Answers found in keyed student handout; Independent Study Materials parts I and II; EMSC reference card, and SOPs

Down Syndrome

Discuss the etiology, physical features, developmental delays, and common clinical conditions seen in children with Down syndrome

1. What is Down Syndrome?
   A. A genetic chromosomal disorder
   B. Damage to the cerebellum during birth
   C. A child who is impaired due to a traumatic brain injury
   D. An autoimmune disease that attacks connective tissue

2. What causes Down Syndrome?
   A. Breech birth
   B. Parent's drug use
   C. Too many chromosomes
   D. Mother has an infectious disease while pregnant

3. What numbered chromosome failed to separate properly in patients with Down Syndrome?
   A. 7
   B. 21
   C. 69
   D. All of them

4. Which of these is a common physical feature found in those with Down Syndrome?
   A. Large protruding tongue
   B. Large face/facial features
   C. Small eyes that slope downwards
   D. Tense muscle tone causing contractures

5. Which of these is a common physical feature found in those with Down Syndrome?
   A. Very prominent nose
   B. Almost constant resting tremors
   C. Tend to be thin with failure to thrive
   D. Almond shaped eyes that slope up at the corners

6. Which of these is a common physical feature found in those with Down Syndrome?
   A. Small face and features
   B. Large eyes that do not track together
   C. Small tongue that makes talking difficult
   D. Uncontrolled writhing movements of limbs

7. What is a problem patients with Down Syndrome may be prone to over their lifetime?
   A. Sleep apnea
   B. Osteoporosis
   C. Hydrocephalus
   D. Hyperthyroidism

8. What is a problem patients with Down Syndrome may be prone to?
   A. Irritable bowel syndrome
   B. Congenital heart defects
   C. Excessive pulmonary secretions
   D. Increased tendency to severe allergies

9. What is a problem patients with Down Syndrome may be prone to?
   A. Autism
   B. Upper GI bleeding
   C. Inflamed joints with severe pain
   D. C-spines very susceptible to injury

Tracheotomy & home ventilators

Explain the purpose, indications, typical parts, types of tubes, elements to assess, and methods of troubleshooting a tracheostomy.

10. Which of these is NOT a reason for a trach?
    A. Manage chronic aspiration
    B. Need for long term ventilation
    C. Bypass an upper airway obstruction
    D. Inability to protect airway due to seizures

11. Which of these is an indication for a tracheostomy?
    A. Kidney failure
    B. Blood borne disease
    C. Born without trachea
    D. Injuries to head/neck w/ airway swelling

12. Which of these is an indication for a tracheostomy?
    A. Chronic aspiration
    B. Lower airway obstruction
    C. Patient in severe pulmonary edema
    D. Failed field intubation and unable to use King airway or BVM

13. What is the purpose of a CUFFED trach tube?
    A. To facilitate weaning off of the trach
    B. To make it easier to suction the trach
    C. To prevent an air leak around the tube
    D. To allow breathing through the vocal colds to permit talking

14. Which of these is NOT used to inflate a trach cuff?
    A. Air
    B. Sterile water
    C. Water soluble gel
    D. Sponge-like foam

15. EMS should assess a stoma for
    A. tube stability.
    B. skin breakdown.
    C. diameter and depth.
    D. laryngeal web tissue.

16. What is a sign/symptom of a cuff leak?
    A. Pilot balloon is flat
    B. Decreased vocalization
    C. Thick sticky secretions
    D. Airway pressure readings are high on the vent

17. What is the recommended EMS intervention in the event of a cuff leak?
    A. Immediately remove the trach tube
    B. Contact OLMC for immediate instruction
    C. Override the cuff leak with BVM oxygenation
    D. Withdraw any air or fluid from the cuff/re-volumize

18. Which is true regarding granulation tissue?
    A. It bleeds easily
    B. It is dark brown and crusty in appearance
    C. It is full of nerve endings so is very painful when touched
    D. It causes the stoma opening to enlarge so tubes tend to slip out if uncuffed

- Describe how EMS should respond in the event of an unexpected emergency such as trach tube obstruction, accidental decannulation, or inability to replace a trach tube, including CPR technique.
- Describe types of ventilators and list possible causes and the EMS response for ventilator alarms.

