**Introduction to paediatrics- Paediatric propaedeutics**

1. Childhood is characterized by the following periods:

1. **Infancy: 29th day of life until the end of the 1st year**
2. **Newborn period is divided into the early (perinatal) and late periods**
3. **Toddler period: from the 1st until the 3rd birthday**
4. **Prenatal period is divided into the blastemic, embryonic and fetal stages**

2. Which of the following are risk factors of intrauterine growth restriction (retardation):

1. **Fetal chromosomal aberration**
2. **Placental infarction**
3. **Smoking during pregnancy**
4. **Maternal hypertension during pregnancy**

3. What is the mean length and weight of the foetus during various stages of pregnancy:

1. 20th week of gestation: 35 cm and 1,200 g
2. **36th week of gestation: 45 cm and 2,500 g**
3. 16th week of gestation: 16 cm and 600 g
4. 32nd week of gestation: 40 cm and 2,500 g

4. What are the weight gains in the first year of life:

1. **150 to 250 g per week during the first trimenon**
2. **500 g to 600 g per month during the second trimenon**
3. 350 g per week during the first trimenon
4. **The newborn´s weight approximately triples by the age of 1 year**

5. What statement i correct:

1. **A full-term newborn weighs between 3,000-4,000 g, measures 50 cm, boys weigh about 100 g more than girls**
2. **The average physiological newborn weight loss is 7% peaking on days 2-3 of life**
3. Newborns have large head, relatively short trunk and long extremities
4. Newborns have small head, relatively long trunk and short extremities

6. What is true about child's growth:

1. **Child gains 25 cm in the first year of life**
2. **Child gains 3-4 cm in average per month in the first three months of life**
3. Child gains 3 cm in average per month during the 4th trimenon
4. Child gains 9 cm in the second year of life

7. What is true about the growth of the child?

1. **The growth rate in preschool and school period is about 5 cm per year**
2. **The growth rate is the slowest just before puberty (only 3-4 cm per year)**
3. Child gains about 6 cm of height in the 3rd year of life
4. **Child achieves the height of 1 m in average at the age of 3.5 years**

8. What is true about weight gain:

1. **Child doubles its birth weight at the age of 4-5 months**
2. **The newborn regains his or her birthweight after the physiological weight loss by 10th-14th day of life**
3. The average weight gain is 4 kg per year in the toddler period
4. The weight of one-year-old child is approximately 12 kg

9. What is true about puberty:

1. **The growth spurt in girls starts from the 10th year of age and peaks around 12th year of age**
2. The growth spurt in boys’ peaks about 1-2 years earlier than in girls
3. **The weight gain in puberty is 3-5 kg per year**
4. **The height may increase by 8-12 cm per year during the growth spurt**

10. What is true about puberty:

1. The pubic hair growth is the first sign of puberty in boys
2. **The testicular enlargement is the first sign of puberty in boys**
3. **The thelarche and growth acceleration are the first signs of puberty in girls**
4. The irregular menstrual cycle is the first sign of puberty in girls

11. What is true:

1. Fat constitutes about 25% of body weight in an adult male
2. **Fat constitutes about 25% of body weight in an adolescent female**
3. Muscles constitute about 60% of body weight in an adult male
4. Muscles constitute 40% of body weight in an adult male

12. What is true:

1. The average head circumference in newborns is 37 cm
2. **The average head circumference is 46-47 cm at the age of one year**
3. **The weight of brain is 350-400 g at birth and 800-900 g at the end of 1st year of life**
4. **The average head circumference at the age of 6 years is 51 cm**

13. Body surface in children:

1. **Is about 0.25 m2 in newborns**
2. **Is about 0.45 m2 at 1 year of age**
3. **Is about 1.1 m2 at 10 years of age**
4. Is about 2.0 m2 in adults

14. A boy was born in the 39+3 weeks of gestation:

1. His head circumference is 38 cm, which is normal
2. His weight is 2,200 g, which is normal
3. **His weight is 2,800 g, which is normal**
4. **His length is 48 cm, which is normal**

15. What should be considered in case of the term newborn (40th week of gestation) with the birthweight of 4,400 g:

1. Fetoplacental insufficiency
2. **Gestational diabetes**
3. Hypothyroidism in the newborn
4. Hypothyroidism in the mother

16. What should be considered in the case of the term newborn (40th week of gestation) with the birthweight of 2,100 g.

1. **Maternal smoking during pregnancy**
2. **Fetoplacental insufficiency**
3. **Fetal alcohol syndrome**
4. Mother's gestational diabetes

17. A full-term healthy infant during the first 3 months of life:

1. Grows about 2 cm per month
2. The average weight gain is about 350 g per week
3. **Needs 150 ml/kg/day fluids**
4. **The head circumference grows 2-3 cm per month**

18. A fully breastfed girl (birthweight 4100 g) has a weight of 5050 g at 3 months:

1. Her weight is all right, she corrects her higher birth weight, investigation is not necessary
2. Coeliac disease should part of the differential diagnosis
3. **The lack of breast milk should be considered**
4. The child probably drinks inadequately high amounts of breast milk

19. A 6-month-old boy has head circumference of 38 cm. What has to be considered:

1. Achondroplasia
2. Hydrocephalus
3. **Intrauterine CMV infection**
4. **Untreated phenylketonuria**

20. A full-term girl with the birth length of 50 cm is 70 cm high at the age of 1 year. Differential diagnosis includes:

1. Growth hormone deficiency
2. **Bone dysplasia**
3. **Cystic fibrosis**
4. **Chronic renal insufficiency**

21. Growth charts:

1. **It is all right for the child to cross one of the main percentile curves (3rd, 10th, 25th, 50th, 75th, 90th, 97th percentile) in its first 2 years of life (lag down or catch-up growth)**
2. It is all right for the child to cross two adjoining main percentile curves in the stature-for-age chart at his or her 2 years of age (lag down or catch-up growth)
3. **If the child grows steadily under the 3rd percentile, it might be due to familial short stature**
4. **Newborn with the weight under 3rd (or 5th) percentile for gestational age has an intrauterine growth restriction (retardation)**

22. Which statement about the child development is correct:

1. A four-month-old infant holds extremities in flexion, hands in fists, moves head from one side to another
2. **A two-month-old infant begins to lift his or her legs, can lift the head for about 3 seconds in the prone position**
3. **A newborn can differentiate light and dark, and fix light objects briefly**
4. **A newborn reacts to loud sounds by the whole-body jerk**

23. What is correct about the development:

1. The child can intentionally grab the toy and transfer it hand to hand at the age of three months
2. **A child can intentionally grab the** **toy and transfer it hand to hand at the age of five months**
3. **A child begins to laugh loudly around the age of four months**
4. A 6-month-old child can crawl

24. What is correct about the development?

1. A seven-month-old infant can clap hands and wave bye-bye
2. **A nine-month-old child can clap hands and wave bye-bye**
3. **An eleven-month-old child understands simple instructions like “open" or "close your mouth" etc.**
4. At 12 months the child can express about ten meaningful words

25. A 24-month-old child:

1. **Can say about 300 words and uses short (2-3 words) sentences**
2. Can draw a triangle
3. Plays with other children
4. **Walks upstairs without holding somebody’s hand**

26. A child of five years of age:

1. **Can hop on one foot**
2. **Can distinguish right and left hand**
3. **Understands the concept of yesterday and tomorrow**
4. **Can draw a figure with head, trunk and extremities**

27. What is correct:

1. **The newborn has about 60-80% of fetal haemoglobin (HbF)**
2. **The haematocrit of a newborn child is over 50%**
3. The mean cell volume (MCV) of newborn erythrocytes is 70-85 fl
4. **The mean cell volume (MCV) of newborn erythrocytes is** **90-110 fl**

28. What is correct:

1. **Leukocyte count after birth is 9-30x109/L**
2. Leukocyte count after birth is 4-9x109/L
3. In the differential blood count of a newborn there is a prevalence of lymphocytes
4. **In the differential blood count of a newborn there is a prevalence of neutrophils**

29. What is correct:

1. **The concentration of coagulation factors in a newborn is about 50% of the values in an adult**
2. **Breast milk contains about 2 µg/L of vitamin K, cow’s milk 5 µg/L**
3. **Coagulation parameters of a 6-month-old child are very similar to the adult parameters**
4. Breast milk contains about 5 µg/L of vitamin K, cow’s milk 50 µg/L

30. What is correct:

1. **Naturally occurring agglutinins anti-A and anti-B exist as IgM immunoglobulins in older children and adults**
2. Positivity of Rh system depends on the presence of C antigen
3. Anti-Rh antibodies occur in blood naturally without previous immunization
4. Haemolytic disease of the newborn is treated with vitamin K

31. What is correct:

1. Rh-alloimmunization of the foetus manifests as a conjugated hyperbilirubinemia
2. **Rh-alloimmunization of the foetus is usually more severe than the alloimmunization in AB0 system**
3. **Severe haemolysis in the foetus/newborn may lead to massive generalized oedema due to anaemia, hypoxia and hypoproteinaemia**
4. **Foetal erythroblastosis is a consequence of higher production of the immature erythrocytes (in liver and spleen) because of haemolytic anaemia in the newborn**

32. What is correct:

1. **Placenta has two separate blood compartments – uteroplacental and uterofoetal**
2. Rh-alloimmunization develops only after a previous abortion
3. Rh-alloimmunization develops only after a previous delivery
4. **Mother produces anti-D antibodies for the rest of her life after the previous alloimmunization**

33. What is correct:

1. Primary lymphoid organs include bone marrow and Peyer's patches
2. Primary lymphoid organs include bone marrow and lymphatic nodules
3. **Secondary lymphoid organs include lymph nodes and adenoid vegetation**
4. Thymus and spleen are secondary lymphoid organs

34. What is correct:

1. **Newborns are susceptible to staphylococcal skin infections**
2. Newborns are susceptible to enterovirus infections
3. Infections in the newborn period are partly caused by the higher concentration of myeloperoxidase in polymorphonuclear leukocytes
4. **Polymorphonuclear leukocytes are essential in the defence against bacteria causing pyogenic infections**

35. What is correct:

1. Lower concentration of IgM antibodies in the umbilical blood indicates an intrauterine infection
2. **Synthesis of IgG is low prenatally and rises postnatally thanks to the stimulation of the immune system by exogenous antigens**
3. **Level of IgG equalizes to the level of adults in 4th to 6th year of life**
4. **Antibacterial effectiveness of secretory immunoglobulins of IgA class is facilitated by the aggregation of bacteria and prevention of their adhesion to mucous membranes**

36. Breast milk contains:

1. **All classes of immunoglobulins**
2. **High cell count (2x106/L), mainly macrophages (80-90%)**
3. **All basic proteins of the complement cascade**
4. Actiferrin

37. What is correct:

1. **Lysozyme participates in lysis of gram-negative bacteria**
2. **Lysozyme splits mucopolysaccharide complexes particularly in gram-positive bacteria**
3. **Lactoferrin protects the intestinal wall of a newborn particularly against infections by pathogenic strains of *E. coli***
4. **Breast milk contains neuraminic (sialic) acid and lactoperoxidase systems**

38. Ductus arteriosus Botalli:

1. **Closes in full-term newborns in 72-96 hours after birth on average**
2. Ibuprofen maintains the patency of ductus arteriosus
3. **Higher partial pressure of oxygen in blood leads to the closure of ductus arteriosus**
4. **Prostaglandins maintain the patency of ductus arteriosus**

39. Patent ductus arteriosus Botalli:

1. Is more common in full-term newborns
2. **Increase in pulmonary blood flow leads to the lower dynamic pulmonary compliance and worsening of pulmonary functions**
3. **Leads to an increased left ventricular strain**
4. **One of the consequences is an increase of pulmonary blood flow that may lead to serious vascular changes in pulmonary circulation**

40. Patent ductus arteriosus Botalli:

1. **Can lead to worsening of renal** **blood flow with higher concentration of creatinine which is reversible after ductus arteriosus is successfully closed**
2. **Large shunting of blood may lead to worsening of the CNS oxygenation**
3. **May be managed conservatively by administering prostaglandin synthesis inhibitors**
4. May be managed conservatively by administeringprostaglandin degradation inhibitors

