

Fahim's

AIDS TO PAEDIATRICS

How to use this?

You can access any topic from the content. Just touch/click.

By

Dr. Fahim Ahmad

MBBS, MD(Paediatrics)

Department of Pediatrics

Mymensingh Medical College Hospital

Contents

Fluid Requirements	3
Types of Fluid	3
According to Weight	3
Severe Acute Malnutrition (SAM)	4
Pneumonia	5
Bronchiolitis	5
Severe Acute Asthma	6
OPC Poisoning	6
Kerosene Poisoning	7
Nephrotic Syndrome	7
Investigations: For nephrotic syndrome 1st attack:	8
Investigation: For relapse cases:	8
specific Rx for Initial Attack:	8
Specific Rx for Relapse Case:	8
AGN	9
Status Epilepticus	10
Meningitis/Encephalitis/Cerebral Malaria	10
Febrile Convulsion	11
CSF study in febrile Seizure: Indications	11
Diarrhea	12
With some dehydration:	12
With severe dehydration	12
TUBERCULOSIS	13



FLUID REQUIREMENTS

Age	(ml/Kg/Day)
D ₁	60
D ₂	80
D ₃	100
D ₄	120
D ₅	140
D ₆₋₇	150
Upto 9 months	150-160
upto 12 months	120-150
upto 2 yrs	100-120
upto 4 yrs	90-100
upto 8 yrs	70-90
upto 12 yrs	60-70

+20 ml if Preterm

According to Weight

100ml/Kg for 1st 10Kg+
50ml/Kg for next 10Kg+
20ml/Kg for rest

Types of Fluid

D₁₋₂ 10% DA

D_{3-1 year} 5%-10% DA in 0.225% NS

1-10 yrs 5% dextrose in 0.45% NS
e.g. Libott-S Jr

>10 yrs 5-10% DA in 0.9% NaCl (DNS)



SEVERE ACUTE MALNUTRITION (SAM)

In 6-60 months:

Indicator	Measure	Cut-off
Severe Wasting	Wt-for-Height	<-3SD
Do	MUAC	<115mm
Bilateral edema	Clinical sign	

In <6 months:

- Visible wasting.
- Weight for Height Median (WHM) <70% or <-3 SD
- Bipedal edema

Any one is diagnostic.

1. **Inf. 10% DA** 50 ml PO/by NG tube or 5ml/Kg IV Stat.
2. **Feeding:** F-75 as per WHO chart. Or using homemade formula.

Total protein should be 0.9gm/kg/day if there is edema & 1.5gm/kg/d if there is no edema.

Total food: 100ml/Kg/D = 75Kcal/Kg/D. (may be upto 130ml/kg/d without edema)
 15% from milk (1 tsf = 20 Kcal); (1 tsf milk = 1 gm protein)
 60% from Sugar (1 tsf= 20Kcal/D) &
 Rest from oil (1 ml = 9 Kcal).

3. Inj. Ceftriaxone (50-100mg/Kg/day) +
Inj. Gentamicin (7.5mg/Kg once daily)
4. **Syp. KT** (7.6 mmol/5 ml): 2-4 mmol/Kg/D.
5. **Syp. Zinc** (10mg/5ml): 2mg/kg/d or <6 mo- $\frac{1}{2}$ tsf, >6 mo 1 tsf BD;
6. **Tab. Folic Acid** (5mg): 1 tab D₁, then $\frac{1}{5}$ tab/D;
7. **Cap. Retinole Forte**(50K IU): 1 cap= 0-5mo; 2 cap for 6-12 mo; 4 cap for >12mo.
8. **Inj. MgSO₄** (2.47mg/5ml) 0.1 ml/Kg once daily for 5 days. or 0.3ml/Kg IM single dose.
9. **Syp. V-plex** ($\frac{1}{2}$ tsf for <6mo; 1 tsf for 6mo-2yrs; 2 tsf >2yrs)- once daily.

If diarrhoea: ReSoMal (H₂O 850 ml, 1 pack ORS, Sugar 4 tsf, Syp. KT 3 tsf): 5ml/Kg PO/NG tube for every 30 min for 2 hours then alternating with feed for 4-10 hours.

If shock N/saline 15ml/Kg for 1 hours then assess.



