Contain Management guidelines to much more diseases in next Editions.

STANDARD TREATMENT PROTOCOLS PAKISTAN

STANDARD TREATMENT PROTOCOLS PAKISTAN

Q. A 20 year old girl presented in the OPD with an increase in pimples, blackheads, and whiteheads on her face, especially on her forehead, nose, and chin. The acne has started to affect her self-confidence, making her feel self-conscious around her peers.

Acne vulgaris

On Examination (O/E)

Non-inflammatory: comedonal acne

1. Closed comedones (whiteheads): closed small round lesions that contain whitish material (sebum and shed keratin)

2. Open comedones (blackheads): dark, open portion of sebaceous material

Inflammatory: affected areas are red and can be painful

Papular/pustular acne: papules, pustules that arise from comedones
Nodular acne (> 5 mm in diameter)

Commonly the back and neck

Severe form: acne conglobata that is associated with cysts and abscesses

Management Protocols

For Mild Acne:

1. ***Acnes mentholatum face wash***
   OR
   ACNE-AID BAR 1+0+1 (Face wash x Twice daily)
2. ***Benzoyl peroxide + clindamycin (Duac gel/Benclin Gel)*** 0+0+1
3. ***Tab. Minocycline l00mg*** **(Minoderm, Minogen)** 1+0+1

If Itching Add

4. ***Tab loratadine l0mg*** **(Softin, Lorin NSA, Lormax)**
   Or
   Tab Levocetirizine 5mg **(Belair, Xyzal)**
   0+0+1

For Moderate Acne:

1. ***Acnes mentholatum face wash*** **or ACNE-AID BAR** 1+ 0 +1 (Face wash x Twice daily)
2. ***Isotretinoin gel*** **(Isotrex, Cosmin)** 0+ 0 +1 x Topical application once daily for 2-3 months
3. ***Cap. Doxycycline l00mg*** **(Vibramycin, Doxyn, Wellcodox)**
   OR
   Tab. Doxycycline l00mg **(Adoxa, Doxybact, Vibramycin) 1**+ 0 +1 BD for 3-4 Weeks
4. ***Tab. Loratadine l0mg*** **(Softin, Lorin NSA, Lormax)**
   OR
   Tab. Levocetirizine 5 mg **(Belair, Xyzal, T-Dav)** 0-0-1

If Painful lesions then add NSAIDs

5. ***Tab. Caflam 50mg***
   OR
   Tab. Acenac l00mg 1+0+1 BD

Acne vulgaris

Management Protocols

Rx

For Severe Acne:

1. ***Acnes mentholatum face wash*** or ACNE-AID BAR
   1+ 0 +1 (Face wash x Twice daily)

2. ***Adapalene gel or cream*** (Adapco, Clear, Gallet)
   0+0+1 x topical application once daily for 2-3 Months