41. After the birth:

1. Pulmonary vascular resistance increases
2. **Pulmonary vascular resistance decreases**
3. **Mean arterial pressure in pulmonary artery decreases to the levels of about 15 mmHg at 6-8 weeks of postnatal life**
4. Mean arterial pressure in pulmonary artery decreases to levels of about 15 mmHg at the age of 2 years of postnatal life

42. The reason for persistent pulmonary hypertension in the newborn may be:

1. **Meconium aspiration**
2. **Sepsis**
3. **IRDS**
4. **Diaphragmatic hernia**

43. Normal level of pO2 in the fetal umbilical venous blood:

1. **Is about 28 mm Hg (3.7 kPa)**
2. **Is 10-15 mm Hg (1.3-2.0 kPa) lower than in venous blood of the mother**
3. Is lower than in the fetal umbilical artery
4. **Is higher than in the fetal umbilical artery**

44. What is correct:

1. **Respiratory volume is 5-7 mL/kg of body weight in average**
2. Respiratory volume is 15-20 mL/kg of body weight in average
3. **Irregular or periodic breathing is typical for newborns**
4. **Periodic breathing is more common in immature children**

45. Grunting:

1. Is characterised by an active and prolonged inspiration
2. **Is characterised by an active and prolonged expiration**
3. **Occurs as the result of exhalation against the partially closed glottis**
4. **Accompanies the respiratory distress**

46. Surfactant:

1. Is synthesized by type I pneumocytes
2. **Is synthesized by type II pneumocytes**
3. Synthesis in alveoli begins after the 32nd week of gestation
4. **Consists mainly of phospholipids (90%)**

47. Surfactant:

1. **Decreases the surface tension of pulmonary alveoli**
2. Increases the surface tension of pulmonary alveoli
3. **Helps to mechanically clean pulmonary alveoli of particles and cell detritus**
4. **Has a direct antibacterial effect**

48. Glomerular filtration rate (GFR):

1. **Is approximately 0.33 mL/s/1.73 m2 of body surface area in a full-term newborn**
2. **Doubles until two weeks of life which is particularly due to the redistribution of blood flow**
3. **At the age of one year, GFR is similar to the GFR of an adult in relation to body surface area**
4. **Is approximately 2 mL/s/1.73m2 of body surface area** **in adults**

49. Glomerular filtration rate is influenced by:

1. **Filtration pressure**
2. **Oncotic pressure**
3. **Capillary wall permeability**
4. **Filtration area**

50. Urinary concentration ability:

1. Adults can concentrate urine to 1,800-2,000 mOsm/L
2. **Adults can concentrate urine approximately to 1,400 mOsm/L**
3. **Seven-day-old newborn can concentrate urine approximately up to 50% of the level of adults**
4. **Children at the age of one year can concentrate urine approximately to 1,100 mOsm/l**

51. What is correct:

1. **Newborn's brain weight is 400 g**
2. **Brain weight doubles during the first year of life**
3. Brain of a newborn is fully myelinated
4. **Brain weight reaches the weight of an adult brain at the age of six years (1,250 g)**

52. Physiologic hypermetropia:

1. **Occurs approximately in 3/4 of newborns**
2. **Often persists until young school age**
3. **Is caused by decreased axial length of the ocular globe and milder corneal curvature**
4. Is caused by the consensual reaction

53. Between the age of 5 to 7 months:

1. **Child begins to distinguish familiar and unfamiliar face - so called the first stage of separation anxiety**
2. **Begins to understand object permanence**
3. Behaviour towards objects or people does not differ
4. This age is characterized by jealousy associated with the birth of a younger sibling

54.Toddler:

1. **At the age of 2 years, child likes to play adjacent to other children, but doesn't like to interact with them directly (parallel play)**
2. **At the age of 3 years, child starts to interact or compete with other children (collective play)**
3. **This age is characterized by jealousy associated with the birth of a younger sibling**
4. **Is inclined to respond with aggressive exaction or refusal (stage of negativism and defiance)**

55. Analgesics:

1. Are used in children less frequently because children are less sensitive to pain in comparison to adults
2. Are used in children less frequently because they develop an addiction easier
3. **We always treat pain in children, the foetus has a complex system for pain perception since the 22nd week of gestation**
4. Are used only if pain is confirmed by scoring scales

56. The ability of abstract thinking:

1. Is present at the age of 10 years
2. **Is present at the age of 5-6 years**
3. Enables to learn tidiness
4. **Enables school education**

57. The most common cause of death in children older than one year are:

1. Cardiovascular disorders
2. Congenital developmental disorders
3. **Trauma and intoxication**
4. Malignant tumors

58. 2-month-old girl suffers from nappy rash:

1. Suspect cellular immunodeficiency
2. Apply antibiotic ointment to the afflicted area
3. **Emphasize that thorough hygiene and bathing with lukewarm water after every stool is necessary**
4. **Leave the skin exposed to fresh air whenever possible**

59. What is the appropriate sleeping position for a two-month-old infant:

a) Prone position

b) On the left or right side

c) On the right side

**d) On the back**

60. The fastest growth spurt in a teenage girl is:

**a) In the period around menarche**

b) Just after the age of 17 years

c) 2nd - 3rd year after menarche

d) One year after menarche

61. The clinical picture of purgative mental anorexia does not include:

a) Unrealistic body image

b) Short bulimic attacks

c) Amenorrhoea

**d) Night sweats**

62. A 16-year-old apprentice comes to the paediatric outpatient clinic with his father. The father is convinced that the boy has got involved with a bad company and is abusing drugs, money keeps disappearing at home. The boy denies any drug abuse. What may contribute to the suspicion that the boy is abusing drugs?

**a) Visible skin punctures that cannot be explained by blood sampling or injection therapy**

**b) Superficial thrombosis and skin infections**

**c) Weight loss**

d) Palmoplantar erythema

63. The adolescent girl reports unpleasant dysuria. Her urine sample sent for biochemistry and microbiology analysis shows mild proteinuria and significant leukocyturia but negative urine culture. The girl has no fever or other constitutional symptoms. What is the likely cause?

a) Acute post-streptococcal glomerulonephritis

b) Acute pyelonephritis

c) Urolithiasis

**d) Chlamydial urethritis**

64. An adolescent boy without any subjective health problems receives the result of sports examination which includes blood samples. The only pathological result (including bilirubin, ALT, AST, GMT) is bilirubin 60 µmol/L, conjugated bilirubin is 8 µmol/L). What is the likely cause?

a) Crohn's disease

**b) Gilbert's syndrome**

c) Infectious mononucleosis

d) Ulcerative colitis

65. When experimenting with drugs, adolescents:

**a) Use drugs mostly in a group of peers**

**b) May withdraw from the experiment spontaneously without major physical or mental difficulties**

c) Often take drugs alone and in secret

d) Have already used drugs intravenously

66. A single blood pressure measurement in a 17-year-old boy shows a value of 145/90 mm Hg:

a) It immediately establishes the diagnosis of hypertension

b) It should prompt an urgent examination of renal function

**c) It is a signal for repeated blood pressure checks**

**d) May be caused by the "white coat syndrome"**

67. Pain in the right lower abdomen in adolescence may be a manifestation of:

**a) Acute appendicitis**

**b) Extrauterine pregnancy**

**c) Crohn's disease**

**d) Urolithiasis**

68. Mature breast milk contains:

**a) 0.9-1.1 g of protein per 100 mL**

b) 2 g of fat per 100 mL

c) 3.5 g of lactose per 100 mL

**d) IgM immunoglobulin**

69. Starting solid foods to infant diet:

**a) Solids may be started with mashed vegetables on a spoon (broccoli, carrots, potatoes)**

**b) It is appropriate to have an interval of 3-4 days to the introduction of another new solid to assess the tolerance**

c) Honey may be introduced from the age of 6 months

d) Gluten should be introduced after 9 months of age to reduce the risk of celiac disease

70. Which vitamins are routinely administered to all neonates and infants:

a) B12

**b) D**

c) C

**d) K**

71. Starting non-dairy solids (complementary nutrition) in infants is recommended:

a) In the 3rd month

b) only after first teeth eruption

**c) Between 4th and 6th month**

**d) By spoon**

72. In the treatment of cow's milk protein allergy, the following is used:

a) Infant formula labelled with HA (hypoantigenic formula)

**b) Extensively-hydrolyzated formula**

**c) Amino acid-based or elementary formula**

d) Infant formula labelled with AR

73. Finger food in a healthy infant:

a) Is offered between 4th and 5th month of age

b) Is offered from the 6th month of age

**c) Is offered between 7th and 8th month of age**

d) It is introduced around the first year of life as a so-called "family food"

74. Vegan nutrition after 6 months of age endangers a child by:

**a) Lack of calories**

**b) Lack of proteins**

**c) Vitamin B12 deficiency**

**d) Calcium deficiency**

75. Fever is:

**a) Body temperature above 38.0 °C measured in the rectum**

**b) Increase of the "basal temperature of the individual" by 1-4 °C**

c) Increase in body temperature measured in the axilla above 37.2 °C

d) Increase of the temperature of the baby's forehead skin

76. An increase in body temperature may be caused by:

**a) Altered setting of the "central thermostat"**

**b) Increased metabolic activity**

**c) Overheating by staying in a hot environment**

d) Ingestion of overheated drinks or food

77. Thermogenesis in a child has the following sources:

**a) Shivering thermogenesis**

**b) Non-shivering thermogenesis**

**c) The cry of an infant**

d) Bowel movements (peristalsis)

78. Previously healthy child has a sudden onset of fever. Which of the accompanying clinical sings are alarming?

**a) Disorder of consciousness**

**b) Shortness of breath**

c) Sweating

**d) Bruising or bleeding into the skin**

79. In which conditions the description of the fever course (fever chart) helps in the differential diagnosis:

**a) Sixth disease**

**b) Malaria**

c) Rheumatic fever

**d) Hodgkin lymphoma**

80. The pathophysiological mechanisms of fever caused by 'endogenous pyrogen' are:

a) Peripheral vasodilation

**b) Peripheral vasoconstriction**

c) Bradycardia

**d) Muscle contracture and shivering**

81. Drugs that are not suitable antipyretics in children with a common illness:

a) Paracetamol

**b) Acetylsalicylic acid**

**c) V-penicillin**

**d) Prednisone**

82. A mild increase in body temperature in an infant may also be caused by:

a) Vitamin K deficiency

b) Vitamin D overdose

**c) Teething**

d) Congenital hypothyroidism

83. Paracetamol for fever in children:

**a) Dosage is 10-15 mg per kg per dose**

b) Dosage is 150 mg per kg per day

**c) The interval of two paracetamol doses is 6 hours**

**d) It may also be administered intravenously**

84. False statement/statements about neonatal screening in the Czech Republic is/are:

a) Examination is performed between 48th and 72nd hour of life

b) The probability that one of the examined diseases will be detected in one specific screened neonate is approximately 1:1,000

**c) Blood samples are taken in a special tube**

**d) The examination is performed in all neonates between 72nd and 96th hour of life**

85. Mark true statement**/**statements about congenital adrenal hyperplasia:

a) Cortisol level is measured in neonatal screening

**b) More than 90% of all cases are caused by 21-hydroxylase deficiency**

c) It is easier to diagnose it in neonatal screening in boys

d) Children suffer from dehydration during hyperglycaemia

86. Mark false statement/statements about congenital hypothyroidism:

**a) It is the second most common disease included in the neonatal screening program**

b) Clinical signs of untreated congenital hypothyroidism develop fully between 3rd and 6th month of age

**c) fT4 level is measured in neonatal screening**

d) It can be autosomal dominant as well as recessive disease which is related to dysgenesis and dyshormonogenesis of the thyroid gland

87. Mark true statement/statements about phenylketonuria in neonatal screening:

**a) It is the oldest screened disease in the world**

**b) Full breastfeeding is contraindicated in case of a positive finding**

c) Despite the adequate treatment, the prognosis may not be good in the classic form of the disease

d) If undiagnosed, it will result in severe liver and kidney disease along with severe developmental delay

88.Mark false statement/statements about cystic fibrosis in neonatal screening:

