Dr.M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
(DEEMED TO BE UNIVERSITY)
Maduravoyal, Chennai - 600 095, Tamil Nadu, India.
(An ISO 9001 : 2015 Certified Institution)

PART - 1

Answer Booklet Number: 1566723

STUDENTS TO FILL THIS AREA FIRST
Write your Register Number and shade the Circle with Blue or Black Ballpoint Pen only.

REGISTER NUMBER: 1 6 2 0 1 1 1 0 5 0 0 1

STUDENTS TO WRITE APPROPRIATE INFORMATION BELOW :

Degree : MBBS
Question Booklet No : EM07
Branch : MEDICINE
Subject Code : BMS164107
Subject : PAEDIATRICS
Semester : NON SEMESTER
No of Pages used : 27
Date : 30/3/2021
Session : FN

Signature of the Candidate
R. Pavithra
Invigilator's Signature 30/3/2021
30/3/21
Chief Superintendent's Signature / Facsimile with date

Bundle Number

Dr.M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
(DEEMED TO BE UNIVERSITY)
Maduravoyal, Chennai - 600 095, Tamil Nadu, India.
(An ISO 9001 : 2015 Certified Institution)

PART - 2

QUESTION NUMBERS / MARKS

Q.No.	Marks	Q.No.	Marks	Q.No.	Marks
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	
Total					

TOTAL MARKS

Total Marks (in Words) by the Evaluator :

Degree : MBBS
Branch : MEDICINE
Subject : PAEDIATRICS
No. of pages used : 27
Semester : NON SEMESTER

Bundle Number

Evaluator's Name:
Evaluator's Signature :

2ND VALUATION

For Office use only

Dr.M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
(DEEMED TO BE UNIVERSITY)
Maduravoyal, Chennai - 600 095, Tamil Nadu, India.
(An ISO 9001 : 2015 Certified Institution)

PART - 3

QUESTION NUMBERS / MARKS

Q.No.	Marks	Q.No.	Marks	Q.No.	Marks
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	
Total					

TOTAL MARKS

Total Marks (in Words) by the Evaluator :

Degree : MBBS
Branch : MEDICINE
Subject : PAEDIATRICS
No. of pages used : 27
Semester : NON SEMESTER

Bundle Number

Evaluator's Name:
Evaluator's Signature :

1ST VALUATION

INSTRUCTIONS TO THE CANDIDATES

1. No Additional sheets will be provided.

2. Check whether the Answer Book Number is clear & legible.

3. Check whether Answer Booklet consist of 40 / 10 pages.

4. Ensure whether the pages are stitched or stapled properly.

5. Fill in the particulars such as

For Example

a) Degree	:	B.A./B.Sc./B.Com./B.Tech./B.Arch./B.Ed./B.D.S/M.A./M.Sc./ M.Com./M.Tech./M.Arch./M.D.S/M.Phil./MBA/MCA/MBBS/BPT/ B.Pharm/D.Pharm, etc
b) Branch	:	CSE / ECE / F.D / V.C / Ind. Bio - Tech. / Mech. / Prod. / Nursing / etc.
c) Semester	:	I / II / III / IV / V / VI / VII / VIII / IX / X
d) Subject Code	:	As per the University
e) Subject	:	Name of the Subject
f) Question Paper No.	:	Given in the Question Book
g) Date	:	The date on which the exam is attended
h) Session	:	Mention the exam is conducted during Fore Noon or After Noon (FN/AN)
i)No. of pages	:	Total No. of pages used in the Answer Book for writing the exam.

Note : Do not write Name anywhere on the Answer Sheet.
Do not write your Register Number excepting the space provided.

6. Use both side of the Answer Book for writing.
7. Answers must be written in blue / black ink only.
8. Do not write in the margin.
9. Possession of ID card & Exam Hall Ticket is mandatory and has to be produced on demand.
10. Log Books, Reference Tables, hand Books, etc., must be attested by the Dept. HOD / Chief Superintendent / Hall Superintendent.
11. Borrowing is strictly prohibited.
12. Candidates are not allowed to enter the examinations hall 30 minutes after commencement of the exam and should not leave the hall during first 30 minutes.
13. Distinguishing Mark on the Answer Sheet for identifications is prohibited & punishable.
14. Possession of any incriminating material like Digital Memory Devices such as Cell Phones, Pagers, Programmable Calculators, etc and Malpractice of any nature is punishable as per rules.

