

Rationalization Of Pharmacotherapy In Some Selected Gastro-Intestinal And Hepatic Abnormalities¹Sudhair Abbas, ²Ajmal Hussain, ¹Abdul Mateen, ³Javid Ali, ³Arshad Hussain, ⁴Sher Mohammad, ⁵Said Hassan¹Department of Pharmacy, Abasyn University, Peshawar, KPK -Pakistan²Department of Pharmacy, University of Peshawar, KPK- Pakistan³PCSIR Laboratories Complex Peshawar, KPK-Pakistan⁴Centre of Biotechnology & Microbiology, University of Peshawar KPK, Pakistan⁵Department of Agricultural Chemistry, University of Agriculture, Peshawar 25130, KPK- Pakistan.Corresponding author: E.mail: Javedali_14@yahoo.com, Phone# +92-091-9216244, Fax+92-091-9216232

Abstract: During this clinical pharmacy clerkship in pediatric ward-A (Lady Reading Hospital) the studied diseases include GIT abnormalities (Enteric fever, diarrhea, Constipation) and hepatic abnormalities (Ascites, Liver abscess, hepatomegaly) along with other complications (Celia, upper GIT bleeding). During the said period I focused on, Etiology, Pathophysiology, sign and symptoms, diagnosis and pharmacotherapy of these ailments. Collection of case histories was the 1st priority of all considerations. The collected histories comprises mainly of patient demographics, chief complaints, principal diagnosis and laboratory tests, medications used in hospital and others. The collected data was analyzed regarding the drug therapy at hospital, its dosage in different age groups and their respective physical conditions and a comparative analysis was also done i.e. comparing therapy given at hospital and that recommended by standard therapeutic guidelines. The major parameters considered and studied were drug related problems. The overall prognosis of the disease was also observed. The major discrepancies that ensue during drug therapy at hospital were drug selection, dose calculation, dose adjustment and drug interactions. Medications prescribed at hospital in certain cases showed deviation from standard therapy recommended, a brief discussion of which and its impact upon prognosis and recommendations for the management of such problems is also considered. [Sudhair Abbas, Ajmal Hussain, Abdul Mateen, Javid Ali, Arshad Hussain, Sher Mohammad, Said Hassan. **Rationalization Of Pharmacotherapy In Some Selected Gastro-Intestinal And Hepatic Abnormalities.** *Life Sci J* 2013; 10(12s):629-646] (ISSN: 1097-8135). <http://www.lifesciencesite.com>. 103

Key words: Rationalization; Pharmacotherapy; Gastro-Intestinal; Hepatic Abnormalities**INTRODUCTION**

Among various GIT abnormalities the following mentioned diseases were studied. Enteric fever, diarrhea and constipations. Serious infection marked by intestinal inflammation and ulceration; caused by *Salmonella typhosa* ingested with food or water. This fever received various names, such as gastric fever, abdominal typhus, infantile remittent fever, slow fever, nervous fever, pathogenic fever, etc (Brunette *et al.*, 2012). Enteric Fever (caused by *Salmonella typhi* or paratyphi bacteria) is contracted from infected water or food. The bacteria breed in the gall bladder and liver, invading the GI from there. From the GI, they go into the blood stream and then around the body. Its symptoms are stomachaches. Diarrhea, achiness, fever, congestion, headaches and lethargy (Cecil *et al.*, 2012). Diagnosis is made by any blood, bone marrow or stool culture and with the widal test (demonstration of salmonella antibodies against antigens O-somatic and H-flagellar). In epidemics and less wealthy countries, after excluding malaria, dysentery or pneumonia, a therapeutic trial time with chloramphenicol is generally undertaken while awaiting the results of

Widal test and cultures of the blood and stool (Cecil *et al.*, 2012).

If a patient presents with unexplained symptoms described in Table 1 within 60 days of returning from an typhoid fever (enteric fever) endemic area or following consumption of food prepared by an individual who is known to carry typhoid, broad-spectrum empiric antibiotics should be started immediately. Treatment should not be delayed for confirmatory tests since prompt treatment drastically reduces the risk of complications and fatalities. Antibiotic therapy should be narrowed once more information is available. Compliant patients with uncomplicated disease may be treated on an outpatient basis. Hospitalized patients should be placed in contact isolation during the acute phase of the infection. Feces and urine must be disposed of safe (Pervez 2008).

DIARRHEA

Diarrhea generally is divided into two types, acute and chronic. Acute diarrhea: lasts from a few days up to a week. Chronic diarrhea: can be defined in several ways but almost always lasts more than three weeks. The most common cause of acute diarrhea is infection--viral, bacterial, and parasitic. Bacteria also can cause acute food poisoning. If antibiotics have

been taken within the previous two weeks, stool should be tested for the toxin of *C. difficile*. There are also immunologic tests that can be done on samples of stool to diagnose infection with *Giardia* (Richard, 2012). Bismuth subsalicylate, used for traveler's diarrhea, decreases fluid secretion in the bowel. Its action may be due to its salicylate component as well as its coating action. Adverse effects may include black tongue and black stools (Barbara *et al.*, 2009).

Constipation is defined as having a bowel movement fewer than three times per week. With constipation stools are usually hard, dry, small in size, and difficult to eliminate. Some people who are constipated find it painful to have a bowel movement and often experience straining, bloating, and the sensation of a full bowel (Barbara *et al.*, 2009).

HEPATIC ABNORMALITY

Among various Hepatic abnormalities the disease were studied i.e. Ascities, Liver abscess and Hepatomegaly.

METHODOLOGY

This study was based on Clinical Pharmacy Clerkship rotations completed during 3-month period with effect from 5-11-2009 to 28-01-2010 in Pediatrics-A ward, at Govt. Lady Reading Hospital, Peshawar KPK, Pakistan.

Data collection

During the said period the data of Peads gastrointestinal and hepatic including GIT abnormalities (Enteric fever, diarrhea, Constipation) and hepatic abnormalities (Ascites, Liver abscess, hepatomegaly) along with other complications (Celia, upper GIT bleeding) was collected. The data was collected on the following aspects:

Patient Demographics

Name, gender, age and weight of the patients. It makes dispensing medications in appropriate and correct dose and dosage form thus making the therapy rational.

Principal Diagnosis and Laboratory Tests

It includes all the tests performed for the diagnosis of the disease.

Chief Complaints

These are the symptoms which are mentioned by the patient due to which patient visit their physicians and patient are further treated which is based on these sign of the patient.

Medications Used In Hospital and Others

It comprises of medication history, medication prescribed during stay at hospital and discharged medications.

Analysis protocol

The data of 30 cases was analyzed regarding: (1) Standard therapeutic dose (2) Drug-drug interactions (3) Drug allergies (4) Drugs related problems (5)

Adverse drug reactions (6) Patient education and counseling (7) Its assessment and management.

Current therapy provided in hospital was analyzed and compared with standard therapeutic dose.

Clinical Laboratory Tests and Their Interpretation GIT Abnormality Tests

Enteric Fever

Blood test, stool cultures and Widal test is performed to check salmonella antibodies against antigens O-somatic and H-flagellar.

Blood Test: The diagnosis is usually confirmed by identifying *S. typhi* in a culture of the blood. If the test is positive and there's a sign of a bacterial infection.

Stool cultures and with the Widal test: If bacterial colonies i.e. *Shigella*, *Salmonella*, *Campylobacter* and *Yersinia*. *Clostridium difficile* is present in the sample. The test is positive and there's a sign of a bacterial infection (Beers *et al.*, 2004).

Diarrhea

Microscopic examination of stool is performed to check the presence of infections. If bacterial colonies i.e. *Shigella*, *Salmonella*, *Campylobacter*, and *Yersinia*. *Clostridium difficile* is present in the sample. The test is positive and there's a sign of a bacterial infection. This is undertaken for the diagnosis of infectious diarrhea.

Constipation

Colonoscopy: is performed for examination of the rectum and entire colon infection.

Colonoscopy will appear abnormal in size, color, and tone which shows cause of constipation.

Hepatic Abnormality Tests

Ascites: CT scan, Ultrasonography, Physical examination is done to diagnose ascites. Abdominal CT scan and/or ultrasound exam of the abdomen when detect as little as 100 cc (about 3 ounces) of fluids it shows the presents of ascite.