**a) The method of neonatal screening is the measurement of the level of chlorides in sweat in the maternity hospital between 48th and 72nd hour of life**

**b) It captures all forms of the disease**

**c) DNA analysis is included in neonatal screening**

d) If the immunoreactive trypsinogen in the blood is positive, a recall and a new blood sample are taken for DNA analysis

89.Mark true statement/statements about neonatal screening:

a) In the screening for congenital hypothyroidism, the concentration of free thyroxine is determined

b) For the diagnosis of cystic fibrosis, it is essential to determine the level of elastase in a dry blood spot

c) Ammonia levels are measured in neonatal screening for urea cycle disorders

**d) TSH levels are determined in congenital hypothyroidism screening**

90. Hearing impairment occurs at a frequency of 1-2 per 1000 live births in neonatal population. Neonatal hearing screening is used to detect it and it must be performed between 2nd and 4th day after the birth in the neonatal wards. A simple non-invasive method is used for this examination:

a) BERA (brainstem electric response audiometry)

b) SSEP (steady state evoked potentials)

**c) TEOAE (transient evoked otoacoustic emissions)**

**d) OAE (otoacoustic emissions)**

91. Regular preventive examinations in the general practitioner's office for children and adolescents (GP) help to early detect deviations in the child's somatic, psychomotor and sensory development. Parents are invited to regular check-ups 10 times during infancy and toddlerhood and from the third year of life at regular two-year intervals. The examination of school-age children in the GP office includes physical examination and other examination which is:

**a) Examination of sight, hearing, arterial blood pressure, examination of urine**

b) Measurement of glycemia and cholesterol

**c) Anthropometric examination**

**d) Control and plan of mandatory and voluntary vaccination + actual vaccination of the child**

92. Preventive examination of infants and toddlers includes an assessment of the child's psychomotor and psychosocial development. Referral to other specialists (paediatric neurology, physiotherapy or other according to comorbidities and symptoms) is necessary when the child fails to achieve the relevant milestone. Mark false statement/statements:

**a) As a part of the physiological development, the child must walk independently at one year of age**

b) As a part of physiological development, the child walks independently before reaching 18 months of age

c) At 7 months an infant can lie on the stomach with extended arms leaning on the palms

**d) Child must be able to speak at least 10 words when at one year of age**

93. For the period of toddler age, examinations are scheduled in the in the general practitioner's office for children and adolescents (GP) at 18 months and 3 years of age. Mark the true statement/statements.

a) At the age of 3, the first screening examination for autism spectrum disorders (ASD) is performed in the GP office using the M-CHAT questionnaire

**b) Separation anxiety and strong fixation on the mother are typical for toddler age**

**c) In toddler age, the child experiences the first period of defiance and self-awareness**

d) Toddler neophobia can lead to nutritional deficiencies. The most common food-intake disorder in toddlers is protein-energy malnutrition

94. Preventive examinations in the general practitioner's office for children and adolescents (GP) are aimed at:

**a) Early detection of congenital and acquired pathological conditions in somatic, psychomotor and social development**

**b) Prevention of obesity and civilization diseases, risk behaviour and addictions**

c) Examination of stool for FOBT (occult bleeding) at 3 months of age for early detection of allergy to cow's milk protein

**d) To support the prevention of civilization and allergic diseases through nutritional counselling and support of lactation in infancy**

95. During a preventive examination of a 3-year-old boy in a general practitioner's office for children and adolescents (GP), he may find out the following by examination. Mark true statement/statements:

**a) The child deviates from the anthropometric curve, has pale appearance and enlarged belly. Immunology test for celiac disease is appropriate.**

**b) The boy uses simple but clear 2-3-word sentences. He understands simple instructions, speech comprehension seems to be fine. There are no other signs of deviation in psychosocial development. The previous M-CHAT questionnaire evaluation is without obvious pathology. This may well be within the physiological range of development. Speech monitoring may be provided by the GP and it does not require further specialized investigations for the time being.**

c) The boy has diapers for the night. Occasional enuresis is present during the day. The GP indicates ultrasound and nephrology consults.

d) In the case that the child does not cooperate in the monocular examination (optotype) or the examination is ambiguous, the GP postpones this examination to the 5th year of life. The risk of late detection of congenital visual defects and amblyopia is minimal.

96. During the preventive examination of an 11-year-old boy in a general practitioner's office for children and adolescents (GP), following conclusions may be made:

a) The boy does not yet have any signs of puberty. It is indicated for examination by an endocrinologist as delayed puberty.

b) Vaccination against HPV is recommended and upon parent consent it is directly provided. This voluntary vaccination is paid from public insurance for this 11-year-old boys’ population.

**c) Due to the accelerated growth of a teenage boy, scoliosis begins to develop. An orthopaedic consultation is recommended.**

**d) Microscopic haematuria, without proteinuria, without leukocyturia is found. This has been captured in the boy's past, intermittently. The boy is normotensive, healthy, without other chronic diseases, without a history of urinary tract infections. The boy's mother's brother suffers from chronic kidney failure. The GP indicates a re-examination of the urine under standard sampling conditions and if microscopic haematuria is confirmed, a nephrological examination is indicated. Audiometry is also considered.**

97. Vaccination of children within the vaccination scheme in the Czech Republic is by law:

a) **Mandatory**

b) Voluntary

c) Mandatory only if the child attends a collective facility

d) Optional

98. Contraindications of vaccination are:

**a) Previous severe allergic reaction after vaccination**

b) Heart defect with prevention of infectious endocarditis

c) Atopic eczema

**d) Acute febrile infection**

99. Active immunization is not applied:

a) Intramuscularly

**b) Intravenously**

c) Subcutaneously

d) Intradermally

100. After the application of the vaccine, the child has to remain under medical supervision:

**a) For 30 minutes**

b) For 1 hour

c) If it is requested by the parent or the child’s carer

d) If the child has a history of allergic reactions or atopy in the family

101. Vaccination against hepatitis A is applied:

a) It is not vaccinated

**b) When traveling to high-risk countries**

**c) At the request of the parents**

**d) Exceptionally by decision of the Chief Hygienist**

102. The hexavalent vaccine does not contain a vaccine against:

a) Hepatitis type B

b) **Rotavirus**

c) Diphtheria

d) **RSV**

103. Vaccination against rotavirus infection should be initiated:

a) After the first diarrheal disease of an infant

**b) In the 6th week of life**

c) In a maternity hospital, instead of vaccination against tuberculosis

d) Before initiation of kindergarten attendance

104. Mark true statement/statements about vaccination against tuberculosis (BCG vaccine):

**a) Only neonates and infants who are at risk of infection in the family are vaccinated**

b) Only neonates who are born before the 32nd week of gestation are vaccinated

**c) In children vaccinated against tuberculosis, the first dose of hexavaccine should not be given until week 15 and after the scar has healed after BCG inoculation**

d) The BCG vaccine is administered strictly intramuscularly

105. Between the 13th and 18th month of life, mandatory vaccination is performed against:

**a) Measles**

**b) Rubella**

c) Tick-borne encephalitis

**d) Mumps**

106. In the 10th - 11th year of age, revaccination includes tetanus. The subsequent boost is given:

**a) After 15 years**

b) Not necessary

c) It is necessary for healthcare professionals

d) Only jockeys and staff in horse stables are vaccinated

107. Vaccination (mandatory and voluntary vaccination and vaccinations of risk groups) in a general practitioner's office for children and adolescents (GP) is one of the main tasks in the primary paediatric care. Risk groups of children, for whom vaccination against invasive pneumococcal, meningococcal and influenza diseases is reimbursed, are:

a) Children with birth weight below 1,500 g

**b) Children with primary and severe secondary immunodeficiency**

**c) Children after bacterial meningitis and septicaemia**

**d) Children with anatomical and functional asplenia**

108. According to the valid legislation since 2011, there has been a change in the calmetization of the paediatric population in the Czech Republic. Only high-risk groups of children are indicated for calmetization:

**a) One parent, both parents and sibling has/had active TB**

b) One of the parents or a member of the household was born or continuously stayed for more than 6 months in the country with a higher incidence of TB than 40 /100,000 inhabitants

**c) The child was in contact with TB**

**d) A neonate born in the Czech Republic with a positively evaluated Tuberculosis Risk Questionnaire, which is mandatory for all neonates**

109. The physiological height of a ten-year-old child is:

a) 120 cm

**b) 140 cm**

c) 160 cm

d) 110 cm

**2. Emergencies in paediatrics**

1. The total body water content:
2. **Depends on a person’s age**
3. **Is related to one’s gender and amount of body fat**
4. Makes up 50% of a new-born’s body weight
5. In new-borns mainly consists of intracellular fluid
6. Mark valid statements about dehydration:
7. Dehydration can be divided into 4 degrees based on severity and weight loss
8. Dry mucous membranes, lowered skin turgor, prolonged capillary refill time and hyperpnea are among the symptoms of mild dehydration
9. **Insufficient hydration impacts a child’s diuresis, blood pressure, and consciousness**
10. A weight loss of 700 g in a thriving 15-month-old child qualifies as a severe dehydration
11. Some of the rehydration therapy guidelines are:
12. A half of the estimated fluid loss is compensated during the first 4 hours, the second half during the next 8 hours
13. **In severe dehydration requiring bolus fluids, 10-20 (40) mL/kg is given initially**
14. **Enteral rehydration with oral rehydration solutions containing glucose and 60 mmol/L of sodium may be the therapy of choice in cases of mild dehydration**
15. In hypernatremic dehydration, half-normal saline (0.45% NaCl) is administered as a first-line therapy
16. In children with 39 °C fever and pneumonia, the maintenance fluid estimate needs to be increased by:
17. 5-10 %
18. 10-15 %
19. **20-30 %**
20. There is no need to increase the maintenance fluid estimate
21. The estimated maintenance fluid requirements are increased in case of:
22. **Elevated catabolism during bacterial sepsis**
23. Cardiac failure
24. Acute renal failure
25. **Diarrhoea**
26. The clinical examination of a 10-month-old child consists of:
27. **Evaluation of heart rate** and measuring respiratory rate only. There’s no need to measure blood pressure in a well-looking child
28. **Evaluation of heart rate, respiratory rate, blood pressure, body temperature and body weight**
29. **Evaluation of the state of consciousness**
30. Performing the Homan’s sign test
31. The following might be used in initial parenteral rehydration of a 5-year-old with moderate dehydration without the knowledge of any laboratory results:
32. **0.9% NaCl solution (i.e. “normal saline”)**
33. 0.45% NaCl solution
34. Mixture of 10% glucose solution with 10% MgSO4 solution
35. **Plasmalyte solution**
36. A previously healthy 10-month-old is admitted to a paediatric ward with fever of 38 °C and moderate dehydration (6% weight loss) due to a diarrhoea (profuse watery stool 4 times a day). What is the best estimate of the parenteral fluid volume that needs to be replenished during the first 24 hours?
37. 1,100 ml
38. 1,600 ml
39. **2,100 ml**
40. 2,700 ml
41. The most frequent cause of intoxication of a preschool child is:
42. Attempted suicide
43. Accidental ingestion of a household chemical
44. **Accidental ingestion of medicines**
45. Intentional poisoning by another person

10. When suspecting an intoxication with an unknown medication in prehospital settings:

1. IV access is secured, and 10% glucose solution administered
2. **IV access is secured, and balanced crystalloid solution administered**
3. CPR is started immediately
4. **Vital signs and possible clinical signs of intoxication are monitored**

11. In a child who accidentally ingested petroleum:

1. Vomiting is induced by administration of at least 100 mL of salt-water enterally
2. Gastric lavage is performed as soon as possible
3. Gastric lavage is strictly contraindicated
4. **Gastric lavage is possible only in an intubated patient**

12. If a child is accidentally given a medication different from the one prescribed:

1. The IV cannula is immediately withdrawn to minimise the administered dose. Vital signs are monitored
2. **The IV cannula is kept in place and vital signs are monitored**
3. **The potential toxic symptoms are consulted via the hotline of the Toxicology Information Centre**
4. The intoxication is reported to the National Medicines Agency