(1) Nephrotic syndrome is characterised by the following:

(i) PROTEINURIA (>1g/m²/day) (ii) Hypoalbuminaemia (Albumin < 2.5g/dl)

(iii) OEDEMA (iv) Hyperlipidaemia

ETIOLOGY:

→ Nephrotic syndrome is caused by.

PRIMARY causes.

(i) Minimal change disease
(ii) Focal segmental Glomerulosclerosis
(iii) Membranous nephropathy → Nephropathy.

Secondary causes: Diabetes Amyloidosis, SLE, Hepatitis B, Hepatitis C, HIV infection, sarcoidosis, Good-Pasture's syndrome etc.

Drugs: NSAIDS

CLINICAL FEATURES: (i) Peripheral oedema is the hallmark of Nephrotic syndrome. Oedema first seen at the dependent areas such as lower extremity but later becomes generalised

→ Ascites and hydrocele may also be present

→ Early morning facial puffiness is present even before development of oedema

(ii) Patient may experience dyspnoea due to pleural effusion & pulmonary oedema

(iii) Patients are more prone to infection due to loss of complements & immunoglobulins in urine

(iv) Hypercoagulable state of the patient due to loss of Protein C, Protein S, Antithrombin Antithrombin-III in the urine.
- Patients are at risk of developing renal vein thrombosis & other venous thromboembolic.

(v) Vitamin D- deficiency due to loss of cholecalciferol binding protein in urine

INVESTIGATIONS:

(i) URINE ANALYSIS: Urine analysis shows heavy proteinuria. 24 hour urinary protein excretion should be measured and it shows proteinuria >1g/m²/day.
- Normal urinary excretion of protein is <150mg
- Microscopic haematuria might also be seen

(ii) Serum albumin level is low <2.5g/dl.

(iii) Urea and creatinine level might be elevated if

(iv) Chest X-ray if positive Tuberculin test or history of contact of T.B patients

(v) C_3 and Streptolysen O test for Gross & microscopic haematuria.

(vi) Total LDL cholesterol & total cholesterol are increased with normal or low HDL cholesterol

(vi) Test for Anti-nuclear antibodies and ANCA for collagen vascular diseases & vasculitis

(vii) Blood sugar & Glycosylated Hb for diabetis

(viii) Serum anti-coagulants and complement levels are low

(ix) Serological test for Hepatitis B, Hepatitis C and HIV serology.

TREATMENT: General management

→ PROTEINURIA

- Daily dietary intake of protein (0.1-8g) should replace daily urinary loss of protein to avoid negative nitrogen balance

OEDEMA:

- Oedema can be controlled by dietary restriction of salts and diuretics like

FUROSEMIDE: 1-2 mg/kg/day OR SPIRONOLACTONE

→ @ 3-4 mg/kg/day.

→ Hypercoagulable state : Oral anticoagulation therapy along with low molecular weight heparin should be started for 3-6 months if there is evidence of thrombosis.

TREATMENT OF THE CAUSE:

STEROID THERAPY. / STEROID SENSITIVE

→ children

→ Patient with Nephrotic syndrome should be treated with corticosteroids in the form of → "PREDNISOLONE" 60 mg/m² for 6 weeks followed by subsequent prednisolone 40 mg/m² for additional 6 weeks.

children

→ Patients who respond @ within the first 6 week of steroid therapy are called "STEROID RESPONSIVE" and those who relapse after withdrawal of steroid "STEROID DEPENDENT".

~~PREATIN~~

P.T.O →

TREATMENT OF STEROID RELAPSE -

→ Patients who show frequent relapse after steroid withdrawal or develope unacceptable contraindications to steroid should be Given

(i) Cyclophosphamide → 2-2.5 mg/kg/day for 12 weeks

(ii) Levamisole : → 2-2.5 mg/kg/day for 1-2 years

(iii) Mycophenolate Mofetil → 20-25 mg/kg/day for 1-3 years

(iv) Calcineurin Inhibitors

→ Cyclosporin → 4-5 mg/kg/day for 12-36 months

→ Tacrolimus → 0.1-0.2 mg/kg/day for 12-36 months

(v) Rituximab → 375 mg/m² once weekly

In steroid resistant cases.