Hepatomegaly: Ultra sound is done to diagnose hepatomegaly.

Ultra sound: A liver that is longer than 15.5cm in the mid-clavicular line is considered enlarged.

Git Special Cases Tests

Celia: colonoscopy of the small intestine is performed for examination of celia.

Colonoscopy: will appear abnormal in size, color, and tone

Upper Git Bleeding: Endoscopy is performed for examination of upper GIT bleeding.

Endoscopy: The upper GIT will appear abnormal in size, color, and tone

Standard Therapeutic Guideline

STG list the preferred drug and non drug treatments for common health problems experienced by people in a specific health system (JD Quick 1997) There is widespread variation in the management of

infants with GIT abnormality, Hepatic abnormality, and GIT special disease both in hospital and in the community. The guideline aims to reduce the use of unnecessary therapies and investigations.

Results and Discussion

The frequencies of different age groups of the selected patients along with the incidence of studied diseases in these age groups were calculated from analysis of analyzed case histories. In the same way weight status of the patients is categorized as underweight and those of normal weight. A brief description of the prescribed medications along with their classes and their frequencies is also tabulated. The incident of enteric fever is highest in children and young adults between 5 and 19 years old (JD Quick 1997). While the result of Enteric fever shows us that its incidence is higher in children from 1-12 years. Thus it supports the result. The result of diarrhea shows us that its incidence is higher in children from 1-12 years (WHO 2007) as children under 5 years of age experience about 1 to 3 episodes of diarrhea every year thus it supports the result. Children with liver abscesses constitute more than 79 per 100,000 pediatric admissions (<12 yrs age) as is revealed by the results (Toney *et al.*, 2008). Children under 15 years had the highest number of clinic visits for constipation (Wang *et al.*, 1989). Which make a correspondence with results. Age > 60 years Mortality is increasing with increasing age and is significantly higher in patients who are already admitted in hospital for co-morbidity. Results also show a lower incidence in pediatrics.

It is estimated that 35%–45% of all patients presenting with UGIB are over the age of 60. (Everhart *et al.*, 2009). Results also show a lower incidence in pediatrics. Increased by age to more than 30%. result also provide same concept (Hammam *et al.*, 2000). In most cases 3rd generation cephalosporins were prescribed, which is in accordance with the standard therapy for Enteric fever. Antibiotics specifically Ceftriaxone is prescribed as a prophylactic measure for the incidence of infectious diarrhea. Laxative is given for treating constipation which is also recommended by therapeutic standards. Diuretic (spironolactone) is given in order to lower abdominal fluids and Amoxicillin is prescribed for treating SBP which is a rational therapy as is supported by standard therapeutic regimen. The therapeutic regimen for liver abscess is appropriate regarding drug selection as is devised and supported by standard therapeutic guideline. The use of antibacterial (Co-amoxiclav) and verapamil are considered as a basic requirement for

treating infection and treating portal HTN which has a potential effect in its management. Dyspepsia is efficiently treated and patient was counseled regarding the use of Gluti-free. The weight of certain children was found to be lower than the normal weight for that individual thus making a significant impact of disease on individual's weight (Silverstein FE *et al.*, 1981)

CONCLUSION

Standard therapy considers 3rd generation cephalosporins as a 1st line regimen and macrolides as a 2nd line therapy for treating Enteric fever but in this setting in certain cases such recommendation is not followed and other antimicrobials are prescribed. In certain cases some drugs are prescribed without the consideration of their safety profile in children.

The doses that are prescribed in a few cases are either below or above the recommended doses; therefore dose adjustment in such cases is required in order to rationalize the course of therapy. There are well established drug-drug interactions b/w Ceftriaxone-Cefixime, Antacid-Fluroquinolone and Furosemide-NSAID's which requires a suitable management.

In some cases a significant number of medications are given to the patients without indication which potentiate the problem of toxic effects in patients and cost related issues. In almost all cases of diarrhea antibiotics (Ceftriaxone) is prescribed without the confirmation of infection. Diagnostic criteria (stool culture test) were not fulfilled in order to find out the exact etiology of infectious diarrhea. The use of Specific anti-diarrheals was not considered which make a progression towards irrational drug therapy.

Antibiotic is used in constipation while its use is not supported by any standard regimen in the treatment course of constipation. The doses of ampicillin, Gentamicin and ibuprofen prescribed at hospital were found to be lower than the recommended doses for such group ages, so there is a need of dose correction in such cases in order to have a rational prescription. No specific anti-inflammatory agent is given in case of hepatomegaly. Diagnostic tests (ultrasound, CT scan) were not considered while these are mandatory for the diagnosis of hepatomegaly. Vitamin supplements specifically vit-B should be advised to individuals suffering from hepatomegaly but here it is not taken into consideration. No specific anti-emetics were given for treating vomiting which was a hazard since birth. Omeprazole is given in the treatment of upper GIT bleeding but its use is not recommended in children.

Table 1. Distribution of patients upon incidence of disease

S#	Disease	Neonate (1-28 days)	Infant (1-12months)	Child (1-12 yrs)	Adolescet (12-18yrs)
1	Enteric fever	0	0	17	2
2	Diarrhea	0	0	4	0
3	Liver abscess	0	0	2	0
4	Constipation	0	1	0	0
5	Upper GIT bleeding	0	0	1	0
6	Ascites	0	0	1	0
7	Celia	0	1	0	0
8	Hepatomegaly	0	1	0	0

Table 2. Distribution of patients upon weight status

S#	Weight status	Frequency	%age
1	Normal	16	53.33
2	Underweight	14	46.66
Total on. Of patients		30	100

Table 3. Distribution Based Upon Drug Therapy And Their Frequencies

S#	Drugs prescribed	Frequency	%age
1	Antibiotics	29	96.6
i	Penicillins	4	13.3
	Ampicillin	1	3.25
	Amoxicillin	3	9.75
ii	Cephalosporins	22	73.3
	Ceftriaxone	19	63.3
	Cefotaxime	2	6.66
	Cefixime	1	3.33
iii	Aminoglycosides	2	6.66
	Amikacin	1	3.33
	Gentamicin	1	3.33
iv	Quinolones	1	3.33
	Ciprofloxacin	1	3.33
2	Analgesics & Antipyretics	22	73.33
	Paracetamol	10	33.33
	Ibuprofen	9	30
	Dexibuprofen	2	6.66
	Mefanamic acid	1	3.33
3	Antimalarials	10	33.33
	Quinine sulphate	10	33.33
4	Anti-TB	2	6.66
	Rifampicin	1	3.33
	Pyrazinamide	1	3.33
5	Antiviral	1	3.33
	Acyclovir	1	3.33
6	Diuretics	2	6.66
	Furosemide	1	3.33
	Spironolactone	1	3.33
7	Corticosteroids	3	10
	Dexamethasone	3	10
8	Multivitamins	7	23.33
9	Electrolytes & IV fluids	20	66.66
	Plabolyte-M	10	33.33
	Dextrose	10	33.33
10	Miscellaneous	23	76.66
	Total no of patients	30	100

CASE: 1**Age: 10 years. weight: 9 kg****Diagnosis:** Enteric fever with U T I and drug fever.**Chief complaints:** pyrexia -3 month, vomiting on/off, loss of appetits

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Syp:tres orix forte(Cyproheptadine Orotate 1.5mg/5ml, Carnitine Chlorhydrate 150mg/5ml, Lysine 150mg/5ml,vit B)1 Tsf TDS	Child 7–12 years: 1TSF TID(max 3 doses daily) Ref;drug manual 2010 page#198	Rational
2	Susp:brufen DS(Ibuprofen 5mg/100ml) 1TSF TDS [20mg TDS]	Ibuprofen:Child 8-12yr: 200mg (all 3-4 time daily) Ref;drug manual 2010 page#941	Dose is high than recommended dose.
3	Inf:Plabolyt –M(electrolyte/carbohydrate) 500ml 500ml TDS	Electrolyte/carbohydrate: The dose is dependent upon age,wt,clinical condition of the pt. Ref;drug manual 2010 p#905	Rational

Indications

1. Tres orix forte(Cyproheptadine Orotate 1.5mg/5ml, Carnitine Chlorhydrate 150mg/5ml, Lysine 150mg/5ml,vit B):: Used for loss of appetites.