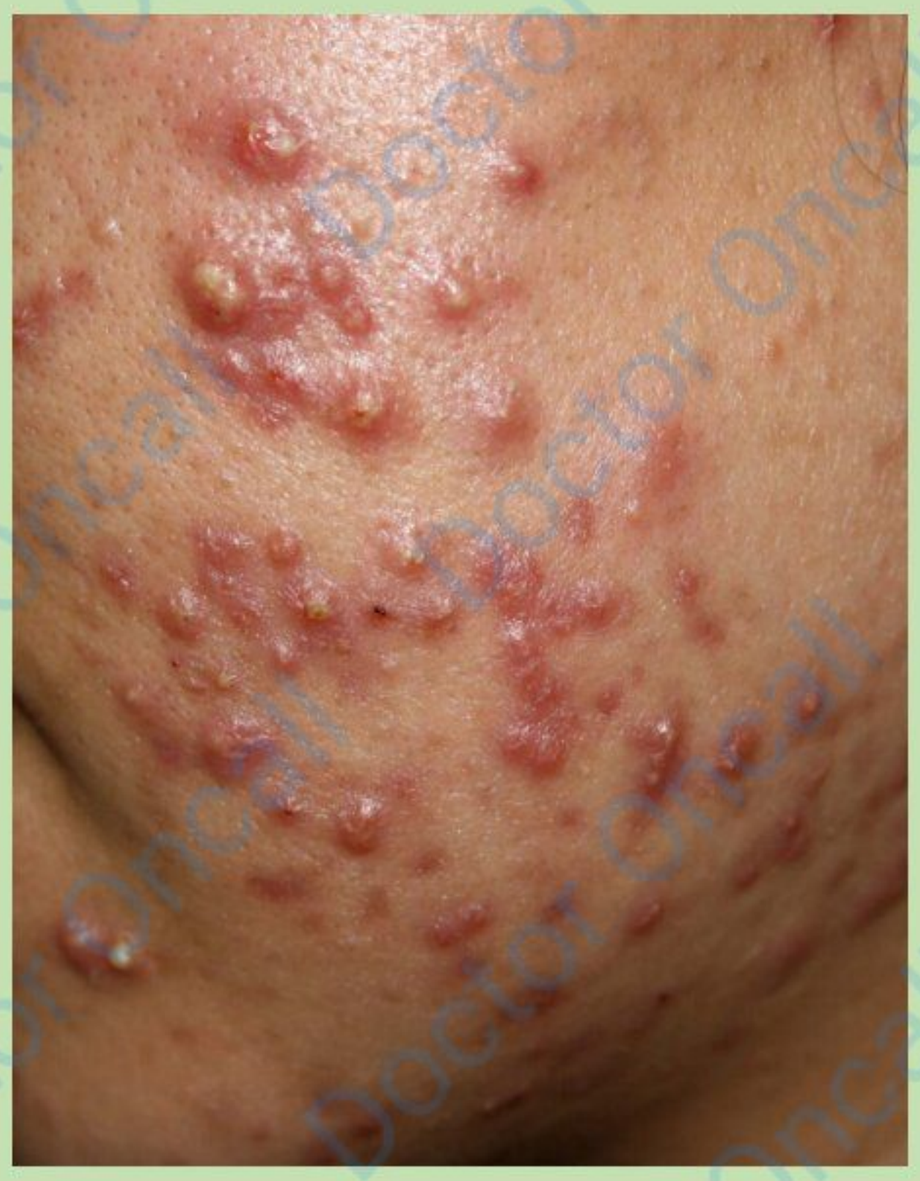
3. ***Cap. Azithromycin 250 mg*** (Macrobac, Zetro, Azomax)
   1+0+1 (Twice daily) for 10-14 days

4. ***Cap.isotretinoin 20mg*** (Arynoin, Isozam, Roaccutane)
   0+0+1 (Once daily) for 2-3 months

5. ***Tab. Loratadine l0mg*** (Softin, Lorin NSA, Lormax)
   OR
   Tab. Levocetirizine 5 mg (Belair, Xyzal, T-Day)
   0-0 -1, 1- 0 -I (OD, BD)

If Painful lesions then add NSAIDs

6. ***Tab. Caflam 50mg***
   OR
   Tab. Acenac 100mg
   1+0+1 BD



A 25-year-old female presented to her general practitioner (GP) with high grade fever associated with headache, malaise and abdominal pain. On examination, she had abdominal tenderness, hepatosplenomegaly and rash.