19. While in route to the hospital, the child completely removes his/her trach tube. What should a PM do?
    A. Intubate immediately
    B. Insert the spare trach tube
    C. Start to mechanically ventilate the patient
    D. Contact patient's personal physician to ask how to handle the situation

20. Which is NOT an indication that a child with a trach requires suctioning?
    A. Increased cough
    B. Visible secretions in trach opening
    C. Diffuse fine crackles in both bases
    D. Decreased pulse ox and hypercarbia

21. Which is NOT a sign/symptom indicating the need to suction the trach?
    A. Mucous bubbling from the nostrils
    B. Increased inhalation or exhalation time
    C. Rattling or whistling sounds from trach
    D. Decreased/absent or coarse breath sounds

22. How should EMS estimate the size of the suction catheter to use?
    A. Double the patient's age in years
    B. Look at the diameter of the patient's nostril
    C. Look at the diameter of the patient's little finger
    D. Double the internal diameter of the trach tube size

23. What can be used as a guide to premeasure the length of the suction catheter to insert?
    A. Length of the little finger
    B. The trach tube obturator
    C. Tip of the nose to the earlobe
    D. Half of the length from chin to sternum

24. What is the maximum amount of time that suction should be applied at one time to a child?
    A. 5 seconds
    B. 15 seconds
    C. 30 seconds
    D. 60 seconds

25. What should the PM do if ventilating a child with a trach continues to be difficult after suctioning?
    A. Instill 10 mL NS to loosen secretions
    B. Ask caregiver to help replace the tube
    C. Cut the blocked section of the tube out
    D. Attach BVM to the end of the tube and force ventilate

26. If PMs are unable to insert a smaller replacement trach tube and the child has an increased HR and is becoming pale or cyanotic with increased work of breathing; what can a PM use to help place the tube?
    A. ET tube stylette
    B. Insert a gloved finger through stoma to palpate for an obstruction
    C. Spread the stoma with the clamp in the cric kit and insert a larger trach tube
    D. Thread suction catheter through trach tube and probe trach opening with the catheter tip

27. If a child with a trach is found unresponsive and gasping, what is the 1st. step in initiating resuscitation?
    A. Deflate the cuff
    B. Remove the inner cannula
    C. Suction to attempt to clear the airway
    D. Use BVM over mouth and nose with pediatric mask

28. What should be in a tracheostomy "Go Bag"?
    A. Curved Kelly clamps or spreaders
    B. Same size and size smaller trach tubes
    C. Scalpel to incise obstructions in the stoma
    D. Gum elastic Bougie to use as a guide wire

29. What action is indicated FIRST if a ventilator alarm is triggered?
    A. Check the child
    B. Check the batteries or power supply
    C. Check for kinks or occlusions in the tubing
    D. Turn the ventilator off and back on to reset

30. What's the advantage of a volume controlled ventilator?
    A. Little risk of barotrauma
    B. Provides a set inspiratory pressure to deliver gas in the inspiratory phase
    C. Guaranteed amount of gas is delivered regardless of lung compliance
    D. No cycling of pressures, they remain the same with inspiration and expiration

Central venous catheters

31. What conditions would warrant a central venous access line?
    A. Multiple MIs
    B. Need for tube feedings
    C. Need for daily IV medications
    D. Allow easier IV access for PMs

32. Patients receiving which of the following would likely have a VAD?
    A. Coumadin
    B. Topical antibiotics
    C. Blood pressure meds
    D. TPN and frequent transfusions

33. Which of the following is NOT considered a use for a central venous catheter?
    A. Hydration
    B. Chemotherapy
    C. Plasmapheresis
    D. Need for frequent glucose checks

34. According to the SOPs, when can PMs access a central venous catheter in the field?
    A. With permission from the patient or family
    B. If the medication to be given is hypertonic
    C. If device is already placed and permission granted from OLMC
    D. If the patient's BP is low and immediate distribution to the heart is desired

35. Which central venous catheter may NOT be accessed by EMS personnel under any circumstances?
    A. Portacath
    B. PICC line
    C. Broviac catheter
    D. Hickman catheter

36. Which of these must be done FIRST by EMS personnel before infusing medications or IV fluids into a central venous access catheter?
    A. Aspirate 5 mL of blood from the line
    B. Flush the line with a heparin solution
    C. Slowly infuse 5-7 mL of NS into the catheter
    D. Access the line with a 90° angle Huber needle

37. Which of these suggests an air embolus in those with a central venous access line?
    A. Chest pain and severe hypoxia
    B. Sudden loss of vision in one eye
    C. Unequal pupils that are nonreactive
    D. Absent breath sounds on affected side

38. What is NOT a complication of a VAD?
    A. Infection
    B. Fat embolism
    C. Tubing kinked
    D. Crystallized medications

41. When troubleshooting a central venous access line, what does DOPE stand for?
    A. Difficult opening pressure evaluation
    B. Department of pulmonary equipment
    C. Acronym for "dopamine" administration
    D. Displaced, obstructed, pericardial tamponade, equipment

40. What should EMS personnel do if external bleeding is noted at the site of a PICC line?
    A. Apply direct pressure to the site
    B. Flush central line with normal saline
    C. Apply gel gauze over site and secure
    D. Remove the central line and treat wound

41. A PICC line is leaking. What would be the fix for this?
    A. Tape over the leak
    B. Remove the PICC line
    C. Clamp the leaking tubing
    D. Flush the line until the leak stops