- By calcineurin inhibitors
  - → Cyclosporin → 4-5 mg/kg/day for 12-36 months
  - → Tacrolimus → 0.1 to 0.2 mg/kg/day for 12-36 months
- → Cyclophosphamide → 2-2.5 mg/kg/day for 12 weeks
- → Methylprednisolone and Tapering dose of Prednisolone
- → In Focal segmental Glomerulosclerosis Nephrotic patients, steroid is useful in 20-30% cases
- → Cyclophosphamide or Tacrolimus & Cyclosporin may be given for steroid resistant cases
- → In Membranous Nephropathy ~~corticosteroids and monthly~~ alternating monthly

Complications of Nephrotic syndrome.

(i) Odema: Controlled by salt restriction and diuretics like furosemide & Spironolactone.

(ii) Infections: Nephrotic syndrome & steroid therapy renders child infections with streptococcus, Gam-ve organisms & Varicella.
→ peritonitis meningitis etc
→ Do → Varicella infections treated by Acyclovir.
→ Immunisation with Varicella & Pneumococcal vaccines after withdrawing steroids

(iii) Thrombosis complications: Oral anticoagulants & low molecular heparin

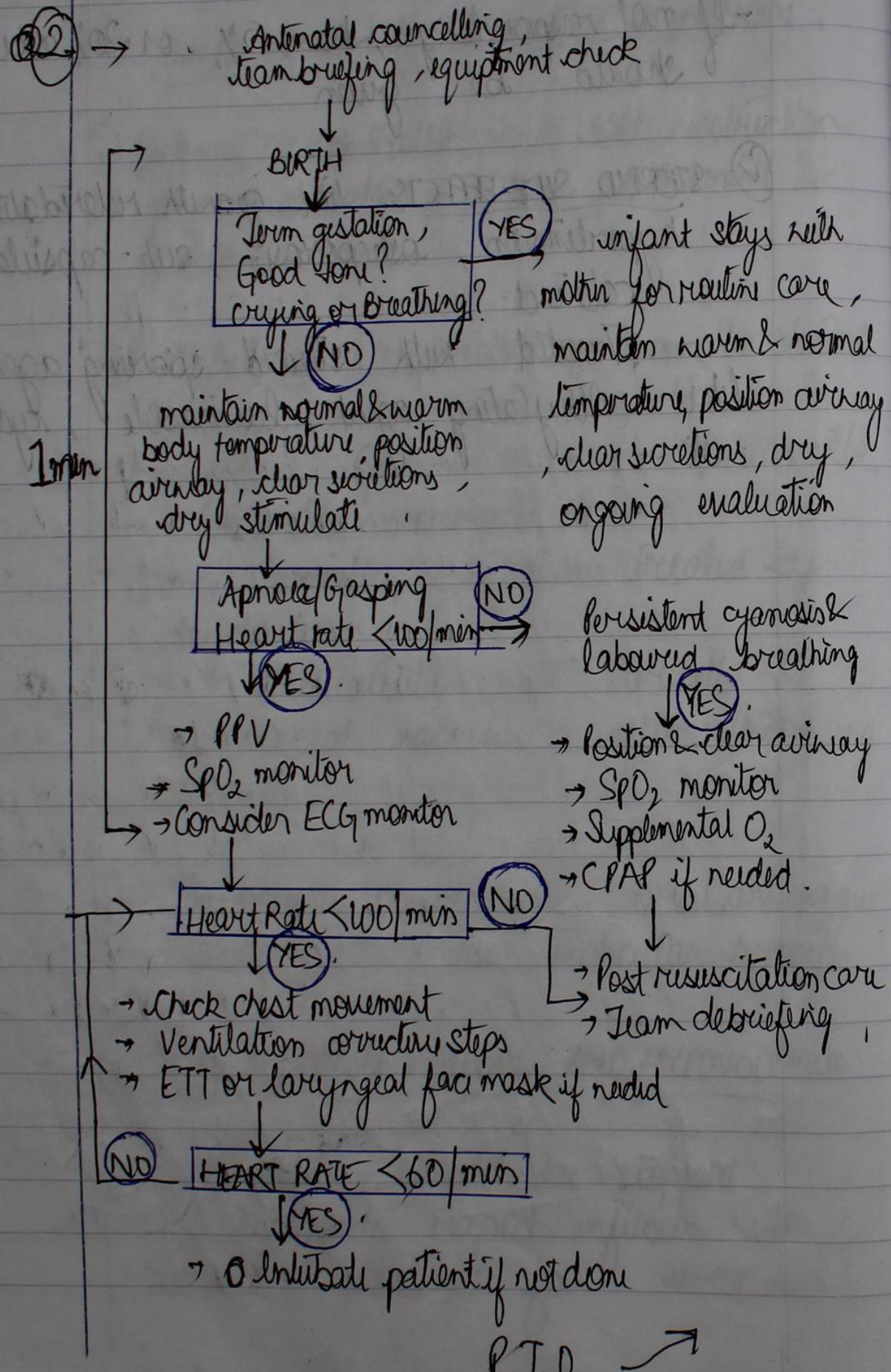
(iv) ACUTE RENAL FAILURE AND HYPOVOLEMIA