Complaint of (C/O)

- Fever low then gradually increases to 104.9F
- Headache
- Vomiting
- Weakness and fatigue
- Muscle aches
- Loss of appetite
- Abdominal pain
- Rash
- Diarrhea

Dx: Typhoid fever (Enteric fever)

On Examination (O/E)

- Stepwise increase in temperature
- Relative bradycardia
- Abdominal tenderness
- Hepatosplenomegaly
- Maculopapular Rash **(Rose spot)**

Investigational Findings

- **1st week:** Blood culture
- **2nd week:** Antigen test/Widal
- **3rd week:** Stool culture
- **4th week:** Urine culture

Management Protocols

Prevention:

- Protecting the water supply.
- Preventing fecal contamination during food production, cooking and refrigerating food.
- Pasteurizing milk and milk products.
- Handwashing before preparing foods.
- **2 types of vaccine** are available in the commercial market.
  - An oral, live-attenuated preparation of the Ty21a strain of S. Typhi
  - Vi capsular polysaccharide for 2 years and above.

Definitive

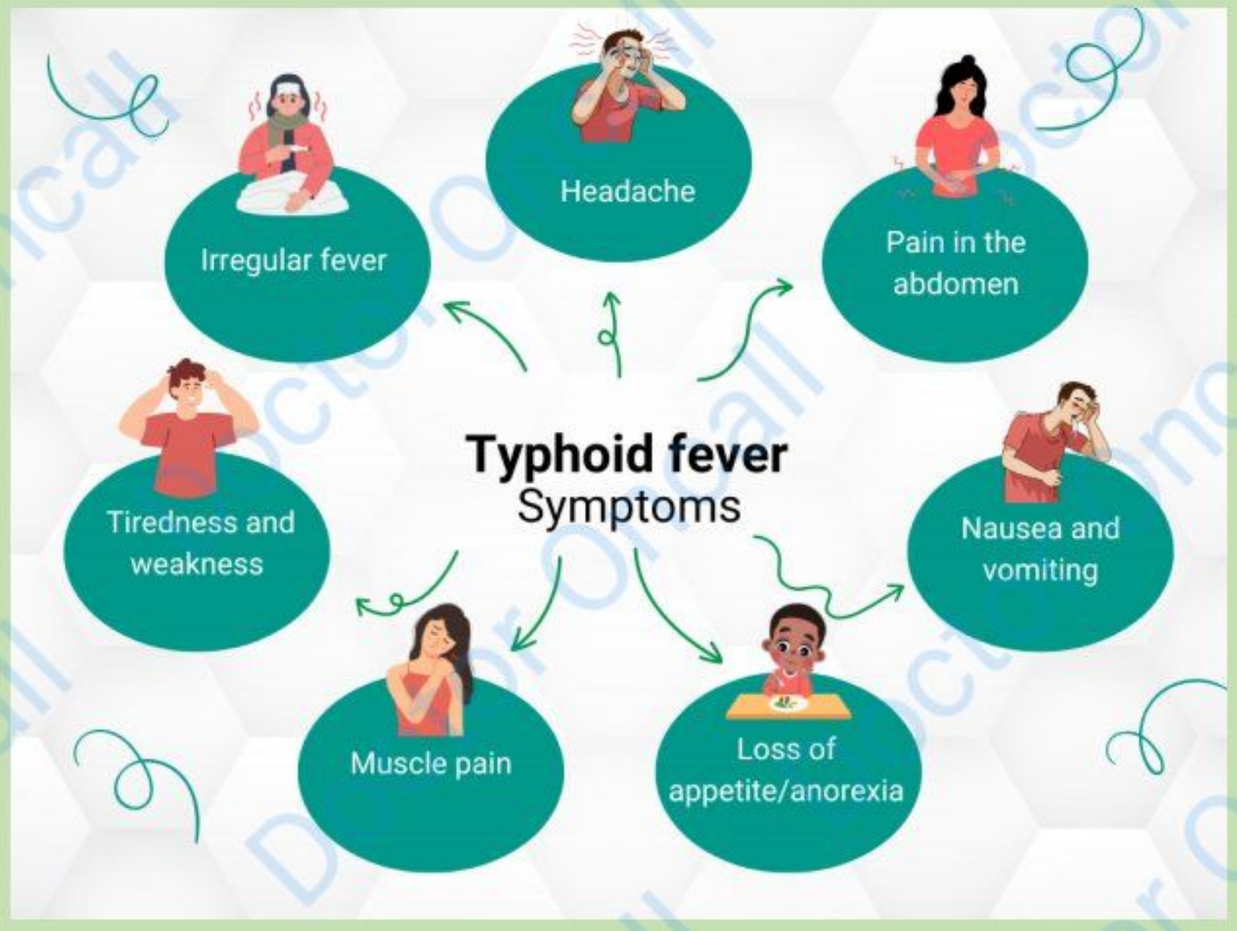
Uncomplicated enteric fever

- ***Tab. Ciprofloxacin 10 mg/kg*** *in* 2 divided doses, up to a maximum of 750 mg twice a day for 10-14 days (for 1 week after the fever subsides).
  OR Tab. Ofloxacin 200-400 mg daily for 5-7 days.
  OR Cap. Azithromycin 10-20 mg/kg (max 500 to 1000 mg/day) once daily for 5 days.

Severe enteric fever (hospitalized patients).

- ***Inj. Ceftriaxone 50-60 mg/kg per day IV or IM*** in 2 divided doses or as a single dose for 7-10 days (preferred in pregnant women patients, children, or patients resistant to quinolones).
  OR Tab. Cefixime 200-400 mg daily as a single dose or 2 divided doses for 14 days.
  OR Inj. Ciprofloxacin 200 mg IV 1+0+1 BD

Investigational Findings	Management Protocols