13. The necessary steps in a child intoxicated by ethanol who has altered consciousness are:

1. Admit the child to a hospital, secure IV access and administer naloxone as an antidote
2. **Admit the child to a hospital, secure IV access and monitor vital signs**
3. **Determine the blood alcohol level and basic acid-base disorder laboratory markers**
4. Admit the child to a hospital, perform gastric lavage, administer activated charcoal as soon as possible

14. In a child with altered consciousness due to ethanol poisoning, there is a risk of:

1. **Respiratory arrest**
2. **Circulatory failure**
3. **Vomiting and aspiration of vomit**
4. Dehydration as a result of hyperglycaemia-induced polyuria

15. Gastric lavage in a child intoxicated by a medicament is performed:

1. **Using lukewarm normal saline (0.9% NaCl sol) ideally within 2 hours after ingestion**
2. Using cold normal saline (0.9% NaCl sol) ideally within 2 hours after ingestion
3. **Only after intubation if the child is unconscious**
4. Gastric lavage is never performed in unconscious children

16. Following an acid ingestion (e.g. limescale-remover):

1. Gastric lavage using normal saline is performed as soon as possible
2. Bicarbonate solution is given to neutralise the acid
3. **Small amount of water is given enterally and the child is transferred to a hospital by an ambulance**
4. Naso- or orogastric tube is inserted to minimise the risk of oesophageal stricture

17. Following a strong-base ingestion (e.g. lye, dishwasher detergent):

1. 50 mL of water with lemon-juice is given and the child is transferred to a hospital as soon as possible
2. **Small amount of water is given, and the child is transferred to a hospital as soon as possible**
3. Gastric lavage is performed with normal saline and the gastric tube is kept in place
4. A glass of milk is given, and the child is transferred to a hospital as soon as possible

18. Activated charcoal (carbo adsorbents) is administered:

1. **After the gastric lavage - the dose is 0.5 g/kg of body weight**
2. Only during diarrhoea, never in cases of intoxication
3. Mainly after intoxication with iron or other heavy metals
4. **Ideally within 2 hours following ingestion**

19. During carbon monoxide poisoning, the COHb blocks:

1. NADH-Q-oxidoreductase
2. Cytochrome *c* reductase
3. **Cytochrome *c* oxidase**
4. Succinate dehydrogenase

20. Aetiology and pathogenesis of cardiopulmonary failure in children as compared to adults:

1. Is basically the same - it is just necessary to call the emergency medical line and report the life-threatening episode
2. **Is usually different - respiratory failure dominates in children, it is thus important to focus initially on airway patency and restoration of sufficient ventilation**
3. Is basically uniform throughout childhood - obstruction of airways dominates
4. When performing a one-person CPR, the “phone fast” method is preferred - i.e. first perform CPR for 1-2 minutes and then call. This is valid for children and adults to assure early regression of acute hypoxia.

21. Foreign body aspiration:

1. **Happens primarily in childhood, 85% of serious aspirations happen to children less than 5 years old**
2. Aspiration of liquid food or solid foreign body has a similar prognosis and is usually benign in childhood
3. **The correct first-aid algorithm when attempting to remove a foreign body from the airways is**

* **if the affected child is conscious, ask them to cough and support the effort to cough up the body**
* **if the above fails, perform 5 back strokes (between the shoulder blades)**
* **if the above fails, perform 5 epigastric compressions (i.e. the Heimlich manoeuvre)**

1. The Heimlich manoeuvre is contraindicated in pregnant women, obese patients and children less than 15 years old

22. Securing the airways using the head tilt:

1. Is an essential step during the CPR, performance of which doesn’t vary with age or aetiology of the cardiorespiratory failure
2. **Is only performed as a mild tilt in newborns (i.e. “sniffing position”)**
3. The “triple manoeuvre” is an easier and faster method to secure the airway patency and is preferred in children
4. **Should be performed in a spontaneously breathing individual only when it has been ascertained that the pharynx has no pathological contents that could be aspirated after the tilt**

23. Using oxygen during a neonatal CPR:

1. Is obsolete, only air is being used during mechanical ventilation
2. Preterm new-borns are ventilated with air during CPR, term babies with oxygen
3. It doesn’t matter whether oxygen or air is used, only speedy CPR administration is important
4. **Air should be initially used for term-baby CPR. If oxygenation (SpO2) is insufficient despite adequate ventilation, using higher oxygen concentration should be considered. SpO2 should not reach the same high values in preterm (<32nd weeks) as in term babies. High FiO2 should be used with caution according to the current SpO2 - it is important to minimise the risk of hypoxemia**

24. CPR in children and adults differs mainly:

1. **In using higher breath to compression ration that should correspond to the physiological values of the given group (i.e. “top-less” CPR from adults, 30:2 in children, 3:1 in neonates)**
2. **In the smaller effort necessary to provide adequate ventilation (smaller tidal volume in children than adults). The effort must be guided by sufficient chest excursions**
3. **In the smaller effort necessary to provide adequate cardiac compressions (the depth should be about one-third of the antero-posterior chest diameter regardless of age)**
4. There’s no difference, the effort to cancel asphyxia by all available means is the priority

25. Cardiac compressions are indicated in a new-born:

1. **Always when the heart rated drops to or below 60/minute**
2. During the so-called “white asphyxia”
3. **When the heart rate doesn’t exceed 80/minute in spite of adequate ventilation**
4. If no pulse is felt in the umbilical cord

26. Basic ratios of breaths: compressions when delivering CPR to children are (according to the 2015 ILCOR guidelines):

1. **Neonate 1:3, frequency of compressions about 120/min**
2. **Infants and children 2:15 when more than one rescuer is present, frequency 100-120/min**
3. **Children when there is one rescuer and all adults 2:30, frequency 100-120/min**
4. The most appropriate and safe is the “topless” CPR with highest possible compression rate until the arrival of the ambulance

27. Epinephrine (adrenaline) is an essential resuscitation medication, in paediatric patients, it is administered:

1. Diluted in normal saline (0.9% NaCl) and dosed 1 ampule per 10 kg of patient weight
2. Always with bicarbonate, epinephrine alone is ineffective during acidosis
3. Intratracheally immediately after intubation; this is the fastest and most effective method of administration
4. **In the dose of 0.01 mg/kg**

28. Respiratory failure is defined as:

1. **A state of inadequate gas exchange with abnormal values of arterial blood gases. The drop of PaO2 is termed hypoxemia, the rise in PaCO2 is termed hypercapnia.**
2. A state characterized by significant dyspnoea, cyanosis, and tachypnoea.
3. **A state characterized by ABG values of PaO2 < 9 kPa; PaCO2 > 6 kPa, respiratory acidosis with pH < 7.35**
4. A state characterized by silent breathing on auscultation, dyspnoea, cough, and cyanosis

29. The hyaline membrane syndrome in newborns is caused by:

1. Total absence of surfactant in the alveoli
2. **Insufficient surfactant production in structurally immature lungs of a low-birth-weight new-born**
3. Pulmonary hypoperfusion
4. Inadequately treated umbilical stub of the neonate

30. Meconium aspiration syndrome (MAS):

1. **Is usually accompanied by persistent pulmonary hypertension of the newborn**
2. If MAS is suspected, airways should always be suctioned immediately after the head is delivered even before the rest of the foetus is delivered
3. **May lead to a serious respiratory insufficiency requiring the use of extracorporeal oxygenation support (ECMO)**
4. **Is frequently caused by intrauterine infection or asphyxia**

31. Pneumothorax in a newborn usually presents as:

1. Weakened breath sounds on the contralateral (unaffected) side
2. **Weakened breath sounds on the affected side**
3. **Rapidly progressing failure to oxygenate and ventilate**
4. Weakened breath sounds on the affected side and a concavely depressed abdomen

32. Pneumonia caused by *Streptococcus Pneumoniae*:

1. **Usually affects a whole lobe or lung**
2. Presents as an interstitial pulmonary process
3. **Can be accompanied by a destructive process in the affected lung parenchyma**
4. **Is frequently accompanied by pleural effusions**

33. A child with respiratory insufficiency presents with dyspnoea, prolonged exspirium, obstructive findings on auscultation and the following ABG: PaO2 = 8.2 kPa; PaCO2 = 9.1; pH 7.25; HCO3 = 26 mmol/L. What’s the recommended treatment?

1. Inhaled oxygen
2. CPAP therapy to keep the airways distended
3. **Mechanical ventilation**
4. High flow oxygen therapy

34. A child with ARDS (acute respiratory distress syndrome):

1. Has a wrong diagnosis - ARDS is not a paediatric diagnosis
2. **Usually has a pulmonary infection, drowning, inhalation trauma or contusion as a primary underlying disease**
3. **Typically presents with oxygenation failure and presence of lung infiltrates**
4. Usually has a very good prognosis

35. Crepitus, weakened breath sounds, and pipe-like tracheal sounds over lung fields on auscultation are most characteristic for:

1. **Bacterial pneumonia**
2. ARDS
3. Chronic lung disease
4. Asthma attack

36. Pleural effusion can most reliably be diagnosed by these 2 methods:

1. **Chest sonography**
2. **Chest CT**
3. Native chest X-ray
4. Auscultation

37. Quantitative disturbance of consciousness demonstrates:

1. As a disorder only of motor function
2. As a disorder only of sensory function
3. **As a disorder both of motor and sensory function**
4. Very rarely in children, who usually present with qualitative disorder of consciousness

38. Glasgow coma scale:

1. Is used to quantify disorder of consciousness in children aged 3 years or more
2. Evaluates a verbal and motor response to verbal and standard nociceptive stimuli and also evaluates pupillary reaction and size
3. Is used to evaluate qualitative disorders of consciousness
4. **Is used to evaluate the severity of consciousness disturbance in children and adults**

39. Among the most frequent causes of altered consciousness in infants belong:

1. CNS trauma, intoxication, inborn errors of metabolism
2. Epilepsy, acute bronchiolitis, cardiac dysrhythmias
3. **CNS infection, GI infection with metabolic disturbance, inborn errors of metabolism, epilepsy**
4. CNS tumor, premature cranial suture closure, hydrocephalus

40. In a child with altered consciousness of unclear aetiology admitted to a hospital:

1. **Heart rate, respiratory rate, SpO2, blood pressure, and temperature are monitored**
2. Cranial CT must be performed as soon as possible
3. **ABG, ions, and glycemia must be monitored**
4. Dilated fundus examination is indicated

41. The following should NOT be performed as a first-line exam in a child with altered consciousness:

1. **Dilated fundus examination**
2. **Inherited disorders of metabolism laboratory diagnostics**
3. Acid-base lab exam, ABG, ions, and glycemia
4. **Lumbar puncture and lab exam of spinal fluid**

42. The following should be performed as a first-line exam in a school-aged child with altered consciousness:

1. ECG, neurological exam, CT of CNS, dilated fundus exam
2. **ECG, neurological exam, toxicology screen, CT of CNS**
3. ECG, EEG, dilated fundus exam, spinal fluid analysis
4. ECG, cardiological exam, EEG, MRI of CNS

43. Among the standard procedures performed after admitting a child with altered consciousness to a hospital belong:

1. **Securing IV access, monitoring of vital signs**
2. Securing IV access, initiating mechanical ventilation
3. **Parenteral nutrition, monitoring of acid-base, ions and ABG parameters**
4. **Elevated upper body and monitoring of pupillary reaction**

44. The following are indicated in the treatment of children with altered consciousness:

1. Securing IV access and administering a bolus of normal saline (10 mL/kg) to reach natremia of 145 mmol/L
2. During hypoglycemia administer 10% glucose solution immediately enterally and then intravenously
3. Securing IV access and readily administer methylprednisolone 1 mg/kg as a prevention of cerebral oedema
4. **Securing IV access, maintaining stable physiological acid-base parameters/ABGs and keeping natremia over 140 mmol/L**

45. Mechanical ventilation in a child with altered consciousness:

1. **Is indicated even if respiratory insufficiency isn’t present but the alteration of consciousness is profound (GCS ≤ 8)**
2. **Is indicated if there is respiratory insufficiency, regardless of the GCS**
3. If there is no respiratory insufficiency, mechanical ventilation is not indicated regardless of the GCS
4. Is indicated in case the child needs to be transferred to another hospital