→ Diuretics should be stopped
→ I.V fluids rapid infusion with Normal saline for 20-30 mins

- If not responding, then 5% or 20% albumin should be given

(✓) STEROID SIDE-EFFECTS: like growth retardation, hypertension, osteoporosis, sub-capsular cataract.

→ Treated with steroid sparing agents like Alkylating agent, Leuinasole, Cyclosporin etc.


32
Antenatal counselling, team briefing, equipment check
BIRTH
Term gestation, Good tone? crying or Breathing?
YES
infant stays with mother for routine care, maintain warm & normal temperature, position airway, clear secretions, dry, ongoing evaluation
NO
maintain normal & warm body temperature, position airway, clear secretions, dry stimulate
1 min
Apnoea/Gasping Heart rate <100/min
NO
YES
→ PPV
→ SpO2 monitor
→ Consider ECG monitor
Persistent cyanosis & laboured breathing
YES
→ Position & clear airway
→ SpO2 monitor
→ Supplemental O2
→ CPAP if needed.
Heart Rate <100/min
NO
YES
→ Post resuscitation care
→ Team debriefing.
→ Check chest movement
→ Ventilation corrective steps
→ ETT or laryngeal face mask if needed
NO
HEART RATE <60/min
YES
→ Intubate patient if not done

P.T.O →

- Chest compression
- Co-ordination with PPV
- 100% O_2
- ECG monitor
- Consider UVC

↓↓
HEART RATE < 60/mins

- I.V epinephrine
- If heart rate is still below 60/min
  - Consider Hypovolemia
  - Consider Pneumothorax

→ PPV → Positive Pressure Ventilation
→ UVC → Umbilicus Venous Catheter.

3→ CYANOSIS AT BIRTH :

→ Cyanosis refers to the bluish discoloration of skin and mucous membrane
→ It is caused due to presence of more than 5g% of reduced haemoglobin in blood.
→ Also occurs due to presence of abnormal haemoglobin
→ Usual sites at which cyanosis can be seen are → NAIL BEDS, CONJUCTIVA, ORAL CAVITY MUCOSA, TONGUE, LIPS, EAR LOBES.

→ Depending on mechanism cyanosis are of the types
(i) CENTRAL CYANOSIS : It occurs due to presence of more than 5g/dl of reduced haemoglobin in blood. Total haemoglobin level is reduced by 30%
→ CAUSES :
→ (a) Low atmospheric O_2 & high altitude
(b) Respiratory failure & pulmonary function impairment due to :→
→ Hypoventilation as seen in Asthma
→ Ventilation perfusion mismatch as due to foreign body obstruction.

→ Impaired O_2 diffusion → Interstitial pneumonia

(c) ANATOMIC SHUNTS: → CVS causes: → Tetralogy of fallot
TGA, → Truncus arteriosus
Pulmonary causes → Pulmonary arteriovenous fistula
Multiple intrapulmonary shunts

(d) ABNORMAL HAEMOGLOBIN: Abnormal haemoglobin occurs due to oxidation of Hb by various chemicals & drugs like → Phenacetin, Aniline dyes, Nitrates, Nitrites
eg → Methaemoglobin → oxidative derivative of O_2.
→ Sulphaemoglobin →
→ Carboxyhemoglobin → occurs in CO poisoning
→ Types of central cyanosis are → Enterogenous
→ Interstitial
→ Orthocyanotic

(ii) PERIPHERAL CYANOSIS: It occurs due to sluggish or slowing of blood flow in an area with extraction of O_2 in a saturated arterial blood in the area. Peripheral area is always cold than normal areas.