TREATMENT OF PNEUMONIA

1. NPO till F/O if RR ↑↑.
2. O₂ inhalation stat & SOS.
3. Nebulization with Windel Plus/Sulprex (0.04% IB+ 0.12% Salb) - stat & 6 hourly.
4. Inf. 10% BS or Inf. Libott-S Jnr if on NPO order.
5. **Inj. Ceftazidime** 100mg/Kg/D 12 hourly.
+
Inj. Gentamycin 2.5mg/Kg 12 hourly. (<3 mo)
or
Inj. Ceftriaxone 50-100mg/Kg/D daily. (>3mo)
6. **Syp. Paracetamol 120mg/5ml** 15mg/Kg 6 hourly.
7. **Syp. Zinc** 10mg/5ml 1 tsf 12 hourly.
8. **Norsol Nasal Drop**- 1 drop in each nostril 6 hourly.

Nebulized Salbutamol:
0.15-0.3mg/Kg/Dose;
1 nebule(3ml)= 2.5mg;
1 ml resp soln= 5mg

If there is pneumatocele in CXR, add:

9. **Inj. Flucloxacillin 500mg/5ml** 25mg/Kg 6 hourly.

If nebulization is not possible, add:

10. **Syp. Salbutamol 2mg/5ml**- 0.1mg/Kg 8 hourly.

TREATMENT OF BRONCHIOLITIS

1. Humidified oxygen therapy.
2. Nebulization with 3% NaCl/Normal saline/Salbutamol/Budesonide.
3. Inj. Ceftriaxone 50-100mg/Kg/day 12 hourly
4. Inj. Dexamethasone 5mg/1ml (severe cases): 0.08-0.3mg/Kg/day 6-12 hourly.
5. Supportive treatment
 - a. Propped up position
 - b. Normal Feeding
 - c. Cleaning nose with Normal Saline drop.
 - d. Bathing with lukewarm water.



SEVERE ACUTE ASTHMA

1. **Nebulized salbutamol:** 0.15-0.3mg/Kg/dose every 20 min for 3 times or continuously.
2. **Propped Position.**
3. **Oxygen inhalation 4-6 L/min**
4. **Inj. Hydrocortisone 100mg/2ml** 3-4mg/kg 4-6 hourly
or
Oral Prednisolone 5mg/5ml 2mg/Kg/day for 3-5 days or as necessary.

If no improvement-
Add Nebulized ipratropium bromide

If no improvement-
Add Inj. Aminophylline

If no improvement-
Nebulization with Adrenaline, MgSO₄

In refractory cases: Mechanical ventilation & ICU support.

OPC POISONING

1. ABC(Airway, Breathing, Circulation)
2. **Prevention of further exposure** by removing clothes, washing of body with soap water or gastric lavage as appropriate.
3. **Catheterization:** (specially in male)
4. **Inj. Atropine 0.6mg/ml-** 0.05mg/Kg IV stat, then 0.02-0.05mg/Kg every 10-30 minutes till atropinization (max. 2-5mg). Keep atropinized for 2-3 days. Then reduce gradually.

Signs of Atropinization: Fully dilated pupil, tachycardia/pulse >70/min, dry mouth.

Signs of Atropine Toxicity:

Treatment of Atropine Toxicity: Inj. Diazepam 10mg/2ml- 0.05-0.3mg/Kg/dose may repeat every 30 min (max. total dose 5-10mg)

5. **Inj. Pralidoxime 500mg/10ml:** 25-50mg/Kg over 15-30 minutes. May be repeated after 1-2 hours.
6. **Inj. Ceftriaxone** 500mg/5ml- 50-100mg/Kg stat & once daily.
7. **Inj. Ranitidine** 50mg/2ml- 5mg/Kg/D 8 hourly.



KEROSENE POISONING

1. **Asymptomatic patients:** Admit for 24 hours and discharge if no symptom appears.
2. Evaluate & maintain ventilatory status of the patient:
 - a. Oxygen for all patient.
 - b. Intubation & ventilatory support if needed.
3. Prevent further exposure- remove clothes, wash with copious water.
4. Routine use of Antibiotic is not recommended. Occurrence of secondary infection is readily detected by re-appearance of fever on 3rd-5th days.
5. Nutritional support.
6. Corticosteroid, activated charcoal, cathartics, mineral oil & olive oil have no beneficial effect.

Complications:

- a. **Immediate:** Pneumothorax, subcutaneous emphysema, empyema, Pneumatocele (develops in recovery phase & may take 6-9 months) & secondary infection with bacteria or virus.
- b. **Long Term:** Persistent cough or frequent respiratory infection & increased risk for developing chronic lung disease.