46. CT of CNS in a child with altered consciousness:

1. **Is indicated if the aetiology is unclear after the first-line exams**
2. Is indicated only in cases of cranial trauma
3. Submits the child to too much radiation, X-ray of the skull or infant transcranial sonography are sufficient
4. Is indicated only after a neurological consult

47. The most common type of shock in childhood is:

1. **Hypovolemic shock**
2. Cardiogenic shock
3. Distributive shock
4. Septic shock

48. The following are most common signs of incipient shock in children:

1. **Tachycardia, tachypnoea, impaired peripheral perfusion, altered consciousness**
2. Tachycardia, tachypnoea, impaired peripheral perfusion, polyuria
3. Bradycardia, hypotension, dyspnoea, ventilation impairment
4. Tachycardia, fever, positive meningeal signs, seizures

49. Mark which of these usually do NOT cause cardiogenic shock:

1. **Total anomalous pulmonary venous return**
2. Coarctation of the aorta
3. **Transposition of the great arteries**
4. Interrupted aortal arch

50. Which type of shock is caused by the cardiac tamponade:

1. Hypovolemic shock because of the fluid loss into the third space
2. Cardiogenic shock
3. **Obstructive shock**
4. Combination of distributive and cardiogenic shock

51. The initial treatment of severe hypovolemic shock (HR > 180/min, BP 68/32 mm Hg; CRT > 5 s) in an infant weighing 8 kg would be:

1. **Fluid resuscitation with bolus infusions of isotonic crystalloids at the rate 10-20 mL/kg/10 minutes**
2. Fluid resuscitation with colloid solutions at the rate 5-10 mL/kg/30 minutes
3. Administration of cardiotonics with the target of lowering the heart rate
4. Immediate administration of vasopressors

52. The following is NOT considered a vasopressor:

1. Noradrenaline
2. **Dobutamine**
3. Vasopressin
4. Terlipressin

53. Tension pneumothorax may be the cause of:

* 1. Distributive shock
  2. Cardiogenic shock
  3. **Obstructive shock**
  4. Anaphylactic shock

54. Septic shock in childhood is usually a combination of the following types of shock:

* 1. Hypovolemic, distributive, anaphylactic
  2. **Hypovolemic, distributive, cardiogenic**
  3. Hypovolemic, obstructive, distributive
  4. Hypovolemic, anaphylactic, cardiogenic

55. The following is true about non-distributive shock in childhood:

* 1. **Oxygen delivery (DO2) drops, oxygen extraction (VO2) increases**
  2. **Cardiac output drops while peripheral vascular resistance increases or stays normal**
  3. Cardiac output increases and peripheral vascular resistance increases
  4. DO2 increases, VO2 drops

**3. Paediatric dermatology**

1. Complications of atopic dermatitis include:
2. **Mollusca contagiosa**
3. **Eczema herpeticatum**
4. Condylomata acuminata
5. **Impetiginization**
6. Impetiginisation:
7. **Is a secondary bacterial infection in the area of pre-existing dermatosis**
8. Is a secondary viral infection in the area of pre-existing dermatosis
9. Is the same as impetigo
10. **Belongs among the complications of atopic dermatitis**

1. True statements about atopic dermatitis:
2. **Its prevalence rises in developed countries**
3. Its prevalence declines in developed countries
4. **It most often manifests in infancy**
5. First manifestation never occurs in adulthood
6. The etiopathogenesis of atopic dermatitis involves:
7. **Dysfunction of skin barrier**
8. **Immune system dysregulation**
9. **Skin microbiome dysbiosis**
10. Monogenetic inheritance
11. The typical features of atopic dermatitis include:
12. **Pruritus**
13. **Chronic course**
14. **Dry skin**
15. First manifestation in puberty

1. Erythroderma is:
2. Temporary skin redness accompanied by tachycardia
3. **Inflammation affecting more than 90% of the skin surface**
4. Bacterial inflammation spreading in the dermis
5. **A severe complication of skin diseases usually necessitating inpatient or systemic approach**
6. The typical signs of seborrheic dermatitis include:
7. **Erythema and desquamation**
8. Erosions and excoriations
9. Vesicles and bullae
10. Lichenification
11. Typical predilection localization of seborrheic dermatitis:
12. Is completely different in infancy and adulthood
13. Is exactly the same in infancy and adulthood
14. Is in an intertriginous and flexural areas regardless of age
15. **Is in the scalp and face regardless of age**

1. True statements about seborrheic dermatitis:
2. **Its pathogenesis includes imbalance of skin wax production**
3. Its pathogenesis includes skin barrier dysfunction, namely filaggrin mutations
4. It typically manifests later than atopic dermatitis in infants
5. **It typically manifests sooner than atopic dermatitis in infants**

**4. Paediatric Endocrinology**

1. For type I diabetes mellitus, select all statements that are not true:
2. It usually manifests in childhood
3. Diabetic ketoacidos is a common first manifestation
4. **Type I diabetes mellitus is often associated with obesity**
5. **Type I diabetes mellitus is characterised in particular by insulin resistance**
6. Which of these statements describe the effects of insulin:
   1. **It facilitates the glucose uptake in cells**
   2. **It inhibits the gluconeogenesis and ketogenesis**
   3. **It inhibits the lipolysis**
   4. It stimulates the gluconeogenesis and ketogenesis

3. The classic symptoms of diabetic ketoacidosis are:

1. A loss of weight, diarrhoea, tachycardia, a loss of appetite
2. **Kussmaul breathing, a loss of weight, polydipsia**
3. Obesity, neuropathy, nephropathy
4. **Signs of dehydration, polyuria, loss of consciousness**

4. The total body potassium content during severe diabetic ketoacidosis:

1. May be decreased, increased or normal
2. Is increased
3. **Is decreased**
4. Is normal

5. Insulin is administrated during treatment of severe diabetic ketoacidosis:

1. Subcutaneously every hour
2. As an intravenous bolus before treatment is started, then continuous insulin infusion is given
3. **As a continuous intravenous infusion initiated 1-2 hours after the rehydration treatment is started**
4. As a subcutaneous long-acting insulin, fast-acting insulin is injected as needed

6. Which of the following should be used for the initial rehydration treatment of severe diabetic ketoacidosis:

1. Glucose 5% intravenous infusion
2. Sodium Chloride 0.9% intravenous infusion, rate 10-20 mL/kg/hr until the glycemia decreases to expected levels
3. **Sodium Chloride 0.9% intravenous infusion, rate 10-20 mL/kg/hr for 1-2 hours**
4. Sodium Chloride 0.45 % intravenous infusion

7. The biochemical criteria of diabetic ketoacidosis include:

1. **Hyperglycemia > 11 mmol/L, pH** < **7.3 or HCO3** < **15 mmol/L, ketonuria**
2. Hyperglycemia > 20 mmol/L, pH < 7.3 or HCO3 < 15 mmol/L, glycosuria
3. Glycosuria, ketonemia, ketonuria, HCO3 < 18 mmol/L
4. **Glycosuria, ketonemia, ketonuria, HCO3** < **15 mmol/L, hyperglycemia > 11 mmol/L**

8. A 15-year-old boy seeks medical attention for fatigue, markedly increased fluid intake and night-time urination in the last few weeks. He noticed losing some weight; however, his appetite is good. What is your differential diagnosis and next diagnostic steps?

1. The weather is currently hot, so no further tests are necessary, but invite the boy for a check-up for next week
2. It could be a developing diabetes insipidus; plan biochemical examination for the next day
3. **It could be diabetes mellitus, immediately examine urine for glycosuria and ketonuria, and examine blood glycemia**
4. It could be diabetes mellitus, plan OGTT

9. The “nutritional therapy” means:

1. Regular meals 5-6 times a day with relatively accurately estimated intake of fat and saccharides
2. **Regular meals 5-6 times a day with relatively accurately estimated intake of saccharides**
3. Regular meals 5-6 times a day with relatively accurately estimated intake of fat, saccharides, and proteins
4. **Dietary recommendations based on healthy eating principles suitable for all children, with a particular emphasis on saccharides intake estimate**
5. The physiological onset of puberty in girls is:
6. **Between ages of 8-13 years**
7. Between ages of 9-14 **years**
8. Between ages of 8-14 **years**
9. Between ages of 9-13 **years**
10. The physiological onset of puberty in boys is:
11. Between ages of 8-13 **years**
12. **Between ages of 9-14 years**
13. Between ages of 8-14 **years**
14. Between ages of 9-13 **years**
15. Select all statements that are true for the physiological course of puberty:
16. In girls, puberty starts with enlarging of mammary glands; in boys, it starts with the growth of pubic hair
17. **In girls, puberty starts with enlarging of mammary glands; in boys, it starts with enlargement of testicular volume**
18. In both sexes, puberty is accompanied with a growth spurt since its onset
19. **In girls, puberty is accompanied with a growth spurt since its onset**
20. Select all statements that are true for puberty:
21. **It is a hormonally induced process of sexual maturation**
22. It is psychosocial maturation of an individual
23. It is not completed by reaching sexual maturity
24. **Menarche occurs in the Czech girls on average at the age of 12.5 years**
25. The definition of delayed puberty is:
26. **The absence of secondary sex characteristics in girls after 13 years of age and in boys after 14 years of age**
27. Onset of puberty does not occur by 14 years of age, regardless of sex
28. Onset of puberty does not occur by 13 years of age, regardless of sex
29. Onset of puberty does not occur by 14 years of age in girls and after 15 years of age in boys
30. Delayed puberty:
31. Is always benign, no further investigation is necessary
32. **May be a symptom of a serious disease**
33. Is always a symptom of a serious disease
34. Is necessary to treat in all cases
35. A 15-year-old girl is examined for decreased growth rate and the absence of secondary sex characteristics. ESR, hypochromic anaemia and thrombocytosis are found in laboratory examination. What is the probable diagnosis?
36. Hypothyroidism
37. **Inflammatory bowel disease**
38. Adrenal insufficiency
39. Growth hormone deficiency
40. Select all statements that are true for precocious puberty:
41. It is not always accompanied by accelerated bone maturation
42. **It is always accompanied by accelerated bone maturation and accelerated growth rate**
43. **It can be of central or peripheral origin**
44. It is always of central origin
45. Central precocious puberty is:
46. **Gonadotropin-dependent**
47. Gonadotropin-independent
48. **More frequent in girls than in boys**
49. Iso- and heterosexual
50. Precocious pseudopuberty is:
51. Gonadotropin dependent
52. **Gonadotropin independent**
53. **Iso- and heterosexual**
54. Only heterosexual
55. Which of the following may be a cause of hypoglycaemia in children:
56. Hypothyroidism
57. **Inadequately compensated gestational diabetes of the mother of newborn**
58. Corticotherapy
59. **Prematurity**
60. The risk factors for the development of hypoglycemia are:
61. Night fasting
62. **Foetal growth restriction**
63. **Asphyxia**
64. **Acute gastroenteritis with fever and oral intake intolerance**
65. Select all statements that are not true for congenital hyperinsulinism:
66. **The initial diagnosis is based on measuring insulin levels at normal levels of glycemia**
67. The examination of ketones in urine during hypoglycemia is auxiliary diagnostic criterium
68. Glucagon may be used therapeutically
69. **The required supply of glucose to maintain normal blood glucose levels corresponds to the physiological needs, but meals must be more frequent throughout the day and night**
70. What belongs to the differential diagnosis of a 4-month-old boy with heart rate 144/min, good peripheral blood flow, blood pressure 78/52 mmHg, hepatomegaly (+ 5 cm below rib arch) and hypoglycemia:
71. Acute myocarditis
72. Fatty acid β-oxidation disorders
73. Infant of a mother with gestational diabetes
74. **Hepatic glycogenosis**
75. Select all statements that are not true for a 6-month-old child with a length of 68 cm, a weight of 7 kg with proven hypoglycemia without hepatomegaly:
76. **It cannot be a disorder of growth hormone secretion**
77. Hypoglycemia in this child may be the first manifestation of hypopituitarism
78. **It is a type I glycogenosis - von Gierke**
79. **In case of a finding of massive ketonuria, a disorder of β-oxidation of fatty acids must be considered**
80. Select all statements that are true for fatty acid β-oxidation disorders:

a) Hypoglycemia appears 2-3 hours after a meal

b) Typically, lactic metabolic acidosis with ketonuria develops

c) **Dark urine may occur during myoglobinuria**

d) Cardiac involvement is not part of the clinical picture

26. Which of these statements are not true for a hypoglycemia and nutrition?

a) Night fasting and morning hypoglycemia are typical for fatty acid β-oxidation disorders.