Causes are: (a) Cold Environment. Peripheral cyanosis due to cold temperature & sluggish blood flow is seen in infants.

(ii) (b) Peripheral vascular disease
(c) Redistribution of flow from extremities: At birth Asphyxia, circulation at vital organs like Brain & heart is maintained at the expense of extremities like skin, kidney etc. Thus, blood flow to skin is reduced & causes cyanosis
(d) Arterial & venous obstruction:

(iii) MIXED CYANOSIS: Features of both Central & Peripheral cyanosis.
→ due to decreased oxygenation & sluggish blood flow. It is seen in
→ (a) Hypotension
(b) Congestive Cardiac Failure
(c) Acute Pulmonary Oedema

(iv) DIFFERENTIAL CYANOSIS: It occurs when preductal oxygen saturation is greater than Post ductal oxygen saturation.
It is seen in
→ PDA reversal of shunt
→ Persistent Pulmonary hypertension of Newborn
→ Left ventricular outflow obstruction

Differential diagnosis of CYANOSIS.

→ Circumoral cyanosis

→ Reynaud's cyanosis.

* Treated with O_2 administration, Mechanical ventilation

④ Febrile convulsion.

It refers to convulsions associated with high grade fever (>38°C) in a neurologically healthy child between 6 months to 5 years of age, without underlying intracranial infection & no history of prior unprovoked seizures

→ 25 to 40% have positive family history

→ Fever may be caused by, minor upper respiratory tract infections, bacterial infection, Gastroenteritis, malaria & immunisation etc.

TYPES:

→ (i) Simple febrile convulsions is Generalised convulsion, lasts <15 mins and occurs only once during 24 hours period of fever in a neurologically healthy child.

(ii) Complex febrile convulsions consists of

- Lasts >15 mins → Focal sign & symptoms
- Recurrent convulsions within same illness
- Recurrent febrile convulsion is seen in
(i) age <18 months (ii) family history (iii) Multiple convulsions (iv) First convulsion at low temp.

CONSEQUENCES:

After initial episode, 3-12% of children develope epilepsy in adolescence.

Risk of Epilepsy increases with:
(i) Family history of Epilepsy
(ii) Pre-existing Neurodevelopmental disorder
(iii) If complex febrile convulsions

- Prolonged convulsions in infancy can cause hippocampus injury & medial temporal sclerosis temporal lobe epilepsy & SE also hippocampus that has already been damaged by genetic predisposition or perinatal insult causes prolonged convulsions in infancy.

TREATMENT:

- Acute episodes treated by Lorazepam or Midazolam 0.1 mg/kg/day
- Lumbar puncture for suspected clinical

meningitis or HIV, pneumococcal immunisation status unknown.

PROPHYLAXIS: prevents recurrences by 80%.

→ ~~Intravenous~~ Benzodiazepenes especially Diazepam 0.6-0.8 mg/kg/day in 3 divided doses. Starting in the first sign of any febrile illness & continued for 3 days.

⑤ → GROSS MOTOR DEVELOPMENTS

→ 3 months → Neck holding
→ 5 months → Rolls over
→ 6 months → Sits in tripod position with own support
→ @8 months → sits without support
→ 9 months → Stand holding on support
12 → months → creeps well, walks but falls, stands without support.

FINE MOTOR DEVELOPMENT.

4 months → Bidextrous reach (reach for objects with both hands)

6 months → Unidextrous reach reaching objects with one hand, ~~index finger probe~~ transfer objects.

9 months → Immature Pincer Grasp, Index finger probe

12 months → Mature Pincer Grasp

SOCIAL AND ADAPTIVE DEVELOPMENT

2 months → Social smile (smiles when talked to)

3 months → Recognizes mother; anticipates feeding

6 months → Recognizes stranger; Stranger Anxiety

9 months → Waves Bye-Bye

12 months → Comes when called upon; plays

simple ball game

LANGUAGE DEVELOPEMENT

→ 1 month → Alerts to sound

→ 3 months → coos (Musical vowel sounds)

→ 4 months → Laughs loud

6 months → Monosyllables word (pa, da) aagoo.

9 months → Bisyllables papa, mama, dada.

12 months: 1-2 words with meaning

(6) → SCORPION STING. It is common in Tropical & sub-Tropical regions of world

→ In India, the red scorpion and the less poisonous black scorpions are implicated for most stings.