Blood culture is the most important diagnostic test at disease onset, as stool cultures are often negative despite active infection. • **Gold standard** test is Bone Marrow culture. • Complete Blood Count **(CBC)** • Anemia • Leukopenia or leukocytosis • Absolute eosinopenia • Relative lymphocytosis • **LFTs:** maybe Abnormal • **Ultrasound** whole abdomen: **Hepatosplenomegaly**	**Symptomatic** ➢ ***Tab Paracetamol 500mg*** 1+1+1 TDS Analgesic ➢ ***Syp. Multimin*** 2+0+2 (2 tsp BD) Vitamins For epigastric upset ➢ ***Tab. Pantoprazole 40mg Or Tab Omeprazole 40mg*** 0+0+1 OD PPI If nausea/vomiting, then add ➢ ***Tab. Metoclopramide 10mg*** 1+1+1 TDS **OR** ***Tab. Ondansetron 4mg*** 1+0+1BD/1+1+1 TDS If there is no response after 5 days, an alternative diagnosis should be considered.



Some Pediatric Drugs to be given in mg/kg/day in divided doses

Drugs	Dosage	Formulations Available	Indications/CI
Syp.Amoxil (Amoxicillin)	50mg/kg/day BD/TDS *Max 1g/Day*	125mg/5ml 250mg/5ml	URTI, Dental Abscess, Skin/Skin structure infections, ENT infections(OM)
Syp. Calamox/Augmentin (Amoxil+clavulinic acid)	30-50mg/kg/day BD/TDS	156mg/5ml 312mg/5ml 457mg/5ml 625mg/5ml	1st line URTI/GABHS Skin ENT Dental Abscess-1st Line
Syp. Azit/Zeecin/Azomax (Azithromycin)	12-15mg/kg/day OD Enteric Dose 20mg/kg/day	200mg/5ml	2nd line URTI Atypical organisms causing LRTI Shigella, campylobacter ,severe dysentery, enteric fever Endocarditis prophylaxis
Syp Klaricid/Rithmo (clarithromycin)	15mg/kg/day BD *Max 1g/Day*	125mg/5m 250mg/5ml	2nd line URTI Atypical LRTI/ H.pylori cat scratch, Ear(OM) 2nd line endocarditis
Syp. Novidat/orcip (ciprofloxacin)	15-30mg/kg/day BD	125mg/5ml 250mg/5ml	1st line Dysentry 2nd line UTI Severe dysentery, EPEC,ETEC,EIEC STDs
Syp. Flagyl (metronidazole)	20-30mg/kg/day BD/TDS	100mg/5ml 200mg/5ml	ABx induced diarrhea, C. Difficile infection, E.Histolytica, Giardia,H.pylori,vaginosis
Syp. Septran/ Septran DS (TMP-SMX)	50-60mg/kg/day BD	>2 Months 200/40mg/5ml 400/80mg/5ml	Dysentery, UTI 3-5days,
Syp. Nitazide/Diatazox (Nitazoxanide)	100mg-BD (1-3years) 200mg-BD (3-11Years)	100mg/5ml	Smelly Diarrhea, Anti-infective (Covers Most of organisms causing diarrhea in children including rota)