**b) Development of hypoglycemia between 3rd and 7th day of life in a full-term breastfed infant is suspected of hereditary fructose intolerance**

**c) Postprandial hypoglycaemia is not possible and should be considered a laboratory error**

d) Hypoglycemia, which occurs within 1.5-3 hours after drinking milk, is typical of glycogenosis or congenital hyperinsulinism

27. Which of these statements are true for hypoglycemia in glucocorticoid deficiency:

a) Its onset in infancy is characteristic for Addison's disease

**b) The most common cause is congenital adrenal hyperplasia**

c) It is treated with fludrocortisone

**d) May be a complication of meningococcal sepsis**

28. Obesity in children is defined in the Czech Republic as:

a) BMI above the 75th percentile for a given age

b) BMI above the 90th percentile for a given age

**c) BMI above the 97th percentile for a given age**

d) BMI higher than 25 kg/m2

29. In the Czech Republic the diagnosis of overweight is defined as:

a) BMI between the 75th and 90th percentile for a given age

b) Weight-for-age between 90th and 97th percentile for a given age

**c) BMI between the 90th and 97th percentile** **for a given age**

d) BMI between 85th and 95th percentile for a given age

30. Obesity is often associated with:

a) **Cushing's syndrome**

b) Klinefelter's syndrome

c) **Prader-Willi syndrome**

d) Adrenal insufficiency

31. During a preventive medical check-up of a so far healthy girl at the age of 11 years, you find that she has grown 2 cm in the last two years and has gained weight significantly. Which of the following options will you think of?

**a) It could be primary hypothyroidism**

b) It is probably a developing obesity with an imbalance between energy intake and expenditure, the growth rate is adequate

**c) It could be an overproduction of glucocorticoids**

d) It could be Prader-Willi syndrome

32. The symptoms of Prader-Willi syndrome include:

**a) Psychomotor retardation**

b) Congenital heart defect

**c) Obesity**

**d) A small stature**

33. Which of the following is not generally used in the treatment of childhood obesity:

a) Psychotherapy (cognitive-behavioural therapy)

**b) Bariatric-metabolic surgery**

c) Dietary adjustments

**d) Pharmacological treatment**

34. The most common cause of obesity in childhood is:

a) Monogenic obesity

b) Prader-Willi syndrome

c) **The imbalance between energy intake and energy expenditure**

d) Pharmacological treatment

35. The basic biochemical tests for childhood obesity include:

**a) Lipid profile (cholesterol, triglycerides)**

**b) Glycemia**

**c) TSH**

d) Blood count

36. Select all statements that are true for energy intake restrictions:

a) The restriction of energy intake must be strict, enough to decrease BMI as rapidly as possible to at least the upper limit of the physiological range

**b) It must respect the nutritional requirements of the growing tissues and organs**

**c) It is based on the principles of a rational healthy diet**

**d) Changes are introduced gradually**

37. The basic elements of the treatment of childhood obesity are:

a) Spa treatment

**b) Psychotherapy**

**c) Physical activity**

d) Pharmacological treatment

38. A 16-year-old girl presents with palpitations and weight loss. The girl is not taking any medication. Physical examination reveals goitre, heart rate is 120/min. Levels of fT3 16.3 pmol/L, fT4 35 pmol/L, TSH < 0.005 mIU/L are found. What disease is this and what will be the next step?

**a) It is hyperthyroidism, it is necessary to specify the aetiology (examination of TRAK antibodies, sonography) and start the treatment with thyrostatics**

b) It may be a laboratory error; a repeated examination is recommended after several months

c) These findings are within normal reference limits, the girl does not need further monitoring and treatment

d) It is most likely central hypothyroidism, CNS MRI examination or laboratory examination of other adenohypophyseal hormones should be indicated

39. Select all statements that are true for congenital hypothyroidism:

**a) Occurrence in the Czech Republic is nowadays approximately 1:2,600**

b) Occurrence in the Czech Republic **is nowadays approximately** 1:7,000

**c) It is the most common treatable cause of mental retardation**

**d) In Europe, it is most often caused by thyroid dysgenesis**

40. The most common cause of congenital hypothyroidism is:

a) Iodine deficiency

b) Transplacental transfer of antibodies from the mother

**c) Dysgenesis and dyshormonogenesis of the thyroid gland**

d) Central hypothyroidism

41. The symptoms of congenital hypothyroidism do not include:

a) Psychomotor retardation, hypotonia

b) Bradycardia

**c) Diarrhoea**

d) Macroglossia

42. Untreated primary hypothyroidism is characterized by:

a) Decreased TSH and FT4 levels

**b) Elevated TSH levels, decreased FT4 levels, bradycardia**

c) Elevated TSH levels, elevated FT4 levels

d) Decreased TSH levels, increased FT4 levels

43. The symptoms of hypothyroidism include:

a) Increased blood pressure, diarrhoea, protrusion of eyeballs, weight loss

**b) Bradycardia, growth disorder, dry skin, fatigue**

**c) Rough voice, decreased appetite, constipation, myalgia**

d) Acceleration of growth rate, tachycardia, heat intolerance

44. The most common causes of hyperthyroidism include:

**a) Immunogenic hyperthyroidism**

b) McCune-Albright syndrome

**c) TSH-independent thyroid adenoma**

d) Struma ovarii

45. The symptoms of acquired hyperthyroidism include:

a) Mild jaundice, menstrual cycle disorders, weight gain

b) Cold intolerance, weight loss, decline in growth rate

**c) Tachycardia, weight loss, diarrhoea, tremor**

**d) Acceleration of growth rate, heat intolerance, lack of concentration**

46. Select all statements that are not true for neonatal hyperthyroidism:

a) It is most often caused by the transfer of stimulatory antibodies against the TSH receptor from the mother

b) Its symptom may be craniosynostosis

**c) It is usually accompanied by bradycardia**

d) Intrauterine growth retardation is a common feature

47. Select all statements that are not true for the regulation of calcium:

**a) The main regulator of calcium is calcitonin**

b) The main target organs for calcium management are the intestine, bone and kidneys

**c) Vitamin D increases the excretion of phosphorus in the urine**

d) Parathyroid hormone increases 1-α-hydroxylase activity in the kidney

48. Select all statements that are true for vitamin D:

**a) Cholecalciferol (vitamin D3) is primarily formed in the skin**

**b) 1,25-dihydroxycholecalciferol is the active form of vitamin D3**

c) To prevent the development of rickets, vitamin D is administered immediately after delivery orally at a dose of 1 mg and then in a regimen of 1 drop once weekly up to 12 weeks of age

**d) The saturation of the organism with vitamin D is assessed according to the serum concentration of 25-hydroxyvitamin D3 (25-OHD)**

49. Laboratory manifestations of rickets due to vitamin D deficiency do not include:

a) Increased alkaline phosphatase activity

b) Normocalcemia at the onset of the disease

c) **Hypercalciuria**

d) Increased parathyroid hormone concentration

50. Select all statements that are true for DiGeorge syndrome:

**a) It is caused by a microdeletion on chromosome 22**

b) Its laboratory signs include hypercalcemia

c) It is characterized by a defect in B-cell immunity

**d) It is often accompanied by a congenital heart defect**

51. Select all statements that are true for hypercalcemia in children:

a) Muscle cramps, bradycardia, hypotension, and diarrhoea are present

**b) Decreased gastrointestinal motility, somnolence/confusion and hypertension are present**

**c) The most common cause in older children is parathyroid adenoma**

d) Magnesium and phosphorus concentrations are increased in hyperparathyroidism

52. Select all statements that are true for osteoporosis in children:

**a) The cause of a falsely reduced value of bone density measured by X-ray two-photon absorptiometry may be a smaller bone dimension in a child with a small figure**

b) Primary osteoporosis (osteogenesis imperfecta, juvenile osteoporosis) is the most common cause of osteoporosis in children

**c) Children on a vegan diet may suffer from osteoporosis**

**d) A child with a systemic form of JIA on corticoid therapy is at risk of developing osteoporosis as soon as 12 months on therapy**

53. Select all statements that are true for vitamin D:

**a) It increases the level of calcium in the blood by activating its resorption in the intestine**

b) Decreases the level of phosphorus in the blood by increasing the tubular secretion of phosphorus

**c) The active form of vitamin D is formed in the kidneys**

d) The active form of vitamin D is called calcifediol

54. Select all statements that are true for calcium metabolism:

**a) The normal serum calcium level is approximately 2.15-2.75 mmol/L**

b) The normal level of ionized calcium in the blood is 0.5-1 mmol/L

**c) The complication of severe hypocalcaemia are convulsions and laryngospasm**

**d) The signs of hypocalcaemia on ECG include QT prolongation**

55. ACTH stimulates the synthesis and secretion of:

a) Only glucocorticoids and mineralocorticoids

**b) Glucocorticoids, mineralocorticoids and adrenal androgens**

c) Glucocorticoids, mineralocorticoids, adrenal androgens and catecholamines

d) Glucocorticoids only

56. Select all statements that are true for screening for congenital adrenal hyperplasia:

a) It is not carried out in the Czech Republic

b) It is performed only in families where the disease has already occurred

**c) It is part of neonatal screening carried out on both sexes**

d) It is performed selectively in boys because, unlike girls, they would have no clinical signs at birth

57. To confirm the diagnosis of congenital adrenal hyperplasia based on 21-hydroxylase deficiency, which of the following is determined:

a) The cortisol level

b) 21-hydroxylase activity

c) 17-hydroxypregnenolone

**d) 17-hydroxyprogesterone**

58. Children with primary adrenal insufficiency may present with the following findings during an acute crisis:

a) Hypernatremia, hypokalemia, hypoglycemia, and metabolic acidosis

b) Hyponatremia, hyperkalemia, hypoglycemia, and metabolic alkalosis

c) Hypernatremia, hypokalemia, hypoglycemia, and metabolic alkalosis

**d) Hyponatremia, hyperkalemia, hypoglycemia, and metabolic acidosis**

59. The symptoms of primary adrenal insufficiency include:

**a) Hyperpigmentation**

**b) Vomiting, nausea**

c) Hyperglycemia

**d) Hypotension**

60. Which procedure will you choose for a new-born with a sexual development disorder presenting as ambiguous genitalia?

**a) The basic examination is to determine the chromosomal sex; therefore, a cytogenetic examination will be indicated**

b) The most common cause is congenital adrenal hyperplasia due to 21-hydroxylase deficiency; it is a life-threatening condition, therefore an appropriate treatment must be started immediately

**c) You will examine 17-hydroxyprogesterone, serum Na+ and K+ levels**

**d) You will verify the presence of gonads, perform ultrasonographic examination of small pelvis (for the presence of female internal genitalia) and adrenal glands (to assess the size)**

61. What finding would you expect in a boy with a simple virilizing form of 21-hydroxylase deficiency?

a) He will have signs of central precocious puberty, accelerated growth rate and accelerated bone maturation

**b) He will show signs of** **precocious pseudopuberty, accelerated growth rate and bone maturation**

c) He will show signs of precocious pseudopuberty; growth rate and bone maturation may still be appropriate to the calendar age

d) He will show signs of central precocious puberty, growth rate and bone age may still be appropriate to the biological age

62. The symptoms of salt metabolism disorder in 21-hydroxylase deficiency appear:

a) Immediately after delivery

**b) Usually between 4th and 14th day of life**

c) After 3 months of age

d) Only in case of severe stress

63. What is the treatment of choice in a child with salt-wasting form of congenital adrenal hyperplasia due to 21-hydroxylase deficiency:

**a) Glucocorticoids (hydrocortisone) and mineralocorticoids (fludrocortisone)**

b) Glucocorticoids (preferably longer acting, i.e. prednisone or dexamethasone) and mineralocorticoids (fludrocortisone)

c) Longer-acting glucocorticoids, i.e. prednisone or dexamethasone alone

d) Short-acting glucocorticoids, i.e. hydrocortisone alone, as it has a strong mineralocorticoid effect