2. Susp:brufen DS(Ibuprofen): Used for fever and pain.

3. Plabolyt –M (electrolyte/carbohydrate): For fluid and electrolyte replacement and as rehydrate solution.

Assessment: Susp: brufen DS Dose is higher than recommended dose.

Management: Susp:brufen DS Dose for Child 8-12yr should be 200mg (all 3-4 time daily).but the dose was prescribed according to the patient condition. **Prognosis:** Patient condition was improving.

CASE: 2**Age: 2 ½ years. Weight: 12 kg. Diagnosis:** enteric fever with ARI and UTI.**Chief complaints:** fever- 1month, abdominal pain-15days.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftral(ceftriaxone) 250mg I/V × B/D [20.8mg/kg B/D]	ceftriaxone:Children:20-50 mg/kg single dose; (max. 80mg /kg daily) (pharma guide 2011-12 p#672)	Rational
2	Sus. calpal(Paracetamol 120mg/5ml) 1TSF × TDS	Paracetamol:Child 1-5yr:125 mg every 4–6 hours as necessary (max. 4 doses in 24 hours) (drug manual 2010, page#489)	-do-
3	Inj:Quinine (Quinine sulphate 300mg/ml) 0.4cc 1/v TDS [25mg/kg/day]	Quinine sulphate Children:25mg/kg/day divid every 8 hour for 7 days. (drug manual 2010 Edi, p#683)	-do-
4	Inf. 1/2 Dextrose/Saline 250 ml × QID	According to need of patient condition.	-do-

Indications

(1) **Inj. ceftral(ceftriaxone):**for abdominal infections. (2) **Sus. calpal(Paracetamol):** Used for pain, fever. (3) **Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria. (4) **Dextrose/Saline:** For fluid and electrolyte replacement and as rehydrate solution. (5) **Prognosis:** Patient condition was improving.

CASE: 3**Age: 6 years. Weight: 15 kg. Diagnosis:** typhoid fever. **Chief Complaints:** Fever, vomiting, 2-3episodes of fits.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftral(ceftriaxone) 1.5g I/V × OD [100mg/kg OD]	Ceftriaxone:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) Ref; pharma guide 2011-12 p#672	Dose is higher than the recommended dose.
2	Inf.Plabolyte-M (per 100ml CaCl ₂ ,KCl,NaCl, sodium acetate,dextrose,H ₂ O) 300ml I/V × TID	Adult: 500-1000 ml at rate of 300-500 ml/hr. according to the patient condition (Ref;Pharma Guide 21 st Edition Page#862)	Rational
3	Susp:brufen (Ibuprofen 100mg/5ml) 1TSF TDS [100mg TDS]	Ibuprofen:Child 6-8yr:200mg every 6-8 hour if needed Ref;Pharma Guide 21 st Edition Page#483)	Dose is below the recommended dose.
4	Inj:Quinine (Quinine sulphate 300mg/ml) 0.5cc 1/v TDS [30mg/kg/day]	Quinine sulphate: Children 25mg/kg/daydivid every 8 hour for 7 days (drug manual 2010 Edi, p#683)	Rational

Indications

- Inj. Ceftriaxone (Ceftriaxone):** for abdominal infections. (2) **Inf. Plabolyte-M:** used as maintenance and rehydration solution. (3) **Susp: brufen (Ibuprofen):** Used for fever and pain. (4) **Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria. **Assessment.** 1:Inj. ceftriaxone(ceftriaxone): Dose is higher than the recommended dose. 2:Susp:brufen (Ibuprofen): Dose is below than the recommended dose.

Management

1: Inj. ceftriaxone (ceftriaxone) Dose should be 20-50 mg/kg single dose; (max. 80mg /kg daily.but the dose was prescribed according to the patient condition. 2: Susp: brufen (Ibuprofen) Dose should be 200mg (all 3-4 time daily) for Child 8-12yr.but the dose was prescribed according to the patient condition.

Prognosis

Patient condition was improving.

CASE: 4

Age: 4 years. Weight: 14kg. Diagnosis: enteric fever, malaria. **Chief complaints:** Fever, body aches.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftriaxone(Ceftriaxone) 1g I/V × OD [71.4mg/kg OD]	Ceftriaxone: Children 20-50 mg/kg single dose; (max. 80mg /kg daily) (pharma guide 2011-12, p#672)	Rational
2	Inj:Quinine (Quinine sulphate 300mg/ml) 0.5cc 1/v TDS [25mg/kg/day]	Quinine sulphate: Children 25mg/kg/day divided every 8 hour for 7 days. (drug manual 2010 Edi, p#683)	-do-
3	Susp:brufen DS(Ibuprofen 100mg/5ml)1TSF TDS [20mg TDS]	Ibuprofen:20 – 30 mg up to four times daily drug manual 2010 page#941	-do-
4	Inj:laxis(furosemide) 1cc After transfusion [1.6mg OD]	Furosemide:Children 0.5-1.5mg/kg slow IV (drug manual 2010 Edi,P#202)	-do-
5	Inf:Plabolyt –M(electrolyte/carbohydrate) 500ml 500ml TDS	The dose is dependent upon age, wt, clinical condition of the pt. Ref:drug manual 2010 page#905	-do-

Indications

- Inj. ceftriaxone(ceftriaxone):** for abdominal infections
- Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
- Susp:brufen DS(Ibuprofen):** Used for fever and pain
- Inj:laxis(frusemide):**for hypertentoin.
- Inf:Plabolyt –M(electrolyte/carbohydrate):** For fluid and electrolyte replacement and as rehydrate solution

Drug Related Problems

1: Drug Drug Interactions: lasix drug-drug interactions with NSAID.

Management: NSAIDS shouldn't be prescribed with lasix. **Prognosis:** Patient condition was improving.

CASE: 5

Age: 15 months. Weight: 8kg. Diagnosis: enteric fever, malaria, UTI, Reckit.

Chief complaints: Fever on/off with chill, recurrent attack of RTI.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj.Grasil(Amikacin) Aminoglycosid 60mg I/v BD [7.5mg/kg BD]	Amikacin:Children 7.5mg/kg every 12hr or 5mg/kg every 8hr max:1.5 gm/day (BNF 2011-12 p#784)	Rational
2	Sus:calpol(paracetamol 120mg/5ml) 1TSF TDS [120mg QID]	Paracetamol:Child 1–6 years 120-240 mg singl dose; Ref; BNF 2011-12p#1007	-do-
3	Inj: Quinine (Quinine sulphate 300mg/ml) 0.6cc 1/v TDS [37.5mg/kg]	Quinine sulphate:Children 25mg/kg/daydivid every 8 hour for 7 days drug manual 2010 Edition, page#683)	-do-
4	Inf. 1/2 Dextrose/Saline 250 ml × QID	According to need of patient condition.	-do-

Indications

1. **Inj.Grasis(Amikacin):**Aminoglycosid for bone and joint infectoin
2. **Sus:calpol(paracetamol):**for the treatment of mild to moderate pain and as antipyretic.
3. **Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
4. **Inf. 1/2 Dextrose/Saline:** used as maintenance and rehydration solution.

Assessment

Inj:Quinine (Quinine sulphate)Dose is higher than recommended dose.

Management: Inj. Quinine (Quinine sulphate) Dose should be 25mg/kg/day divide every 8 hour for 7 days but the dose was prescribed according to the patient condition. **Prognosis:** Patient condition was improving.