Investigation:

- X-ray chest: pneumonitis in 62-89% cases. As early as 30 min & as late as 6-12 hours.
 - i. Grade 0: Normal X-ray.
 - ii. Grade 1: Minimal unilateral perihilar infiltration.
 - iii. Grade 2: Bilateral infiltration.
 - iv. Grade 3: Confluent fluffy shadows on one or both sides.
 - v. Grade 4: Extensive bilateral infiltration with consolidation &/or pleural effusion.
- Pulse Oxymetry: oxygen saturation.
- TC-WBC: Leukocytosis.

NEPHROTIC SYNDROME

$$BSA = \frac{(Wt \times 4) + 7}{wt + 90}$$

1. **Diet:** Protein rich diet (1.5- 2 gm/Kg, 2-2.5gm/Kg if persistent proteinuria). Not >30% from fat. No salt restriction unless there is marked edema or ascites.
2. **Fluid:** Normal in mild edema. 400ml/M²+ previous days output if marked edema or ascites.
3. **For Edema:** Oral frusemide (1-3mg/Kg/D) if persistent edema and weight gain of 7-10%. K-sparing diuretic (Spironolactone 2-4mg/Kg/D) if high dose or long therapy is needed. In **refractory edema**, 20% albumin 0.5-1 g/Kg over 2-4 hour followed by administration of Frusemide (1-2mg/Kg IV).
4. **Antacid or H₂-blocker (Ranitidine)** 1-5mg/Kg/day 8 hourly) for GI discomfort.
5. **Calcium** supplement if treated for > 3 months with prednisolone.



6. **Antibiotic:** Daily oral penicillin (50mg/Kg/D) till massive edema persist (10-14 days). If patient is febrile, ampi+genta or ceftriaxone may be started.
7. **Physical Activities:** As tolerated; may attend school.

Investigations: For nephrotic syndrome 1st attack:

1. Urine R/E
2. Serum albumin
3. Serum cholesterol
4. Spot urinary protein-creatinine ratio
Urine protein(mg)/Urine creatinine (mg) ratio >2 suggests NS
5. Complete blood count
6. Blood for HBsAg, anti HCV
7. X-ray chest

Investigation: For relapse cases:

1. Urine R/E & C/S
2. X-ray chest
3. Complete blood Count

If massive edema and/or hypotension:

4. Serum albumin
5. Serum electrolyte

Specific Treatment: Always start after controlling infections

Specific Rx for Initial Attack:

Oral Prednisolone 60mg/M²/day in single for 4-6 wks. Then, give 40mg/M² as single dose in alternate days for 8 weeks- 5 months including tapering.

Specific Rx for Relapse Case:

Oral Prednisolone 60mg/M²/day in single until remission (BSUA nil for 3 consecutive days). Then, give 40mg/M² as single dose in alternate days for next 6 wks. Then, it is tapered over 4-8 wks.

Classification	Definition
Nephrotic syndrome	Edema, uPCR ≥2000 mg/g (≥200 mg/mmol), or ≥300 mg/dl, or 3+ protein on urine dipstick, hypoalbuminaemia ≤2.5 g/dl (≤25 g/l)
Complete remission	uPCR <200 mg/g (<20 mg/mmol) or 0/1+ of protein on urine dipstick for 3 consecutive days
Partial remission	Proteinuria reduction of 50% or greater from the presenting value and absolute uPCR between 200 and 2000 mg/g (20–200 mg/mmol)
No remission	Failure to reduce urine protein excretion by 50% from baseline or persistent excretion uPCR >2000 mg/g (>200 mg/mmol)
Initial responder	Attainment of complete remission within initial 4 weeks of corticosteroid therapy
Initial nonresponder/ steroid resistance	Failure to achieve complete remission after 8 weeks of corticosteroid therapy



Relapse	uPCR ≥ 2000 mg/g (≥ 200 mg/mmol) or $\geq 3+$ protein on urine dipstick for 3 consecutive days
Infrequent relapse	One relapse within 6 months of initial response, or one to three relapses in any 12-month period
Frequent relapse	Two or more relapses within 6 months of initial response, or four or more relapses in any 12-month period
Steroid dependence	Two consecutive relapses during corticosteroid therapy, or within 14 days of ceasing therapy
Late nonresponder	Persistent proteinuria during 4 or more weeks of corticosteroids following one or more remissions

uPCR= urine protein:creatinine ratio.