Dosages and calculation of other Drugs is also given in book

How to calculate ml/min for infusion drugs.

Step 1: First convert the unit of the stock concentration to the same unit in which the drug is to be infused to patient.

For example: If a 70kg patient is presented with septic shock and you have to start norepinephrine inotrope. Norepinephrine is available in stock concentration of 4mg/4ml. The dose of norepinephrine is 0.1mcg/kg/min to 1mcg/kg/min.

1mg = 1000mcg

4mg = 4 X 1000 = 4000mcg

Stock concentration of 4mg = 4000mcg

Step 2: If you dilute norepinephrine injection in 100ml and starting dose of norepinephrine is 0.1mcg/kg/min.

$$\textbf{ml/min} = \frac{\text{dose}\left(\frac{\text{mg, mcg}}{\text{kg/min}}\right) \times weight(in\ kg) \times Dilution}{\text{stock concentration(mg, mcg)}}$$

If infusion must be given in mg/kg/min. The strength of drug should be placed in mg/min.

If infusion must be given in micrograms(mcg)/kg/min. The strength of drug should be placed in mg/min.

$$\textbf{ml/min} = \frac{0.1\ \text{mcg/kg/min} \times 70kg \times 100ml}{4000\text{mcg}}$$

$$= 0.175\ \text{ml/min}$$

If you want to calculate ml/certain time(i.e hour) (while using infuser or dripset regulator) then

ml/min X time

0.175 ml/min X 60 = 10.5 ml/hour

Step 2: In order to calculate drops/min

$$\textbf{drops/min} = \text{ml/min} \times \text{drop factor(gtt)}$$

$$= 0.175 \text{ X } 60 = 10.5 \text{ drops/min}$$

Note: For those drugs who are available in market with strength in **mg** but are infused in **mcg**. You have to convent **mgs** to **mcg** first.

Note: Certain drugs which are not infused as per mg/kg/min. Rather they are infused mg/min or mcg/min. For those skip the weight

$$\textbf{ml/min} = \frac{\text{dose}\left(\frac{\text{mg, mcg}}{\text{min}}\right) \times Dilution}{\text{stock concentration(mg, mcg)}}$$