CASE: 6

Age: 13 years. Weight: 45 kg. Diagnosis: enteric fever, malaria. **Chief complaints:** Fever, headache, vomiting.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Novidate(ciprofloxacin) 200mg BD [4.4mg/kg BD]	Ciprofloxacin:Child 5-17years:20 mg/kg every 12 hours; (max. 750mg per dose) Ref, BNF 2011-12p#744	Dose is low than the recommended dose.
2	Inj. Quinine(Quinine sulphate 300mg/ml) 1.5cc 1/v TDS [30mg/kg/day]	Quinine sulphate:Children 25mg/kg/day divid every 8 hour for 7 days. (drug manual 2010 Edi, p#683)	Dose is high than the recommended dose.
3	Inj.Zantac(ranitidine) 50mg 2cc BD [0.5mg/kg BD]	Ranitidine:Over 2yr 2-4mg/kg BD(max:300mg daily) (Pharma Guide 20 th Edi, p#94)	Dose is low than the recommended dose.
4	Inj:Gravinate(Dimenhydrinate) 50mg 1cc TDS	Dimenhydrinate:Adults 50-100mg two or three time daily (Pharma Guide, 20 th Edi, p#112)	Rational
5	Inf. Plabolyte-M (per 100ml CaCl ₂ ,KCl,NaCl, sodium acetate,dextrose,H ₂ O) 50ml I/V × QID	Adult: 500-1000 ml at rate of 300-500 ml/hr. (Ref; Pharma Guide 21 st Edition Page#862)	-do-

Indications

1. **Inj. Novidate(ciprofloxacin):** used for treatment of GIT infection.
2. **Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
3. **Inj:Zantac(ranitidine):**reduction of gastric acid,and chronic episodic dyspepsia.
4. **Inj:Gravinate(Dimenhydrinate):**nausea and vomiting,motion sickness.
5. **Plabolyte-M:** used as maintenance and rehydration solution

Assesment

1:Inj. Novidate(ciprofloxacin): Dose is low than recommended dose.

2:Inj. Quinine(Quinine sulphate): Dose is high than the recommended dose.

3: Inj:Zantac(ranitidine): Dose is low than the recommended dose.

Management

1: Inj. Novidate(ciprofloxacin) Dose should be 20 mg/kg every 12 hours; (max. 750mg per dose) for Child 5-17years.but the dose was prescribed according to the patient condition.

2: Inj. Quinine Dose should be 25mg/kg/day divid every 8 hour for 7 days.but the dose was prescribed according to the patient condition.

3: Inj:Zantac Dose should be 2-4mg/kg BD(max:300mg daily) for Child Over 2yr .but the dose was prescribed according to the patient condition.

Drug Related Problems

1. **Drug -Drug Interactions:** *Antacids* May decrease oral absorption of fluoroquinolone

Prognosis: Patient condition was improving.

CASE: 7

Age: 9 years.Weight: 30kg. Diagnosis: enteric fever, p-vivax +tive. **Chief complaints:** Fever high grade with chill.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Aventriax(ceftriaxon) 1 gm I/V BD [66.6 mg daily]	Ceftriaxon:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Rational
2	Inj: Quinine (Quinine sulphate 300mg/ml) 1 cc 1/v TDS [30mg/kg/day]	Quinine sulphate:Children 25mg/kg/day divide every 8 hour for 7 days. drug manual 2010 Edi, p#683)	Dose is high than the recommended dose.
3	Syp:tercica(Dexibuprofen) 1 TSF p/o TDS	Dexibuprofen:In children not recomended Pharma Guide 20 th Edi, p#899)	not recommended for children

Indications

Inj. Aventriax(ceftriaxon): for abdominal infections. **Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria. **Syp:tercica(Dexibuprofen):** for mild to moderate pain. **Assesment:** Inj:Quinine (Quinine sulphate):Dose is high than recommended dose.

Management: Inj:Quinine Dose should be 25mg/kg/day divid every 8 hour for 7 days be for Children. But the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 8

Age: 7 years. Weight: 15 kg. Diagnosis: enteric fever, malaria.

Chief complaints: on/off high grade Fever associated with chill and swelling.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Aventriax(ceftriaxon) 1.5 gm I/V OD [100 mg/kg daily]	Ceftriaxon: Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Dose is high than the recommended dose.
2	Susp:brufen DS(Ibuprofen 100mg/5ml) 2TSF p/o TDS [200mg TDS]	Ibuprofen:Child 6-8yr: 200mg (every 6-8 hr if needed) (Pharma Guide 20 th Edi, p#928.	Rational
3	Inf.Plabolyte-M (per 100ml CaCl ₂ ,KCl,NaCl, sodium acetate,dextrose,H ₂ O) 500ml I/V × QID	Adult: 500-1000 ml at rate of 300-500 ml/hr. (Pharma Guide 21 st Edi,P#862)	-do-
4	Inj:Decadron(Dexamethasone) 4mg/ml ½ cc I/V state [133.3 mc/kg daily]	Children: 125 mc /kg daily every 6 hr for 4 days. (Pharma Guide 21 st Edi,P#574)	-do-
5	Inj:Avil(pheniramine maleat) 25mg/ml 1/2cc I/v state	Children over 4yr of age 0.8-2 ml IM once or twice daily. Pharma Guide,20 th Edi, P#1233)	-do-

Indications

- Inj. Aventriax(ceftriaxon):** for abdominal infections
- Susp:brufen DS(Ibuprofen):** Used for fever and pain
- Inf.Plabolyte-M:** used as maintenance and rehydration solution.
- Inj:Decadron(Dexamethasone):**for the treatment of swelling and *gastroenterology*
- Inj:Avil(pheniramine maleat):** for the treatment of swelling and allergic condition.

Assessment

Inj. Aventriax (ceftriaxon) Dose is higher than recommended dose.

Management

Inj. Aventriax(ceftriaxon) Dose should be 20-50 mg/kg single dose; (max. 80mg /kg daily). But the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 9

Age: 10years. Weight: 35 kg. Diagnosis: Enteric fever, malaria. **Chief complaints:** Fever, cough, abdominal pain.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Aventriax(ceftriaxon) 1 gm I/V OD [28 mg/kg daily]	Ceftriaxon:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Rational
2	Inj:Quinine (Quinine sulphate 300mg/ml) 1 cc I/v TDS [25mg/kg/day]	Quinine sulphate:Children 25mg/kg/day divid every 8 hour for 7 days. drug manual 2010 Edit, p#683)	-do-
3	Susp:brufen DS(Ibuprofen 100mg/5ml) 2TSF p/o BD [200mg BD]	Ibuprofen:Child 6-8yr: 200mg (every 6-8 hr if needed) Pharma Guide 20 th Edi, p#928.	-do-
4	Inf.Plabolyte-M (per 100ml CaCl ₂ ,KCl,NaCl, sodium acetate,dextrose,H ₂ O) 500ml I/V × QID	Adult: 500-1000 ml at rate of 300-500 ml/hr. (Pharma Guide 21 st Edition, Page#862)	-do-
5	Syp:Texilix (per 5ml:promethazin HCL 1.5mg,pholcodine 1.5mg,3.8%v/v absolute alcohol) 1TSF p/oTDS	Children 5-10: 1 TSF 2-3 time daily. (Ref, Pharma Guide,20 th Edition, Page#1207)	-do-

Indications

1. **Inj. Aventriax (ceftriaxon):** for abdominal infections
2. **Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
3. **Susp:brufen DS(Ibuprofen):** Used for fever and pain
4. **Inf.Plabolyte-M:**For fluid and electrolyte replacement and as rehydrate solution.
5. **Syp:Texilix:**use for cough in children.

Prognosis: Patient condition was improving.

CASE: 10

Age: 4 years. Weight: 12kg. Diagnosis: Enteric fever and malaria. **Chief complaints:** High grade Fever with chill.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Rocephin(ceftriaxone) 1gm I/V × OD [83mg/kg TDS]	Ceftriaxone:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Dose is high than the recommended dose.
2	Susp:brufen (Ibuprofen 100mg/5ml) TSF p/o TDS [100mg TDS]	Ibuprofen:Child 4-5yr: 150mg (every 6-8 hr if needed) (Pharma Guide 20 th Edi, p#928).	Dose is below than the recommended dose.
4	Inf.Plabolyte-M (per 100ml CaCl ₂ ,KCl,NaCl, sodium acetate,dextrose,H ₂ O) 250ml I/V × OD	Adult: 500-1000 ml at rate of 300-500 ml/hr. (Pharma Guide 21 st Edi,Page#862)	Rational

Indications

1. **Inj. Rocephin(Ceftriaxone):** for abdominal infections
2. **Susp:brufen (Ibuprofen):** Used for fever and pain
3. **Plabolyte-M:** used as maintenance and rehydration solution.

