Q.1 A baby boy at 37 weeks of gestation was delivered to a healthy mother who is G3P2. There is no antenatal history of any risk factors for sepsis and neither are there any maternal medical concerns. On examination at D-3 he has a petechial rash with no visceromegaly. A CBC shows an Hb 14.2g/dl, WBC 8.6 cumm, platelets 8000/cumm.

a) What is the likely diagnosis?
b) Which is the most clinically significant complication of the above diagnosed condition?
c) How would you manage this baby?

Q.2 A baby boy was born to a primigravida with a history of polyhydramnios. The baby became cyanosed at 5 mins of age and needed 70% oxygen to maintain SPO₂ of 95%. After bagging the baby deteriorated further. On auscultation of the chest, the heart sounds were on the right and also heard extensive cracking and bubbling sounds on left hemithorax.

a) What is the most likely diagnosis?
b) What are the immediate steps of management?
c) What long term complications you are likely to encounter?
d) Which antenatal factors would have predicted a poor outcome?

Q.3 A baby boy is born by emergency cesarean section to a primigravida mother with a history of fetal bradycardia. He was pale and floppy at birth and required resuscitation with bag and mask ventilation till 5 mins of age. His APGARS were 4/10 at 1 min and 5/10 at 5 mins. Cord blood shows a base excess of -14.5 mmol /l. He is shifted to nursery for further management.

a) What is the likely diagnosis?
b) How would you investigate this baby?
c) What steps of management would you carry out in ideal circumstances?
Q. 4 A 7-day-old infant of diabetic mother is suffering from RDS requiring ventilatory support. His umbilical venous catheter has been inserted and the tip is at the level of diaphragm. The tip of umbilical arterial catheter is at T-12. Monitoring of vital signs revealed following:

H/R = 160/min,  R/R = 55/min on pressure control ventilation
Temp = 98.6°F,  BP = 114/78 mm of Hg.

His investigations revealed:
Hb = 11.7 gm/dl,  TLC 27000/cumm,
DLC = poly 65%,  Lymph 33%,  E=1%,  M=1%
CRP = 8 mg/L,  Platelet count = 130,000/cumm
Urine C/E = Field full of RBCs.

a) What is the most likely diagnosis?

b) What other possibilities may be considered?

c) Give specific steps of management.

Q. 5 Upon delivery of a term baby, mother gives you history that she was diagnosed with pulmonary tuberculosis 1 week before delivery of the baby. She has not yet been started on treatment.

a) What specific investigations would you like to carry out in the baby?

b) What are the steps of management for this baby in the newborn period?

Q. 6 While doing a discharge examination of a one-day-old boy born as SVD you notice bilateral lumbar masses on abdominal examination. The baby appears well and parents want to go home early.

a) What is your differential diagnosis?

b) How will you proceed before sending the baby home?
Q.7 A 12-day-old preterm born at 31 weeks of gestation developed NEC. Pharmacy is to be requested to furnish TPN for the baby.
   a) What principles of energy requirement should be considered?
   b) How should protein be provided?
   c) What are complications associated with TPN therapy? (list any five)

Q.8 a) Enumerate the risks associated with red blood cell transfusion in a neonate.
   b) List how can the need for RBC transfusion be reduced in neonates?
   c) When should RBC transfusion be given in a neonate on mechanical ventilation?
   d) When is it indicated to transfuse RBCs in an asymptomatic neonate?

Q.9 At 29 weeks of gestation baby boy born as a result of LSCS due to massive APH is being ventilated on conventional mechanical ventilation. He was maintaining his saturation at 97% on 30% oxygen. He is now 2 days old. Nurse calls you with a concern that he has desaturated suddenly. His Hb is 18.3 gm/dl, Hct 52% and has a TLC of 18000/cumm. His CRP is 5.3 mg/l.
   a) What would be your initial management steps?
   b) What is your differential diagnosis?
   c) How would you confirm your diagnosis?

Q.10 A baby boy born at 30 weeks of gestation is ventilated for 2 weeks due to severe RDS. He also developed PDA for which fluid restriction and treatment was given. He remained O2 dependent till day 45 of life and then went home on vitamins and frusemide. An ultrasound abdomen done on day 50 of life shows hydropneumothorax in both kidneys.
   a) What possible diagnosis does the USG associated renal finding suggest?
   b) What management would you like to do in the light of USG findings?
   c) What is the long term prognosis regarding the renal diagnosis?
Q.11 A boy is delivered at a gestational age of 38 weeks to a 24-year-old mother. On prenatal ultrasound done at 32 weeks of gestation, the right renal pelvis was found to be 8 mm and left renal pelvis was 4 mm in size.

a) What is the diagnosis?
b) How will you further evaluate and manage this boy?

Q.12 A male full term infant born to consanguineous parents is noted to be flaccid at birth. He is active and alert but has paucity of movements of the limbs except for fine myoclonic movements of the fingers and toes, and shows fasciculations of the tongue.

a) What is the differential diagnosis?
b) List the investigations required in such cases.
c) What is the most likely diagnosis?
d) Which is the latest test specific for this condition?