AGN

1. Counseling
2. Supportive treatment:
 - a. **Bed rest.**
 - b. **Diet:** protein (0.5gm/Kg/day), salt, fluid restriction.
 - c. **Tab. Fusid 40mg** (1-2mg/kg/day)
 - d. **Antibiotic:** Oral Phenoxymethyl Penicillin (50mg/Kg/day 6 hourly for 10 days)- doesn't change disease course.
3. Antihypertensive:
 - a. **Tab. Captopril** (Cardopril 25mg): 0.25-6mg/Kg/day in 2-4 dose **Or**
 - b. **Tab. Nifedipine** (Nidipin SR 20mg): 0.25-0.5mg/Kg/day in 2-4 dose.
4. If hypertensive encephalopathy

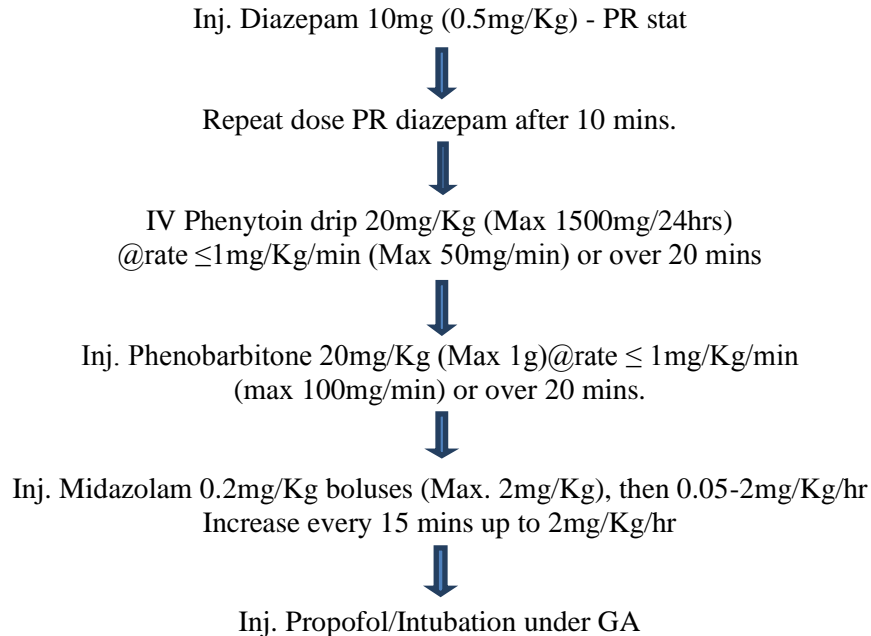


STATUS EPILEPTICUS

SE is defined as continuous seizure activity or recurrent seizure activity without regaining consciousness lasting >5 mins.

4 sequential steps:

1. Maintenance of airway, breathing and circulation (ABC)
2. Control of convulsion



* Give IV glucose, Sodibicarb, anti-oedema measures (e.g. corticosteroid & mannitol)

3. Search the cause
4. Prevention of further convulsion

MENINGITIS/ENCEPHALITIS/CEREBRAL MALARIA

Give this triple therapy when patient is unconscious/ reduced level of consciousness is present with fever.

1. O₂ inhalation.
2. NPO till F/O
3. Infusion as appropriate. (give $\frac{2}{3}$ rd of daily maintenance)
4. Inj. Dexamethasone 0.15mg/Kg/dose 6 hourly for total 8 doses. (should be given 15 mins before antibiotics)
5. Inj. Ceftriaxone 100mg/kg/day.
Add Inj. Ampicillin 400mg/Kg/day if meningitis is diagnosis.



6. Inj. Acyclovir 250mg/50ml. IV 2ml/kg/dose 8 hourly.
7. Inj. Jasoquine (quinine) 300mg/5ml
 - a. 20mg/kg IV stat (loading dose), then
 - b. 10mg/kg/dose IV in 100 ml Inf. 10% DA 8 hourly for 7 days.
8. Inj. Barbit 200mg/1ml +9ml D/W, then give 20mg/Kg (or 1ml/kg) IV stat & 2.5mg/kg ($\frac{1}{8}$ th of loading dose) IV BD
9. Continuous catheterization.
10. Posture change 2 hourly.
11. Eye care (Iventi E/D 1 drop in each eye 8 hourly if infection)

FEBRILE CONVULSION

Age: 6 months-5 years, peak 14-18 months.

Seizure: Usually GTCS, single episode, < 5 min, with rise of temp (around 101.8°F).

No residual neurodeficit & Family History: (±).