Assessment

1:Inj. Rocephin(Ceftriaxone) Dose is high than the recommended dose

2: Susp:brufen (Ibuprofen) Dose is below than the recommended dose

Management

1:Inj. Rocephin(ceftriaxone) Dose should be 20-50 mg/kg single dose; (max. 80mg /kg daily). but the dose was prescribed according to the patient condition.

2: Susp:brufen (Ibuprofen) Dose should be 150mg (every 6-8 hr if needed) for Child 4-5yr. but the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 11

Age: 3 years. Weight: 13kg. Diagnosis: Enteric fever. **Chief complaints:** Fever, vomiting, decrease appetite

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Claforan (Cefotaxime) 500mg I/V × TDS [38mg/kg TDS]	Cefotaxime:Child 1 month–18 years 50 mg/kg every 8–12 hours; (max. 12 g daily) Ref: BNF 2011-12p#269	Dose is below than recommended dose.
2	Syp:tercica(Dexibuprofen) 1 TSF p/o TDS	In children not recommended Pharma Guide 20 th Edi, p#899)	not recommended for children
3	Syp:Enrich(diastase 135mg,pepsin 50mg,vit B,nicotinamide 20mg,Ca d-pantothenate 1mg) 1 TSF p/o × BD	Children:1 to 2 TSP (Pharma Guide, 21 st edition, page#158)	Rational

Indications

1. **Inj. Claforan (Cefotaxime):** for the treatment of intra-abdominal infection.
2. **Syp:tercica(Dexibuprofen):** for mild to moderate pain
6. **Syp:Enrich:**for the treatment of appetite

Assessment: Inj. Claforan (Cefotaxime): Dose is below than recommended dose.

Management: Inj. Claforan (cefotaxime): Dose should be 50 mg/kg every 8–12 hours; (max. 12 g daily) for Child 1 month–18 years, but the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 12

Age: 6 years. Weight: 16 kg. Diagnosis: Enteric fever, malaria.

Chief complaints: Fever with chill, vomiting, epigastric pain.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Aventriax(ceftriaxon) 1 gm I/V OD [28 mg/kg daily]	Ceftriaxon:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Rational
3	Inf.Plabolyte-M (per100ml CaCl ₂ , KCl, NaCl, sodium acetate, dextrose, H ₂ O) 500ml I/V × QID	Adult: 500-1000 ml at rate of 300-500 ml/hr. (Pharma Guide 21 st Edi,P#862)	-do-
4	Susp:Panadol (Paracetamol) (120 mg Paracetamol/5 ml) 1 TSF× TDS	Paracetamol: 60 – 120 mg in children 1 to 6 year. Max; 4 doses per day. (Pharma Guide,20 th Edi, P#1207)	-do-

Indications

- Inj. Aventriax(ceftriaxon):** for abdominal infections
- Inf.Plabolyte-M:** used as maintenance and rehydration solution.
- Susp:Panadol (Paracetamol):** used as antipyretic.

Prognosis: Patient condition was recovered now.

CASE: 13

Age: 8 years. Weight: 20kg.

Diagnosis: Enteric fever, malaria. **Chief complaints:** Fever, decrease appetite, vomiting.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Cefrol (ceftriaxone) 1g I/V × OD [50mg/kg OD]	Ceftriaxone: Children 20-50 mg/kg single dose; (max. 80mg /kg daily) (pharma guide 2011-12 p#672)	Rational.
2	Inj:Quinine (Quinine sulphate 300mg/ml) 0.7cc 1/v TDS [31.5mg/kg/day]	Quinine sulphate:Children 25mg/kg/daydivid every 8 hour for 7 days. (drug manual 2010 Edi, p#683)	Dose is high than recommended dose.
3	Susp:brufen DS (Ibuprofen 100mg/5ml) 1TSF TDS [15mg TDS]	Ibuprofen:20 – 30 mg up to four times daily (drug manual 2010 page#941)	. Dose is low than recommended dose.
4	Sys:lysovit(B vitamins) 1 TSF BD	B vitamins:Children 1 TSF daily (Pharma Guide 21 st Edi, P#862)	Rational
5	Inj:fixitil(cefixime) 200mg BD [20mg/kg/day]	Cefixime: Children 6-12 mg/kg/ day in two divided dose BNF 2011-12, p#483.	Dose is high than the recommended dose.
6	Tab:Folic acid 1 tab OD	Folic acid:1 to 2 tab daily pharma guide 2011-12 p#299	Rational.
7	Inf. 1/2 Dextrose/Saline 500 ml × QID	According to need of patient condition.	-do-
8	Ing:Multibionta (multi vitamin) 1cc I/v OD	Multi vitamin: Inf One amp Ref: pharma guide 2011-12 p#202	-do-

Indications

- Inj. ceftrol(ceftriaxone):** for abdominal infections
- Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
- Susp:brufen DS(Ibuprofen):** Used for fever and pain
- Sys:lysovit(B vitamins):**deficiencies of B vitamins.
- Inj:fixitil(cefixime):**for the treatment of intra-abdominal infection.
- Tab:Folic acid:**for prevention and treatment of iron deficiency anaemia.
- Inf. 1/2 Dextrose/Saline:** used as maintenance and rehydration solution.
- Ing:Multibionta (multi vitamin):**vitamin deficiencies.

Assessment

1: Inj:Quinine (Quinine sulphate): Dose is high than recommended dose.

2: Susp:brufen DS(Ibuprofen): Dose is low than recommended dose.

Management

1:Inj:Quinine Dose should be 25mg/kg/daydivid every 8 hour for 7 days. but the dose was prescribed according to the patient condition.

2: Susp:brufen DS Dose should be 20 – 30 mg up to four times daily. but the dose was prescribed according to the patient condition.

Drug Related Problems

Drug Drug Interactions: Inj. ceftriaxone(ceftriaxone) incompatibilities with Other antimicrobial drugs.i.e cefixime.other antimicrobial drug such as cefixime should not be prescribed.

Prognosis: Patient condition was improving.

CASE: 14

Age: 7 years. Weight: 20kg.

Diagnosis: Enteric fever, Non focal pyrexia.

Chief complaints: Continuous high grade fever with rigors and chills.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftriaxone(ceftriaxone) 1.5g I/V × OD [75mg/kg OD]	Ceftriaxone:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Rational
2	Inj:Quinine (Quinine sulphate 300mg/ml) 1 cc 1/v TDS [45mg/kg/day]	Quinine sulphate: Children 25mg/kg/day divid every 8 hour for 7 days. (drug manual 2010 Edi, p#683)	Dose is high than the recommended dose.
3	Sus:calpol 6 plus (paracetamol 250mg/5ml) 1TSP QID [250mg QID]	Paracetamol: Child 6–12 years 240-480mg singl dose; BNF 2011-12p#1007	Rational
4	Inf. 1/2 Dextrose/Saline 500 ml I/V× TDS	According to need of patient condition.	-do-
5	Ing: Multibionta (multi vitamin) 1cc I/v OD	Multi vitamin: Inf:One amp pharma guide 2011-12 p#202	-do-

Indications

1. **Inj. ceftriaxone(ceftriaxone):** for abdominal infections
2. **Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
3. **Sus:calpol 6 plus (paracetamol):**for the treatment of mild to moderate pain and as antipyretic.
4. **Inf. 1/2 Dextrose/Saline:** used as maintenance and rehydration solution.
5. **Ing:Multibionta (multi vitamin):**vitamin deficiencies.

Assessment

Inj:Quinine (Quinine sulphate): Dose is high than recommended dose.

Management

Inj:Quinine Dose should be 25mg/kg/daydivid every 8 hour for 7 days. But the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 15

Age: 13 months. Weight: 8.5kg. Diagnosis: Enteric fever, malaria, nutritional anemia.