**5. Paediatric gastroenterology and hepatology**

1. Choose the correct answer regarding jaundice:
2. **In prehepatic jaundice, conjugated bilirubin levels are normal**
3. **In posthepatic jaundice, stools are hypocholic or acholic**
4. In jaundice caused by Rh-alloimmunization, the number of reticulocytes is low
5. In hepatic jaundice, direct bilirubin level in the blood is normal and urobilinogen is present in the urine
6. Choose the correct biochemical findings:
7. **Duchenne muscle dystrophy is characterized by higher levels of AST than ALT**
8. **The elevation of ALP, GMT and conjugated bilirubin is characteristic for cholestasis**
9. Conjugated hyperbilirubinemia and normal liver enzyme tests are characteristic for Gilbert’s syndrome
10. **AST elevation in otherwise normal liver tests could be caused by „macroASTemia“**
11. Choose the correct statement about viral hepatitis A:
12. **It is transmitted via the faecal-oral route**
13. Its prevention is part of the regular vaccination scheme
14. **It does not progress to chronicity**
15. Immunosuppression is the treatment of choice
16. Cholecystolithiasis is typical for:
17. **Patients on long-term parenteral nutrition**
18. Asthmatic patients treated with inhaled steroids
19. **Obese girls with a positive family history**
20. **Conditions associated with haemolysis**
21. A typical liver disease predominantly affecting adolescent girls is:
22. **Non-alcoholic fatty liver disease associated with obesity**
23. Gilbert‘s syndrome
24. **Autoimmune hepatitis**
25. **Cholecystolithiasis**
26. The following disorder must be excluded in a paediatric patient seeking medical attention for episodes of altered consciousness associated with both vomiting and liver dysfunction (Reye-like syndrome):
27. Acute pyelonephritis
28. **Inborn error of metabolism (inborn errors of β-oxidation of fatty acids, urea cycle disorders, etc.)**
29. **Mushrooms intoxication**
30. Ingestion of ascorbic acid
31. Choose the correct answer:
32. Intoxication with ethylene glycol is the most common paediatric intoxication leading to liver failure
33. Vitamin K-dependent coagulation factors synthesized in the liver are II, VI, VII, VIII, protein C and S
34. **Hyperammonaemia should be considered in all cases of consciousness disorder of unclear origin**
35. **Besides the coagulation factors, albumin, prealbumin and cholinesterase are markers of the proteosynthetic liver function**
36. Choose the correct answer regarding portal hypertension:
37. **Prehepatic portal hypertension is typical for childhood**
38. Hepatic portal hypertension is typical for childhood
39. **Bleeding from oesophageal varices is a possible complication of portal hypertension**
40. Portal hypertension is usually associated with platelet count elevation
41. Choose the correct statement about Crohn’s disease:
42. **It is an immune dysregulation disorder**
43. It typically manifests in infants
44. **It affects the gastrointestinal tract with segmental (discontinuous) lesions**
45. It is curable
46. The extra-intestinal manifestations of inflammatory bowel disease include:
47. **Primary sclerosing cholangitis associated with ulcerative colitis**
48. **Enteropathic arthritis**
49. **Osteoporosis**
50. Gottron papules
51. A typical finding in Crohn’s disease is/are:
52. Crypt abscesses in the biopsy specimen
53. Pancolitis
54. **Terminal ileitis**
55. **Granulomas in the biopsy specimen**
56. A typical finding on imaging methods in inflammatory bowel disease is:
57. Cobblestone appearance in ulcerative colitis
58. **Flattening of the colon haustra in ulcerative colitis**
59. **Terminal ileum affection in Crohn’s disease**
60. Fistulas and abscesses in ulcerative colitis
61. Typical findings in Crohn’s disease are:
62. Deep ulcerations
63. **Aphthous lesions of the mucosa**
64. **Affections of both the upper and lower gastrointestinal tract**
65. **Fistulas formations**
66. A typical finding in ulcerative colitis is:
67. **Crypt abscesses in the biopsy specimen**
68. **Affection of the colon – pancolitis**
69. Affection of the small intestine
70. **ANCA antibodies positivity**
71. Which of the following examinations are used in the diagnosis of inflammatory bowel diseases:
72. **ANCA and ASCA antibodies**
73. **Faecal calprotectin**
74. **Abdominal ultrasound**
75. **Endoscopy of GIT**
76. Which of the following is used in the treatment of inflammatory bowel diseases:
77. **Exclusive enteral nutrition**
78. **Immunosuppressive treatment**
79. **Biological treatment**
80. Immunoglobulins
81. Childhood pancreas disease may be expected in:
82. **Diabetes mellitus I**
83. Macroamylasemia
84. **Persistent hyperinsulinemic hypoglycemia in infants**
85. **Cystic fibrosis**
86. The most common causes of acute pancreatitis in children are:
87. **Blunt abdominal trauma**
88. **Viral infection**
89. Alcohol intoxication
90. **Medication, e.g. azathioprine, valproic acid**
91. Endoscopic retrograde cholangiopancreatography (ERCP) in children:
92. **Is a diagnostic and therapeutic procedure in case of choledocholithiasis**
93. Is not associated with risk of developing pancreatitis
94. **Is one of the methods used in diagnosing bile ducts atresia**
95. Is an important examination in suspicion on portal hypertension
96. Choose the incorrect statement:
97. **An isolated elevation of blood amylase in the absence of abdominal pain is a typical symptom of pancreatitis**
98. The measurement of pancreatic amylase and lipase in the serum along with amylase levels in the urine are recommended for diagnosing pancreatitis
99. **The administration of oral pancreatic enzymes substitution is recommended in the case of suspicion of acute pancreatitis with pancreas dysfunction**
100. Abdominal pain is the leading symptom of pancreatitis
101. Choose the correct statement about biliary atresia:
102. It is an inborn disorder, typically manifesting during the first week of life
103. **The presence of acholic or hypocholic stools is typical**
104. Extreme unconjugated hyperbilirubinemia with GMT elevation is a typical laboratory finding
105. Abdominal ultrasound examination is sufficient for establishing the diagnosis
106. Choose the correct statement about the treatment of acute pancreatitis:
107. **It includes temporary exclusion of oral intake with gradual reintroduction of enteral feeding**
108. **Opioid analgesics may be required in pain management**
109. The administration of acetylsalicylic acid is mandatory in order to supress the inflammation
110. Glucagon administration is needed to maintain the physiologic glycaemia
111. Choose the correct statement about cystic fibrosis:
112. **It is one of the most common autosomal recessive diseases in Caucasian population**
113. **It is caused by mutations in the *CFTR* gene**
114. It is a polygenic disease.
115. It is incurable
116. The treatment of cystic fibrosis includes:
117. **Pancreatic enzymes substitution**
118. **Chest physiotherapy**
119. **Antibiotic treatment**
120. **Multiorgan transplantation**
121. Feeding disorders include:
122. **Anorexia nervosa**
123. **Bulimia nervosa**
124. Vegetarian diet
125. **Orthorexia**
126. Malnutrition consequences include:
127. **Muscle strength reduction and impaired wound healing**
128. **Increased pancreatitis risk**
129. **Bradycardia**
130. Elevated potassium and calcium levels
131. Anorexia nervosa:
132. **Is typical in adolescence**
133. Is typical in small children
134. **Exclusion of other weight loss causes is mandatory when examining a child with suspicion of anorexia nervosa**
135. **In comparison with the general population, its diagnosis in a low age is associated with an 18-fold increment of death risk**
136. The following differential diagnosis should be considered in case of weight loss and feeding refusal:
137. Developmental phase of the child with physiologic negativity
138. **Gastroesophageal reflux disease**
139. **Depression**
140. **Chronic renal failure**
141. Anorexia nervosa criteria include:
142. Perfectionist behaviour
143. **Disorder of self-perception**
144. **Intentional weight loss**
145. **Fear of obesity**
146. Nutrition intervention in the case of feeding disorder:
147. Is started by an adaptation/increase of daily recommended energy and food intake by 120%
148. **Cooperating patients could be recommended sipping**
149. Due to the risk of refeeding syndrome development, an increase in fat intake in comparison with protein and saccharides is recommended
150. Because of risk of enterogenous sepsis, antibiotic treatment (Metronidazole) is recommended
151. Refeeding syndrome:
152. **Is a metabolic complication associated with the initiation of nutritional support in malnourished patients**
153. **Represents a risk of heart arrest for patients**
154. Includes hyponatraemia, hypophosphatemia and hyperchloremia
155. Includes hyperpotassaemia, hypophosphatemia and hypermagnesemia
156. Feeding disorder treatment includes:
157. **Enteral nutrition**
158. **Psychotherapy**
159. **Hormone substitution**
160. **Antidepressants**

**6. Paediatric haematology**

1. A three-year-old boy with thrombocytopaenia of 15x109/L following a viral infection:
2. Is probably suffering from ITP. Further evaluation is not required, observation is sufficient
3. Is at a risk of intracranial haemorrhage. A transfusion of separated thrombocytes is indicated
4. **Is probably suffering from ITP. A full blood count with differential and basic biochemistry and immunology is indicated**
5. **The decision of observation or treatment initiation is based on the presence of bleeding symptoms**
6. ITP symptoms do not include:
7. Haematomas, petechiae and suffusion
8. **Lymphadenopathy**
9. Mild splenomegaly
10. **Fever with fatigue**
11. A newborn with thrombocytopaenia could have:
12. **A mother with ITP**
13. **Sepsis**
14. **Neonatal alloimmune thrombocytopaenia**
15. Congenital hypothyroidism
16. Choose the correct statement(s) regarding haemophilia A:
17. **It affects males only; females are carriers but may have decreased blood level of factor VIII**
18. **The sons of a haemophilic father and a healthy mother would all be healthy**
19. Half of the daughters of a haemophilic father and a healthy mother are carries
20. Is twice as frequent as haemophilia B
21. Von Willebrand disease:
22. **Is the most common inherited bleeding disorder**
23. **Manifests mainly as mucosal bleeding**
24. Has a qualitative or quantitative defect of vWF. Prolongation of APTT is always present
25. Is inherited as a gonosomal recessive trait
26. An 18-month-old toddler with the following results: WBC 16.2x109/L, ANC 1.8x109/L, HGB 112 g/L, MCV 74 fl and PLT 410x109/L:
27. Has hypochromic anaemia
28. Has both leucocytosis and thrombocytosis, a bacterial origin is likely
29. **Has an age-appropriate full blood count**
30. Has thrombocytosis and should be treated with aspirin
31. A child with chronic benign neutropenia:
32. **Does not usually suffer from serious infections**
33. Should always undergo a bone marrow examination to exclude inborn agranulocytosis
34. **Might have positive antibodies against granulocytes, spontaneous normalization in a few months’ time is possible**
35. Has an increased risk of both malignancies and autoimmune diseases in adulthood
36. A febrile 1-month-old infant with an extensive pneumonia, neutropenia, ANC 0.2x109/L and CRP 150 mg/L:
37. Has a viral pneumonia and requires only symptomatic treatment
38. **Requires antibiotics and G-CSF**
39. **Is suspected of having congenital neutropenia and requires a detailed investigation including bone marrow aspiration**
40. Requires oral antibiotics in regular doses. Should the condition recur, further studies are required.
41. A newborn with a history of alloimmune anaemia due to Rh incompatibility necessitating repeated transfusions requires the following after the discharge from the neonatal unit:
42. **A follow-up full blood count no later than 3-4 weeks from the last transfusion**
43. A follow-up full blood count after 2 months
44. An initiation of iron supplementation
45. A further follow-up is not required, the issue was resolved by transfusions
46. A positive Coombs test may be found in:
47. Pyruvate kinase deficiency
48. **Systemic lupus erythematosus**
49. Hereditary spherocytosis
50. **Autoimmune haemolytic anaemia**
51. A patient with hereditary spherocytosis is at risk of:
52. Hemosiderosis
53. **Aplastic crisis due to Parvovirus B19 infection**
54. **Biliary colic**
55. Gradual progressive pancytopenia with hypersplenism
56. Vitamin K-dependent coagulation factors and inhibitors include:
57. FII, FV, FVII, FIX, FX
58. FII, FVI, FVIII, FIX, FX
59. **FII, FVII, FIX, FX, PC and PS**
60. FII, FVII, FIX, FX, AT, PC and PS
61. A girl, whose father passed away at the age of 45 years due to pulmonary embolism, requests hormonal contraception:
62. May use any hormonal medicaments
63. Can only receive a non-hormonal intrauterine device
64. **Must have the thrombophilic markers evaluated, decision on the usage of hormonal contraception would be based on the results**
65. Evaluation of the presence of Leiden and prothrombin mutation is sufficient, further evaluation is unnecessary