→ Fatality rate ~ 3 to 22%

CLINICAL FEATURES:

→ Symptoms develope within 30 mins & 6 hours & subside by a day or two.

→ Local features include, severe pain and paraesthesia.

→ Systemic features include Cholinergic Storm → Fever, Sweating, Salivation, Shivering, Vomiting, Priapism, Hypotension, Bradycardia

→ Adrenergic features starts by 4 hours & includes, Tachycardia, Hypertension Arrhythmias, Myocardial dysfunction, Shock, Pulmonary oedema, Hypotension.

Complications → Encephalopathy, DIC, Cerebral haemorrhage, Aphasia, seizures etc

MANAGEMENT:

→ Aimed at providing symptomatic relief, no specific therapy or antivenom is available

• Blood electrolyte estimation (hyperkalemia). Serum lipid profile (triglyceride, cholesterol falls, free fatty acids ↑). Amylase, LDH & transaminases increase.

• ECG, echocardiography, Chest-X-ray for Myocardial dysfunction

→ Nuclear scintigraphy & CT-scan for Neurological abnormalities

LOCAL MEASURES: Sting area cleaned

• Relief pain by NSAIDs.

→ → Xylocaine infiltration, dehydroemetine, ice packs Streptomycin (neuromuscular blockade,

GENERAL SYSTEMIC MEASURES: → O_2 therapy by face mask or nasal cannula if Respiratory distress is present

→ Monitor vitals, fluid balance, blood electrolytes, pH, liver & kidney functions etc.

→ Sedation by diazepam

DRUG THERAPY:

→ Prazosin is the first drug of choice due to prominent cardiovascular manifestations.

→ Prazosin 30 µg/kg/day

→ Paracetamol can be added

→ Atropine is avoided unless significant Bradycardia is there.

→ In severe cases → Dobutamine
10 µg/kg/min

→ Nitroglycerine
0.5 µg/kg/min

(7) → Weight gaining pattern of newborn baby

→ Normal b/w of a baby is 3 kg.

→ The weight of a baby is decreased by 8-10% of its birth weight by first week of life.

→ This decreased is regained by 7-10 days of life of the baby.

→ Subsequently there should be weight gain of 20 to 40 g per day in the baby

→ The weight of the baby will be doubled of his or her birth weight by 5 months of age.

→ Till 1 year of age there is weight gain of 200g. in the baby

(8) → Anterior Fontanelle. It is the largest fontanelle formed by the junction of Coronal suture, Sagittal suture & Frontal suture.

→ The antero-posterior diameter is 4 cm while is transverse diameter is 2 cm.

→ The anterior fontanelle usually closes by 12-18 months of age

→ The fotanelle deforms the skull for its easy passage in the birth canal during birth.

→ Clinically significant → A sunken Anterior fontanelle indicates dehydration of the child.

→ Tensed and bulging anterior fontanelle may suggest raised Intracranial pressure

→ Prominent Anterior Fontanelle is also seen in Meningitis.

(9) Physiological Jaundice

→ Physiological jaundice represents the physiological immaturity of the child/infant to handle increasing bilirubin production.

→ Jaundice is visible by 24-72 hours of birth. TSB levels usually peaks by 3rd day of life and declines rapidly in term neonates.

→ The Total serum bilirubin level (TSB) is below the demarcated cut off levels for phototherapy.

→ It does not require any treatment.

(10) A → Airway assesment
→ Clear airway
→ Maintainable, Non maintainable

B → Breathing assessment
→ Respiratory rate & efforts
→ Pulse oxymetry
→ Abnormal breath sounds on auscultation

C → Circulation assessment
→ Heart rate, rhythm, Blood pressure, central & peripheral pulses, brain perfusion, urinary excretion, skin colour.

D → Disability → Consciousness level
→ Glasgow coma scale.

E → Exposure → Skin rashes
Wounds.

→ It used for accessing a severely sick child.

(11) → Management of severe dehydration in 6 months old of child.

→ I.V fluid infusion immidiately with Ringer Lactate (RL) solution and 5% dextrose

→ The fluid should be given at 100 ml/kg for over 6 hours.

→ ORS ~~administration~~ can be given simultaneously if the child can drink well.

→ If I.V fluid infusion can't be given then nasogastric tube should be inserted at the rate of 20 ml/kg/hour.

→ Reaccess the child every 15-30 mins for pulse & hydration status after the initial bolus of 100 ml/kg of fluid.