Chief complaints: Fever with chill, mouth ulcers.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Rocephin (ceftriaxone) 750gm I/V × OD [88mg/kg TDS]	Ceftriaxone: Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Dose is high than the recommended dose.
2	Susp:brufen(Ibuprofen 100mg/5ml) TSP p/o TDS [100mg TDS]	Ibuprofen:Child 4-5yr: 150mg (every 6-8 hr if needed) (Pharma Guide 20 th Edi, p#928.	Rational
3	Syp:Acylex(Acyclovir) 200mg/5ml ½ TSP p/o TDS [100mg TDS]	Acyclovir: Children under 2 yr 100mg. 2 to 3 time daily (Pharma Guide 20 th Edi, page#806.	-do-
4	Daktarin oral gel (Miconazol nitrate) 20mg 1TSP p/o QID	Miconazol nitrate:Children 1/2 measuring spoon 4 time daily Pharma Guide 20 th Edi, page#18.	-do-

Indications

1. **Inj. Rocephin(ceftriaxone):** for abdominal infections
2. **Susp:brufen (Ibuprofen):** Used for fever and pain

3. **Syp:Acylex(Acyclovir)**:used for herpes simplex,varicella- zoster infections.

4. **Daktarin oral gel (Miconazol nitrate)**:fungal infection of oropharyngeal cavity and GI

Acylex (Acyclovir):ointment is also available

Assessment: Inj. Rocephin(ceftriaxone): Dose is high than the recommended dose.

Management: Inj. Rocephin Dose should be 20-50 mg/kg single dose; (max. 80mg /kg daily). But the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 16

Age: 10year. Weight: 25kg.

Diagnosis: Liver abscess, salmonella.

Chief complaints: Fever, cough, vomiting.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj.Tefno(ceftriaxone) 1 g I/V × OD [40mg/kg OD]	Ceftriaxone:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) (pharma guide 2011-12 p#672)	Rational
2	Susp:brufen (Ibuprofen 100mg/5ml) 2TSF TDS [200mg TDS]	Ibuprofen:Child 9-10yr:250mg every 6-8 hour if needed; Pharma Guide 21 st Edition Page#928)	Dose is low than the recommended dose.
3	Syp:Texilix (per 5ml:promethazin HCL 1.5mg,pholcodine 1.5mg,3.8%v/v absolute alcohol) 1TSF p/oTDS	Texilix:Children 5-10 1 TSF 2-3 time daily. (Pharma Guide,20 th Edition, Page#1207)	Rational
4	Inj:Gravinate(Dimenhydrinate) 50mg 1/2cc TDS	Dimenhydrinate:Adults 50-100mg tow or three time daily (Pharma Guide, 20 th Ed 2007, p#112)	-do-
5	Syp:tres orix forte (Cyproheptadine Orotate 1.5mg/5ml, Carnitine Chlorhydrate 150mg/5ml, Lysine 150mg/5ml,vit B) 1 Tsf BD	Tres orix:Child 7-12 years: 1TSF TID(max 3 doses daily) Ref;drug manual 2010 page#198	-do-

Indications

1. **Inj.Tefno(ceftriaxone)**: for abdominal infections
2. **Susp:brufen (Ibuprofen)**: Used for fever and
3. **Syp:Texilix**:use for cough in children.
4. **Inj: Gravinate(Dimenhydrinate)**:nausea and vomiting,motion sickness.
5. **tres orix forte(Cyproheptadine Orotate 1.5mg/5ml, Carnitine Chlorhydrate 150mg/5ml, Lysine 150mg/5ml,vit B)**:: Used for loss of appetits

Assessment

Susp: brufen (Ibuprofen): Dose is low than the recommended dose.

Management

Susp:brufen Dose should be 20 – 30 mg up to four times daily. but the dose was prescribed according to the patient condition

Prognosis: Patient condition was improving.

CASE: 17

Age: 11years. Weight: 29 kg. Diagnosis: liver abscess, UTI polynephritis.

Chief complaints: pain in right flank.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ampicillin(ampicillin) 500mg I/V × TDS [51mg/kg TDS]	Ampicillin: Child 50mg/kg every 6 hrs (BNF 2007 add p#306)	Dose is bellow than the recommended dose.
2	Inf.Plabolyte-M (per 100ml CaCl ₂ ,KCl,NaCl, sodium acetate,dextrose,H ₂ O) 100ml I/V × QID	Plabolyte-M:Adult 500-1000 ml at rate of 300-500 ml/hr. (Pharma Guide 21 st Edi, Page#862)	Rational
3	Ing:gentacin(gentamycin) 50mg BD [1.7 mg/kg BD]	Gentamycin:Child 2.5mg/kg every 8 hrs (BNF 2007 add p#325)	Dose is bellow than the recommended dose.

Indications

1. **Inj. ampicillin(ampicillin)**: for the treatment of UTI,gonorrhea and salmonellosis.
2. **Inf.Plabolyte-M**: used as maintenance and rehydration solution.

3. Ing:gentacin(gentamycin): for the treatment of biliary trac infection.

Drug Related Problems

Drug Drug Interactions: *Tetracyclines:* May impair bactericidal effects of ampicillin. Should not mix with aminoglycosides (eg, gentamicin).

Assessment:1: Inj. ampicillin(ampicillin): Dose is bellow than the recommended dose.

2: Ing:gentacin(gentamycin): Dose is bellow than the recommended dose.

Management:1:Inj. Ampicillin Dose should be 50mg/kg every 6 hrs. but the dose was prescribed according to the patient condition.

2: Ing:gentacin Dose should be 2.5mg/kg every 8 hrs. but the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 18

Age:5 months. Weight: 3.5kg.

Diagnosis: moderate PCM with wasted Hepatomegaly.

Chief complaints: difficulty in breathing and cough,vomiting after feeding.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj:Augmentin(Co amoxiclav) 100mg I/v x TDS [28mg/kg TDS]	Co amoxiclav:Child 20-30 mg/kg TDS (BNF 2007 add p#305)	Rational
2	Syp:Calan(Verapamil)2.5mg 1 TSF x TDS	Verapamil:Children 2.5 mg TDS. (Pharma Guide 21 st Edi,P#387)	-do-
3	Panadol (paracetamol) ½ Drop TDS [90mg TDS]	paracetamol:Child 60-120mg every 4 to 6 hrs(max 4 doses in 24 hrs) (BNF 2007 add p#243)	-do-

Indications

1. **Inj:Augmentin(Co amoxiclav):** for the treatment of infections caused amoxicillin resistant bacteria.

2. **Syp:Calan:** for the treatment of tachycardia and hypertention.

3. **Panadol (paracetamol):** for the treatment of pyrexia.

Prognosis: Patient condition was improving.

CASE:19

Age:10 years. Weight: 25 kg. Diagnosis: Ascities,chronic liver diseases.

Chief complaints: abdominal distension.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Tab:Spiromide(spirolacton + frusemide) 20mg 1 tab OD [1mg/kg OD]	Spirolacton + frusemide: Child 1 to 3 mg/kg daily., (BNF 2007 add p#105)	Rational
2	Syp:Amoxicillin(Amoxicillin) 250 mg TDS [250 TDS]	Amoxicillin:Child:250 mg TDS Ref; BNF 2011-12p#305	-do-

Indications

1:**Tab:Spiromide(spirolacton + frusemide):** for the treatment of Ascitie.

2: **Syp:Amoxicillin(Amoxicillin):** for the treatment of SBP.

Prognosis: Patient condition was improving.

CASE: 20

Age:18 months. Weight: 9 kg. Diagnosis: Upper GIT bleeding.

Chief complaints: Fever, hametamesis, difficulty in breathing.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Amoxil (Amoxicillin) 250mg I/V × TDS [28mg/kg TDS]	Amoxicillin:Child 1 month–18 years: 20–30 mg/kg (max. 500 mg) every 8 hours; dose doubled in severe infection (max. 4 g daily) (BNF 2011-12 p#261)	Rational
2	Inf. Risech (Omeprazol) 20mg I/V × OD	Omeprazol:adult 40 mg Child: Not recommended (Pharma Guide 21 st Edi.Page#862)	Not recommended drug

Indications

1. **Amoxil(Amoxicillin):** Susceptible infections, sinusitis, uncomplicated community- acquired pneumonia, oral infections.