42. The access point for a PICC line appears red, swollen, and is tender. What action is indicated by EMS?
    A. Remove the PICC line
    B. Clamp off the PICC line
    C. IVF and vasopressors as needed
    D. Flush the line to remove the obstruction

CSF shunts

43. What is the purpose of a CSF shunt?
    A. Bolt used to drain excess blood from the brain
    B. Thin wire used to block CSF production or circulation
    C. Tubing used to drain excess spinal fluid from the brain ventricles
    D. Hard plastic button used to close a complicated scalp/fontanelle laceration

44. When there is an interruption of normal CSF circulation due to an increase in production, an obstruction of CSF flow, or a decrease in CSF absorption, what is this called?
    A. GERD
    B. Stroke
    C. Hydrocephalus
    D. Hydrochlorothiazide

45. A CSF shunt usually drains to the
    A. stomach.
    B. Portal vein.
    C. peritoneal cavity.
    D. exterior port/device.

46. Which is a sign/symptom of VP shunt malfunction in an infant?
    A. Leg pain
    B. Hypotension
    C. A bulging or full fontanelle
    D. Normal seizure pattern for the child

47. Which of these could be a complication of a malfunctioning CSF shunt?
    A. Infection
    B. Overdrainage
    C. Obstructed catheter
    D. All of the above

48. Which of these are common signs/symptoms if a shunt is occluded in a child older than 2 years?
    A. Slow HR, RR up, BP down
    B. Headache, nausea, vomiting
    C. Fever, stomach pain, hearing loss
    D. Bulging fontanelle, chest pain, limb paralysis

49. What is the EMS intervention to treat a blocked CSF shunt with increased ICP?
    A. Support ABCs
    B. Synchronized cardioversion
    C. Dopamine drip at 5 mcg/kg/min
    D. IV fluid bolus to SBP of 90 or greater

50. A child with a CSF shunt is irritable, c/o of headache, and is not acting right. Which is indicated?
    A. 12 Lead only
    B. Pleural decompression
    C. Cincinnati Stroke Scale
    D. Watch for vomiting, suction as needed

51. Which of these is the short term resolution of a spinal headache due to too much drainage of CSF?
    A. Eating
    B. Lying flat
    C. Sitting up
    D. Moving about

Feeding tubes

52. What is NOT an indication for a long-term G tube or button?
    A. Peritonitis
    B. Chronic malabsorption
    C. Swallowing dysfunction
    D. Craniofacial abnormalities

53. What is the purpose of a G tube?
    A. To obtain central vascular access
    B. To remove foreign bodies from the jejunum
    C. To provide medication doses and nutrition to patients unable to take it by mouth
    D. To provide an airway for a child who is unable to breathe on their own for an extended time

54. What is NOT an indication for a G tube or button?
    A. Esophageal burns or strictures
    B. Neurological problems/brain damage
    C. Severe facial injuries secondary to trauma
    D. Need for tube feedings for less than 10 days

55. The stoma site of a child with a gastric button is irritated with purulent drainage. What action is indicated?
    A. Clean site with hydrogen peroxide
    B. Apply dry gauze dressing; transport
    C. Apply sterile gauze moistened with NS; cover with airtight dressing
    D. Apply gentle pressure around stoma edges to express as much pus as possible

56. A patient with a G tube has a feeding infusing when transport is needed. What action is indicated?
    A. Wait until feeding is completed, then transport
    B. Leave tube feeding hanging, clamp tube for transport
    C. Transport pump if there is space and a power source on the ambulance
    D. Bolus the feeding in with a syringe, disconnect from pump and clamp tube.

57. A child with a G tube presents with leakage of stomach contents from the tube. What action is indicated?
    A. Clamp the tube
    B. Flush the tube with 20 mL NS
    C. Cover end of tube with a sterile dressing
    D. Aspirate the tube until resistance is met to clear the blockage

58. A child with an NG tube is found choking and coughing. SpO_2 98%. What EMS action should be performed FIRST?
    A. Suction airway
    B. IV NS 20 mL/kg
    C. ECG monitoring
    D. Oxygen 15 L/peds NRM

59. What EMS action is indicated if the child's feeding tube becomes partially dislodged?
    A. Push tube back into place
    B. Re-tape and leave tube as is
    C. Gently pull tube out through mouth or nose
    D. Remove tube and replace with a sterile new tube

60. A child with a gastric button presents with nausea, vomiting, abdominal distention, cramping, diarrhea, and hypotension. What EMS action is indicated?
    A. Accelerate rate of tube feeding to decrease stomach irritation
    B. Give IV fluids and transport on right side to avoid potential aspiration
    C. Clamp off the button to prevent any more air or fluid from entering the stomach
    D. Remove the button as it is clearly blocked and ask parent to change to a new one