MEDICATION	STANDARD ADMIXTURE	MAXIMUM CONC./ INFUSION INSTRUCTIONS	DOSING	MONITORING/COMMENTS
Adenosine (Adenocard®) Slows conduction time through the AV node, interrupting the re---entry pathways through the AV node, restoring normal sinus rhythm. Onset of action: immediate Duration: seconds	6 mg/2 mL vial (3 mg/mL) given undiluted	Give undiluted directly into vein over 1---2 seconds. Administer as proximal as possible to trunk (i.e., not in lower arm, hand, lower leg, or foot). If administered through IV line, administer as close to pts heart as possible. NS flush must be given rapidly, immediately following injection of adenosine	6 mg initially. If SVT not resolved in 1---2 minutes, may follow with 12 mg dose. If not resolved in 1---2 minutes, may follow with an additional 12 mg dose.	ECG, heart rate, blood pressure Extremely short half life: < 10 seconds Not effective for converting A. flutter, A. fib, or ventricular tachycardia. Contraindicated if symptomatic bradycardia, sick sinus syndrome, 2nd or 3rd degree AV block (unless pt. has functioning pacemaker)
Amiodarone (Cordarone®) Antiarrhythmic agent that depresses conduction velocity, slows AV	**Load:** Dilute 150 mg (3mL) in 100 mL **D5W** (1.5 mg/mL) (PVC bag suitable for loading dose)	Peripheral line: Up to 2 mg/mL (Concentrations over 2 mg/mL administered for longer than 1 hour must be	**Load:** 150 mg/100 mL over 10 minutes. (Not to exceed 30 mg/mL)	Telemetry monitoring, BP (hypotension occurs frequently with initial rates), HR (arrhythmias: AV block, bradycardia, VT/VF, torsades de pointes), electrolytes Pulmonary function test within 1 week if possible

node conduction, raises the threshold for VF, and exhibits some α and β blockade activity. It possesses vasodilatory effects which decrease cardiac workload and decrease myocardial oxygen demand. Myocardial uptake is rapid and anti---arrhythmic effects are clinically relevant within hours, but full effect may take days. Exceptionally long half life of 40---55 days	**Maintenance infusion:** Dilute 900 mg (18 mL) in 500 mL D5W (1.8 mg/mL) **INFUSION MUST BE ADMIXED IN GLASS BOTTLE OR NON---PVC BAG. Amiodarone will leach plastic from PVC bag** Maximum daily dose: 2.1 g/day	infused via central line) Central line: Up to 6mg/mL	**THEN** **Infusion:** 1 mg/min for 6 hours (33.3 mL/hr = 360 mg), followed by 0.5 mg/min for 18 hours (16.6 mL/hr = 540 mg) **ACLS:** 300 mg IV push, may repeat with 150 mg x 1.	Thyroid function Liver enzymes (AST/ALT) Significant interactions with digoxin and warfarin (enhances effect of each, ↓ dose, monitor digoxin levels, PT/INR)

Commonly Used Brands in Pakistan NSAIDs/Analgesics	
Generic	**Brand & strength**
Paracetamol (Acetaminophen)	• Tab Panadol 500mg. Tab Calpol 500mg • Syp Panadol 160mg/5ml, Syp Calpol 120mg/5ml • Syp Panadol Forte 250mg/5ml, Syp Calpol 6plus • 250mg/5ml • Infant drops: Panadol drop, Tempol plus drop • IV Infusion: Provas 1g/100ml, Bofalgan 1g/100ml • Napa suppository 125mg 250mg, and 500mg
Paracetamol Pseudoephedrine + Chlorpheniramine maleate	• Tab Panadol CF • Tah Relnus CF
Dexibuprofen	• Tah Tercica 200mg, 300mg, and 400mg • Syp Tercica 100mg/5ml
Ibuprofen	• Tab Brufen 200mg, 400mg, 600mg • Syp Brufen, Syp Brufen DS • Inj Xaleve 400g/4ml (Dilute in 100ml N/S-IV) • Inbufin 400mg/100ml IV infusion • Brufen cream
Ibuprofen codeine phosphate	• Tab Brufen Plus
Codeine phosphate + Paracetamol+ Caffeine	• Tah Napadoc
Mefenamic acid	• Tab Ponstan, Tab Ponstan forte • Tab Dellor, Tab Dollor DS • Syp Pontan, Syp Dollor, Syp Dollar DS
Diclofenac potassium	• Tab Caflam 50mg, Tab Maxit 50mg, 75mg
Diclofenac sodium	• Tab Voliral 25mg, 50mg, 100mg (SR) • Tab Voren 25mg, 50mg, 100mg (SR) • Inj Voren 75mg/5ml, Inj Voltral 75mg/5ml Voltral • Emulgel, Dicloran gel