2. Inf. Risech(Omeprazol):major peptic ulcer bleeding, Prophylexis of acid aspiration..**Drug Related Problems**

Inf. Risech(Omeprazol) is Not recommended in Child

Prognosis: Patient condition was improving.**CASE:21****Age: 2months. Weight:3 kg. Diagnosis:** Celia.**Chief complaints:** vomiting which is projectile in nature since birth.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Syp:Gaviscon(sodium alginate 500mg,CaCO ₃ 160mg, NaCO ₃ 267mg) P/O BD	Syp:Gaviscon: Child 5-10 ml after meal and night. (BNF 2011-12 p#26)	Rational

Indications**1:Syp: Gaviscon:** for treatment of dyspepsia due to reflux oesophagitis.**Prognosis:** Patient condition was improving.**CASE:22****Age: 5 ½ months. Weight: 7.2 kg.****Diagnosis:** Acute or chronic Diarrhoea. **Chief complaints:** Fever, vomiting, loose motion and cough.

	Hospital Treatment	Standard treatment Guidelines	Comments
2	Inj. Claforan (cefotaxime) 250mg I/V × TDS [35mg/kg TDS]	Cefotaxime:Child 1 month–18 years 50 mg/kg every 8–12 hours; (max. 12 g daily) BNF 2011-12p#269	Dose is below than the recommended dose.
3	Panadol (paracetamol) ½ TSF TDS [60mg/kg TDS]	Paracetamol:Child 60-120mg every 4 to 6 hrs(max 4 doses in 24 hrs) (BNF 2007 add p#243)	Rational
4	Syp: Zincat (zinc sulfat monohydrate)10mg/5ml ½ TSF x TID [1.38 mg/kg/day]	Syp:Zincat:Child 1.35-2.70mg/kg/day Divided in 1-3 times daily. Ref; pharma guide 2011-12 p#252	-do-

Indications

- 1. Claforan (cefotaxime):** for the treatment of lower respiratory tract infection and intra-abdominal infection.
- 2. Panadol (paracetamol):** for the treatment of pyrexia.
- 3. Syp:Zincat:**for treatment and prevention of Zinc deficiency state(e.g excessive prolonged diarrhea.

Assessment: Inj. Claforan (cefotaxime)Dose is higher than recommended dose.**Management:** Claforan Dose should be 50 mg/kg every 8–12 hours; (max. 12 g daily) for Child 1 month–18 years, but the dose was prescribed according to the patient condition.**Prognosis:** Patient condition was improving.**CASE:23****Age:7 months. Weight:5.5 kg. Diagnosis:** Constipation. **Chief complaints:** difficulty in stool.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftrol(ceftriaxone) 500mg I/V × OD [90mg/kg OD]	Ceftriaxone: Children 20-50 mg/kg single dose; (max. 80mg /kg daily). pharma guide 2011-12p#672	Dose is high than therecommended dose.
2	Syp:Zincat(zinc sulfat monohydrate)10mg/5ml ½ TSF x TID [2.7 mg/kg/day]	Syp:Zincat:Child1.35-2.70mg/kg/day Divided in 1-3 times daily. pharma guide 2011-12p#252	Rational
3	Syp:Actidil(triprolidine) 1.25mg/5ml ½ TSF x BD	Syp:Actidil:Child 2-5ml TDS (Pharma Guide 20 th Edition, page#1234)	-do-
4	Cream:Nedax plus(permethrin 5%)	Cream:Nedax plus:Apply Once to Whole body excluding head and face. (Pharma Guide, 20 th Edi, p#1140)	-do-
5	Syp.LAXOBERON(lactulose) 2TSF BD	Lactulose 1TSF TDS	-do-

Indications

- 1. Inj. ceftrol(ceftriaxone):**for abdominal infections
- 2. Syp:Zincat:**for treatment and prevention of Zinc deficiency state(e.g excessive prolonged diarrhea.
- 3. Syp:Actidil(triprolidine):**for treatment allergic conditions.
- 4. Cream:Nedax plus(permethrin 5%):**for treatment of scabies.

5. Syp.lexoberon (lactulose). Laxative**Prognosis:** Patient condition was improving.**CASE: 24****Age: 3 years. Weight: 15 kg.****Diagnosis:** chronic diarrhea, malaria.**Chief complaints:** high grade fever with chill, diarrhea since long on off.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftriaxone(ceftriaxone) 1 gm I/V × OD [66.6mg/kg OD]	Ceftriaxone:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) Ref; pharma guide 2011-12 p#672	Rational
2	Inj:Quinine (Quinine sulphate 300mg/ml) 0.5cc 1/v TDS [30mg/kg/day]	Quinine sulphate: Children 25mg/kg/daydivid every 8 hour for 7 days (Ref; drug manual 2010 Edition, page#683)	-do-
3	Susp:brufen (Ibuprofen 100mg/5ml) 1TSF TDS [100mg TDS]	Ibuprofen:Child 3-7yr:100mg every 6-8 hour if needed Ref;Pharma Guide 21 st Edition Page#483)	-do-
4	Inf. 1/5 th Dextrose/Saline 300 cc × TDS	Dextrose/Saline:According to need of patient condition.	-do-

Indications

- Inj. ceftriaxone(ceftriaxone):** for abdominal infections
- Inj:Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
- Susp:brufen (Ibuprofen):** Used for fever and pain
- Dextrose/Saline:** For fluid and electrolyte replacement and as rehydrate solution.

Prognosis: Patient condition was improving.**CASE: 25****Age: 2 ½ years. Weight: 7.4 kg. Diagnosis:** Diarrhea, Post measles, LRTI.**Chief complaints:** measles-one month back,has loose motion and vomiting.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftriaxone(ceftriaxone) 500mg I/V × OD [67.56mg/kg OD]	Ceftriaxone:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Rational
2	Inf:Flagyl(Metronedazol) 10ml I/V x TDS [7 mg/kg TDS]	Metronedazol:Children 7.5 mg/kg 8 hourly I/V infusion then oral therapy. pharma guide 2011-12 p#1110	-do-
3	Syp:PZA-ciba(pyrazinamide) 250mg/5ml OD [33.7 mg/kg/day]	Pyrazinamide:Children 15-30mg/kg daily in divided dose (max.2gm daily) Pharma Guide 20 th Edi, p#800)	Dose is high than the recommended dose.
4	Syp:Rifapin-H(Rifampicin) 100mg/5ml 1 TSF p/o OD [14mg/kg/day]	Rifampicin:Children up to 20mg/kg/day (max:600mg OD) (Pharma Guide, 20 th Edi, p#801)	Rational
5	Syp:Zincol(zinc sulphate monohydrate) 20mg/60ml 1 TSF p/o OD [2.7mg/kg OD]	Syp:Zincol:Child 1 month-18 years 0.5-1 mg/kg elemental zinc twice daily. adjusted as necessary	-do-
6	Syp:Ponstan(Mefinamic acid) 100mg/5ml ½ TSF TDS [50mg TDS]	Mefinamic acid:Children:2-4 yr 100mg three time a day. (Pharma Guide, 20 th Edi, p#1007)	Dose is low than the recommended dose.
7	Syp:Eplacherry(tonic/vitamin) ½ TSF BD	Syp:Eplacherry:Children 1/2 to 1 TSF 4 time daily. Before meals and bed time Pharma Guide, 20 th Edi, p#253)	Rational
8	Tab:Folic acid ½ tab OD	Tab:Folic acid:1 to 2 tab daily pharma guide 2011-12 p#299	Dose is low than the recommended dose.
9	Inj:Gravinate(Dimenhydrinate) 50mg 1cc TDS	Dimenhydrinate:Adults 50-100mg two or three time daily (Pharma Guide, 20 th Edi, p#112)	Rational
10	Inj:Zantac(ranitidine) 50mg 1/2cc BD [3.34mg/kg BD]	Ranitidine:Over 2yr 2-4mg/kg BD(max:300mg daily) Pharma Guide 20 th Edition, p#94)	-do-

Indications

1. **Claforan (cefotaxime):** for the treatment of lower respiratory tract infections.
2. **Inf:Flagyl(Metronedazol):** for the treatment of anaerobic pathogens, amoebic dysentery.
3. **Syp:PZA-ciba(pyrazinamide):** for the treatment of tuberculosis.
4. **Syp:Rifapin-H(Rifampicin):** for the treatment of tuberculosis.
5. **Syp: Zincol (zinc sulphate monohydrate):** for the treatment Zinc deficiency.
6. **Syp: Ponstan(Mefinamic acid):** for the treatment of mild to moderate pain.
7. **Syp: Eplacherry (tonic/vitamin):** for loss of weight.
8. **Tab: Folic acid:** for prevention and treatment of iron deficiency anaemia.
9. **Inj: Gravinat (Dimenhydrinate):** nausea and vomiting, motion sickness.
10. **Inj: Zantac (ranitidine):** reduction of gastric acid, and chronic episodic dyspepsia.