If there active convulsion is present:

Give Inj. Diazepam 10mg/2ml: 0.5mg/Kg PR stat

1. NPO till F/O
2. O₂ inhalation 2L/min- stat & SOS.
3. Infusion as appropriate.
4. Inj. Ceftriaxone 100mg/Kg/day.
5. Inj. Barbit 200mg/1ml+9ml D/W, then give 1ml/Kg IV stat & 0.125ml/Kg IV BD

If first attack,

6. Inj. Dexamethasone 0.15mg/Kg/dose 6 hourly for total 8 doses. (should be given 15 mins before antibiotics)

CSF study in febrile Seizure: Indications

1. Any doubt of meningitis/encephalitis.
2. First attack is <12 months of age.
3. Age 12-18 months associated with complex seizure/ altered sensorium.
4. If recovery is slow or undue prolongation of post-ictal sleeps.



ACUTE WATERY DIARRHEA

With some dehydration:

Ideally should be treated in ORT with ORS with 75ml/Kg in 4 hours & then reassessed. But we use modified treatment protocol as follows:

1. Diet: Normal (BF+CF)
2. Inf. Cholera Saline 75ml/kg in 8-10 hours.
IV @ $\frac{75 \times wt}{hours}$ μ d/min stat
3. Inj. Ciprofloxacin (200mg/100ml)
5 \times wt ml IV stat & 12 hourly
OR
Susp. Azithromycin 200mg/5ml
10mg/Kg PO stat & once daily
4. Syp. Zinc 10mg/5ml
< 6 months- 10mg/day

> 6 months- 20mg/day
5. ORS
< 2 years- 50-100ml
> 2 years- 100-200ml after each purging
6. Syp. Ondansetron (4mg/5ml)

0.2mg/Kg PO 8 hourly

With severe dehydration

Inf. Cholera Saline 100ml/Kg

Age of the Child	First, give 30ml/Kg over	Then, 70ml/Kg over
< 12 months	1 hour	5 hours
\geq 12 months	½ hour	2½ hours

Rest: same.



TUBERCULOSIS

TB Dx Category	TB cases	Regimen	
		Intensive phase	Continuation phase
Cat I	• Intra-thoracic TB without lung cavities or extensive alveolar consolidation.	2(HRZ)	4(HR)
	• Intra-thoracic TB with lung cavities or extensive alveolar consolidation.	2(HRZ)E	4(HR)
	• TB lymph node	2(HRZ)E	4(HR)
	• TB pleural effusion	2(HRZ)E	4(HR)
	• Pericardial TB	2(HRZ)E	4(HR)
	• Abdominal TB	2(HRZ)E	4(HR)
	• TB meningitis*	2(HRZ)S**	10(HR)
	• Osteoarticular	2(HRZ)E***	10(HR)
Cat II	• Previously treated smear positive PTB (relapse, treatment after lost to F/U, treatment failure)	2(HRZ)ES/1(HRZ)E	5(HR)E
MDR TB			
XDR TB			

*Use steroid in mandatory for TBM and tuberculous pericarditis.

** Streptomycin should be avoided when possible in children because the injection is painful and irreversible auditory damage may occur.

***Ethambutol is considered safe at 20mg/Kg/day

Table 2: Daily doses of the FDCs in children below the age of 8 years or <35 Kg

Weight(Kg)	Intensive phase (2 months) RHZ (60,30,150)	Continuous phase (4 months) RH 60,30
2-2.9	½ tab	½ tab
3-5.9	1 tab	1 tab
6-8.9	1½ tab	1½ tab
9-11.9	2 tab	2 tab
12-14.9	2½ tab	2½ tab
15-19.9	3 tab	3 tab
20-24.9	4	4
25-29.9	5	5
30-35.9	6	6



Table 3: Drug dosage for adult cat I

Weight(Kg)	Intensive phase (2 months) Number of 4FDC tablets	Continuous phase (4 months) Number of 2FDC tablets
30-37	2	2
38-54	3	3
55-70	4	4
>70	5	5

Table 3: Drug dosage for adult cat II

Weight(Kg)	Intensive phase (3 months)		Continuous phase (5 months) Number of 3FDC tablets
	4FDC tablets (3months)	Inj. Streptomycin (1 st 2 months)	
30-37	2		2
38-54	3		3
55-70	4		4
>70	5		5

Chronic Liver Disease & Portal Hypertension



The End

- Any suggestion is most welcome
- You can send any feedback to drfahim38@gmail.com
- If you think any should be included in this document, i will be happy to do that.

THANK YOU