Q.13 A 4-week-old girl has come to neonatal follow-up clinic. She was born at 33 weeks of gestational age and remained admitted in nursery for one week to establish oral feeds. Her mother complains that she has gradually become pale. She is taking oral feeds well and is active and alert. There is no respiratory distress, abdomen is soft and there is no hepatosplenomegaly. Her Hb is 6.5 g/dL, reticulocyte count is 1.2%, TLC is 11000/cmm, neutrophils 55%, lymphocytes 40%. RBC's are normochromic and normocytic.

a) What is the diagnosis?
b) How will you manage this patient?
Q.14 A male baby was delivered by emergency LSCS for fetal distress at 40+3 weeks of gestation. The baby was stained with meconium, made no respiratory effort and his heart rate was 64/min. ETT was passed and there was meconium over laryngeal opening. After a minute of PPV baby’s heart rate improved to 132/min, he became pink and was extubated at 5 min. At one hour of age the baby had a respiratory rate of 76/min with working of alae nasi, substernal and intercostal recessions. His oxygen saturation in air was 82%. His chest was bulging and bilateral crepitation were audible in the chest. His x-ray chest showed bilateral patchy infiltrates and intercostal spaces were visible with flat diaphragm.

a) What is the most likely diagnosis?
b) What differential diagnosis will you consider?
c) How will you manage this infant?

Q.15 A 15-day-old girl born at a gestation of 28 weeks was ventilated since birth. Her weight at birth was 1 kg. Attempts to wean her off from ventilator failed. On examination she had full volume pulses with a BP of 70/30 mm of Hg. Systolic murmur of grade 3/6 was audible over her precordium. Crepitations were audible in her chest and liver was palpable 3 cms below costal margin.

a) What is the most likely cause?
b) What are other possible causes of failure to wean this baby from ventilation?
c) How will you confirm your diagnosis? Give expected findings.
d) How will you manage this baby?
Q.16 A term male baby weighing 3.4 kg was delivered as SVD. He cried immediately after birth and his Apgar score was 7/10 at 1 min and 10/10 at 5 min. After delivery, the baby was handed to mother and breast feeding was started. Next day the baby was brought back with the complaint of vomiting which was at times green in colour. Nasogastric tube was passed and greenish fluid was aspirated. Abdomen was soft, non tender and not distended. X-ray abdomen showed normal gas pattern in stomach and duodenum and paucity of gas in rest of the abdomen.

a) What is the most likely diagnosis?
b) What differential diagnoses will you consider?
c) What additional investigations will you do to confirm your diagnosis?
d) How will you manage this patient?

Q.17 A 20-day-old baby boy was referred from a secondary-level hospital to a tertiary centre with failure to thrive and fever where he was initially managed as sepsis for 7 days. He was born to consanguineous parents. There was a history of polyhydramnios in the mother during pregnancy. Two of his siblings died in neonatal period with similar illness. On examination baby was dehydrated and sick looking. He weighed 2.3 kg, pulse rate was 186/min, respiratory rate 60/min, temperature 99.6°F and BP 80/40 mm Hg. His systemic examination was unremarkable. The investigations revealed.
Hb: 18 gm/dL
TLC: 21,500/cmm (P=55, L=44, E=1)
Platelets: 152,000/cmm
CRP: 7 mg/L
Serum sodium: 125 mmol/L
Serum potassium: 2.2 mmol/L
Serum chloride: 90 mmol/L
ABGs: pH= 7.53, PCO₂ =43 mm Hg, PO₂ 93= mm Hg, HCO₃ = 40 mmol/L.

a) What is the most likely diagnosis?
b) What other possibilities will you consider?
c) What further investigations will you do to confirm the diagnosis?
d) Give the management principles of your primary diagnosis.
Q.18 A young, worried couple has come to you with their second baby having features of Down syndrome. There first baby born 3 years ago was also having the same condition confirmed on chromosomal studies as having trisomy-21.

a) What are the possible causes for this couple of having their 2nd baby with Down syndrome?
b) What investigations would you order to find out the cause?
c) How will you counsel the parents regarding future pregnancies?

Q.19 A 6-day-old girl born at term as SVD presents to the emergency department with, lethargy, refusal to feed and seizures for one day. On examination her temperature is 99°F, oxygen saturation 89% in air, R/R 72/min, H/R 160/min. CRT 4 sec. Vesicles are visible over her face and upper trunk. She has intercostal recessions and crepitations audible in chest. Abdomen is soft and liver is palpable 3 cms below costal margin. She has left kerato-conjunctivitis.

a) What is the differential diagnosis?
b) How will you investigate this patient?
c) How will you treat this patient?

Q.20 A 4-week-old neonate born at 28 weeks of gestation to a primigravida mother who had no antenatal care. Birth weight was 800 gm. Baby was ventilated for 2 weeks. Now for last 2 weeks baby is on 1 L/min of nasal cannula oxygen. His oxygen saturation remains between 88-90%. He is tolerating orogastric feed at 180 ml/kg/day and his current weight is 1 kg.

a) What is the most likely diagnosis?
b) What are the distinct pathologic stages of underlying clinical condition?
c) How do you manage this clinical condition?
d) How do you improve prognosis of this clinical condition?

THE END