Prognosis: Patient condition was improving.

CASE: 26

Age: 3years. Weight: 11 kg

Diagnosis: chronic Diarrhea, Celiac disease. **Chief complaints:** Diarrhea, fever, abdominal pain.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Syp:Lysovit(vit B1,B2,B6,B12,inositol 30mg,vit c 450mg,niacinamide 100mg, lysine monohydrate 200mg) 2 TSF BD	Syp:Lysovit:Child:1 TSF daily Pharma Guide,20 th Edition, Page#221)	The dose is high than that of the recommended dose.
2	Gluten free Diet		

Indications

1: Syp:Lysovit: Deficiencies of B vitamins.

Assessment

Syp: Lysovit Dose is higher than recommended dose

Management

Syp:Lysovit Dose should be 1 TSF daily for Child. but the dose was prescribed according to the patient condition.

Prognosis: Patient condition was recovered now.

CASE:27

Age: 9 ½ yr. Weight: 22 kg. Diagnosis: Enteric fever. **Chief complaints:** Fever, Riger and chill.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj:Titan(ceftriaxone) 1 I/V × B/D [45.5mg BD]	Ceftriaxone: Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Dose is high than the recommended dose.
2	Inj:Decadron(Dexamethasone) 4mg/ml ½ cc I/V state [90.9 mc/kg daily]	Dexamethasone: Children 125 mc /kg daily every 6 hr for 4 days. Pharma Guide 21 st Edit,P#574)	Rational
3	Inf. 1/2 Dextrose/Saline 500 ml × TDS	Dextrose/Saline: According to need of patient condition.	-do-
4	Ing:Multibionta (multi vitamin) 2cc I/v OD	Multi vitamin: Inf:One amp Ref; pharma guide 2011-12 p#202	-do-
5	Sus:calpol 6 plus(paracetamol 250mg/5ml) 1TSF QID [250mg QID]	Paracetamol:Child 6–12 years 240-480mg singl dose; BNF 2011-12p#1007	-do-
6	Syp:Benadryl (Diphenhydramine 13.5mg,Amonium chloride 131.5mg,sodium citrate 55mg,menthol 1mg,chloroform 22mg) 1TSF TDS	Syp:Benadryl:1 to2 TSF 3-4 time daily. (Pharma Guide, 21 st edi, p#1188)	-do-

Indications

1. **Inj:Titan (ceftriaxone):** for abdominal infections
2. **Inj:Decadron(Dexamethasone):** for the treatment of swelling and *gastroenterology*
3. **Dextrose/Saline:** For fluid and electrolyte replacement and as rehydrate solution.
4. **Ing:Multibionta (multi vitamin):** vitamin deficiencies.
5. **Sus:calpol 6 plus (paracetamol):** for the treatment of mild to moderate pain and as antipyretic.
6. **Syp:Benadryl:** Cough, bronchial Congestion.

Assessment

Inj: Titan (ceftriaxone) Dose is higher than recommended dose

Management

Inj: Titan (ceftriaxone) Dose should be 20-50 mg/kg single dose; (max. 80mg /kg daily). but the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 28

Age: 3 years. Weight: 13 kg.

Diagnosis: Enteric Fever, Malaria. **Chief complaints:** Fever, Rigors and chills, with cough.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. Aventriax (ceftriaxon) 1 gm I/V OD [7.6 mg/kg daily]	Ceftriaxon: Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Rational
2	Inj: Quinine (Quinine sulphate 300mg/ml) 0.5cc 1/v TDS [34.6mg/kg/day]	Quinine sulphate: Children 25mg/kg/day divid every 8 hour for 7 days (drug manual 2010 Edi, p#683)	Dose is higher than recommended dose.
3	Susp: brufen (Ibuprofen 100mg/5ml) 1TSF TDS [100mg TDS]	Ibuprofen: Child 3-7yr: 100mg every 6-8 hour if needed Pharma Guide 21 st Edition Page#483)	Rational
4	Inf. 1/5 th Dextrose/Saline 500 ml × TDS	Dextrose/Saline: According to need of patient condition.	-do-

Indications

- Zinacef:** use for respiratory tract and soft tissues infections.
- Inj: Quinine (Quinine sulphate):** for the treatment chloroquin-resistant falciparum malaria
- Susp: brufen (Ibuprofen):** Used for fever and
- Dextrose/Saline:** For fluid and electrolyte replacement and as rehydrate solution

Assessment: Inj: Quinine (Quinine sulphate) Dose is higher than recommended dose.

Management: Inj: Quinine Dose should be 25mg/kg/day divid every 8 hour for 7 days. but the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving.

CASE: 29

Age: 5 years. Weight: 15 kg. Diagnosis: Enteric fever.

Chief complaints: Fever, constipation, loss of appetite.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftrol (ceftriaxone) 1.5mg I/V × TDS [100mg/kg TDS]	Ceftriaxone: Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Dose is higher than the recommended dose.
2	Inf. Plabolyte-M (per 100ml CaCl ₂ , KCl, NaCl, sodium acetate, dextrose, H ₂ O) 100ml I/V × QID	Inf. Plabolyte-M: Adult 500-1000 ml at rate of 300-500 ml/hr. (Ref; Pharma Guide 21 st Edition Page#862)	Rational

Indications

- Inj. Ceftral (ceftriaxon):** for abdominal infections
- Plabolyte-M:** used as maintenance and dehydration solution.

Assessment

Inj. ceftrol (ceftriaxon) Dose is higher than recommended dose.

Management

Inj. ceftrol (ceftriaxon) Dose should be 20-50 mg/kg single dose; (max. 80mg /kg daily). but the dose was prescribed according to the patient condition.

Prognosis: Patient condition was improving, just complaining of body aches.

CASE: 30**Age: 8 years. Weight: 19kg. Diagnosis:** Enteric fever.**Chief Complaints:** Fever, Abdominal pain, Rigors and chills.

	Hospital Treatment	Standard treatment Guidelines	Comments
1	Inj. ceftriaxone 1g I/V × B/D [52mg/kg B/D]	Ceftriaxone:Children 20-50 mg/kg single dose; (max. 80mg /kg daily) pharma guide 2011-12 p#672	Rational
2	Inj:Decadron(Dexamethasone) 4mg/ml ½ cc I/V QID [80 mc/kg daily]	Dexamethasone:Children 125 mc /kg daily every 6 hr for 4 days. (Pharma Guide 21 st Edi,P#574)	-do-
3	Syp:Benadryl(Diphenhydramine 13.5mg,Amonium chloride 131.5mg,sodium citrate 55mg,menthol 1mg,chloroform 22mg) 1TSP TDS	Syp:Benadryl:1 to2 TSP 3-4 time daily. (Pharma Guide, 21 st edition, page#1188)	-do-
4	Inf. 1/2 Dextrose/Saline 500 ml × TDS	Dextrose/Saline:According to need of patient condition.	-do-
5	Sus:calpol 6 plus(paracetamol 250mg/5ml) 1TSP QID [250mg QID]	Paracetamol: Child 6–12 years 240-480mg singl dose; Ref: BNF 2011-12p#1007	-do-

Indications

- Inj. ceftral(ceftriaxon):**for abdominal infections
- Inj:Decadron(Dexamethasone):**for the treatment of swelling and *gastroenterology*
- Syp: Benadryl:** Cough, bronchial Congestion.
- Dextrose/Saline:** For fluid and electrolyte replacement and as rehydrate solution.
- Sus:calpol 6 plus (paracetamol):**for the treatment of mild to moderate pain and as antipyretic.

Prognosis: Patient condition was improving.**REFERENCES**

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