**7. Paediatric cardiology**

1. During physiologic pregnancy prenatal echocardiography of the foetus is being performed:
2. **1x**
3. 2x
4. 3x
5. 4x
6. A critical congenital heart disease in CR is annually detected in:
7. **200 - 300 neonates**
8. 800 - 900 neonates
9. 1500 - 1600 neonates
10. 2000 neonates
11. Ductus-dependent critical congenital heart diseases may manifest:
12. Immediately after birth
13. During the first hours of life
14. During the first week of life
15. **All answers are correct**
16. Which congenital heart defect is the most prevalent one?
17. Transposition of the great vessels
18. Atrial septal defect
19. **Ventricular septal defect**
20. Coarctation of the aorta
21. Type E prostaglandins are in neonatology used:
22. To treat heart failure
23. **To maintain ductus arteriosus patency**
24. As selective pulmonary vasodilators
25. For the treatment of the haemorrhagic disease of the newborn
26. Myocarditis mortality in infancy and adolescence:
27. Is roughly similar
28. **Is higher in infancy**
29. Is higher in adolescence
30. Is currently rare in our country
31. Prevention of infective endocarditis is indicated:
    1. In all operations in neonatology
    2. In all patients with congenital heart disease both prior and after operation
    3. **In all congenital heart diseases with shunting except for atrial septal defect prior to operation**
    4. In heart valve replacement
32. The most common type of secondary hypertension in children currently is:
33. Renovascular hypertension
34. **Renoparenchymatous hypertension**
35. Endocrine hypertension
36. Drug-induced hypertension
37. The drug of choice in acute heart failure in neonates is:
38. **Catecholamines**
39. Beta-blockers
40. Digoxin
41. Sodium nitroprusside
42. The most frequent heart arrythmia in childhood is:
43. **Supraventricular tachycardia**
44. Ventricular tachycardia
45. Ventricular fibrillation
46. Atrial fibrillation
47. Severe pulmonary stenosis:
48. Belongs among congenital heart diseases with a left to right shunt
49. **Is a cyanotic congenital heart disease**
50. Is an acyanotic congenital heart disease
51. Does not belong among congenital heart diseases
52. ECG of a neonate is typical for:
53. Bradycardia below 100/min
54. **Right ventricular dominance**
55. Left ventricular dominance
56. First-degree atrioventricular block
57. Accidental heart murmur:
58. Is always of intensity at least 3/6
59. **Is always systolic**
60. Is always diastolic
61. Is always continuous
62. After birth blood flow through the lungs of a neonate:
63. **Rises**
64. Declines
65. Does not change
66. Depends on the patency of ductus arteriosus
67. Balloon atrioseptostomy is used in:
68. Pulmonary stenosis
69. Coarctation of the aorta
70. **Transposition of the great vessels**
71. Tetralogy of Fallot
72. Total anomalous pulmonary venous return can manifest:
73. In the first few hours after birth
74. In the first days of life
75. In the first two weeks of life
76. **All answers are correct**
77. Critical coarctation of the aorta in a neonate manifests by:
78. Heart failure
79. Anuria
80. Nonpalpable pulse on the femoral arteries
81. **All answers are correct**
82. Patent ductus arteriosus in a 6-month-old infant usually presents by:
83. Heart failure
84. Bradycardia
85. **Tachycardia**
86. Arrhythmia
87. Myocarditis in childhood usually is:
88. Bacterial
89. **Viral**
90. Toxic
91. Autoimmune
92. Predilection spots for the formation of vegetations in bacterial endocarditis are:

1. Both AV valves
2. **Mitral and tricuspid valves**
3. Tricuspid and pulmonary valve
4. Auricles of the atria
5. The typical feature for the diagnosis of pericarditis is:
6. **Pericardial effusion**
7. Heart arrhythmia
8. Heart failure
9. Left ventricle ischemic changes on ECG
10. The most common cardiomyopathy in childhood is:

1. Restrictive cardiomyopathy
2. **Hypertrophic cardiomyopathy**
3. Dilated cardiomyopathy
4. Arrhythmogenic cardiomyopathy
5. The first line agent for the treatment of idiopathic systemic hypertension in childhood are:

1. Diuretics
2. Calcium channel blockers
3. **ACE inhibitors**
4. Diuretics + calcium channel blockers
5. Accidentally detected isolated premature ventricular contractions in a healthy 14-year-old patient without any subjective difficulties:
6. Are treated by cardioversion
7. Are treated by digoxin
8. Are treated by amiodaron
9. **Are not treated**
10. In the treatment of acute heart failure in a toddler, catecholamines are administered:
11. **In a continuous intravenous infusion**
12. In an intravenous infusion over 20 minutes
13. Intramuscularly 6 times a day
14. Catecholamines are contraindicated due to their proarrhythmogenic effects
15. Digoxin in children:
16. **Is used**
17. Is not used
18. Is contraindicated for the risk of ventricular tachycardia
19. Is used only in combination with beta-blockers
20. Typical signs of congenital hearts diseases do not include:
21. Cyanosis
22. Heart failure
23. **Bronchial sounds**
24. **Asystolia during labour**
25. Pericardial effusion in an 8-year-old child is a finding typical for:
26. Sepsis
27. **Pericarditis**
28. Myocarditis
29. Heart failure
30. In case of the first detection of systemic hypertension in a 14-year-old obese patient:
31. We start treatment with ACE inhibitors
32. We start treatment with Ca blockers
33. We secure hospitalisation of the patient, rest regime and stress-ergometry examination
34. **None of the answers is correct**
35. Which of the following congenital heart diseases is not cyanotic:
36. Total anomalous pulmonary venous return
37. Transposition of the great vessels
38. **Atrioventricular septal defect**
39. Critical pulmonary stenosis
40. Major Jones criteria do not include:
    1. Subcutaneous nodules
    2. Carditis
    3. **Arthralgia**
    4. Erythema marginatum

**8. Paediatric pulmonology**

1. Which statement is true:

a) Purulent rhinitis is always bacterial

 b) The most common cause of rhinitis is *Streptococcus pneumoniae*

 c) Rhinitis is a rare cause of cough

**d) A healthy toddler attending a children group can suffer up to 8 mild upper respiratory tract infections per year**

2. Select the correct statement(s) regarding the frontal sinuses:

a) Are fully developed at birth

 b) They develop in adolescence

**c) They begin to form around the age of 8 years**

 d) They start to grow around the age of 4 years

3. Which of the following is not a complication of bacterial sinusitis:

a) Orbitocelulitis

 b) Osteomyelitis of the frontal bone

 c) Purulent meningitis

**d) Generalized lymphadenopathy**

4. Common bacterial pathogens causing acute pharyngitis do not include:

**a) *Streptococcus pneumoniae***

 b) Group A Streptococcus

 c) Group C Streptococcus

 d) *Mycoplasma pneumoniae*

5. Which of the following situation is not an indication for adenoidectomy:

a) Chronic adenoiditis

 b) Chronic sinusitis refractory to treatment

 c) Recurrent otitis

**d) Recurrent tonsillopharyngitis**

6. Which of the following is not a complication of adenotonsillectomy:

a) Postoperative bleeding

**b) Development of allergy**

 c) Acute airway obstruction

 d) Velopharyngeal insufficiency

7. In a 2-year-old boy acutely manifesting with barking cough and an inspirational stridor occurring only when crying, without hyposaturation, and without tachypnoea, it is best to:

a) Perform a lateral skiagram of the neck

 b) Administer epinephrine inhalation

 c) Examine blood count

**d) Administer dexamethasone orally**

8. Which of the following does not apply to acute otitis media (AOM):

a) AOM is more common in boys

 b) It is most common in the first two years of life

 c) A familial predisposition is possible

**d) It is equally common in breastfed and non-breastfed children**

9. The most common bacterial pathogens causing acute otitis media (AOM) do not include:

a) *Streptococcus pneumoniae*

 b) *Haemophilus influenzae*

 c) *Moraxella catharalis*

**d) *Pseudomonas aeruginosa***

10. The clinical signs of acute otitis media (AOM) in an infant include:

a) Fever

 b) Vomiting

 c) Restlessness

**d) All of the above**

11. Which of the following are possible complications of acute otitis media (AOM):

**a) Otogenic meningitis**

**b) Cavernous sinus thrombosis**

**c) Mastoiditis**

**d) Eardrum scarring**

12. Clear nasal discharge is not typical for:

a) Allergy

 b) Cold

 c) Pertussis

**d) Streptococcal pharyngitis**

13. Choose the sign that does not usually occur in Streptococcal tonsillitis:

a) Fever above 39 °C

 b) Swelling of the lymph nodes of the neck

**c) Cough**

 d) Headache

14. Mark all respiratory infections preventable by vaccination:

**a) Diphtheria**

**b) Pertussis**

**c) Invasive pneumococcal diseases**

**d) Influenza**

15. An acute inspiratory dyspnea, salivation and difficulty swallowing are the symptoms of:

a) Epiglottitis

 b) Retropharyngeal abscess

 c) Foreign body lodged in the upper part of the oesophagus

**d) All of the above**

16. In acute epiglottitis, the child’s preferred position will be:

a) Lying down in a prone position

**b) Sitting leaning forward with outstretched neck, mouth ajar, leaning on hands in front of the body**

 c) In semi-sitting position

 d) Kneeling

17. The parents bring a two-year-old boy to a general pediatrician for worsening inspiratory dyspnea with fever (40 °C). The boy is sitting in a slight forward-bend position, is noticeably calm, saliva flows out of his open mouth, he is breathing superficially. Which of the following is true:

a) The child should be given epinephrine inhalation and corticosteroids immediately

 b) The doctor will advise the parents to transfer the child to the hospital by their own means

**c) The child cannot be placed in a horizontal position until the airways are secured**

 d) The doctor will thoroughly inspect the pharyngeal area

18. A 13-month-old girl with a barking cough, inspiratory dyspnea, subfebrile body temperature and inspiratory stridor comes to the outpatient clinic. Which of the following is true:

**a) Corticosteroids are the drug of the first choice**

 b) Nebulization of mucolytics is appropriate if intense cough is the main presenting symptom

 c) Antitussive drugs are appropriate

**d) Epinephrine nebulization may be given to a child treated as an inpatient**

19. What differential diagnosis should be considered in frequent recurrences of acute laryngitis?

**a) Extraoesophageal reflux disease**

 b) Sino-bronchial syndrome

**c) Permanent airway obstruction (e.g. congenital subglottic stenosis, laryngomalacia, vocal cord paresis, etc.)**

**d) Allergic reaction, especially when the clinical manifestation is atypical (e.g. absence of signs of infection, swelling, rash, diarrhoea, vomiting, etc.)**

20. Acute epiglottitis is characterized by:

a) Non-itchy macular annular rash

**b) Noticeably calm child**

 c) Intense barking cough

 d) Significant improvement of dyspnea when exposed to cold air

21. The following applies to acute epiglottitis:

a) It is typically accompanied by a paroxysmal irritant barking cough

**b) Swallowing is difficult and accompanied by salivation**

 c) May be caused by one or several respiratory viruses

 d) Requires intensive bronchodilator therapy

22. Acute inspiratory dyspnea may be caused by:

**a) Peritonsillar abscess**

 b) Exacerbation of bronchial asthma

**c) Foreign body aspiration**

 d) Bronchopulmonary dysplasia

23. Physical findings suggestive of acute laryngitis include:

a) Salivation

**b) Inspiratory or mixed stridor**

 c) Rales at the lung bases

**d) Dysphonia**

24. Downes score (scoring system evaluating the severity of acute laryngitis) assesses:

a) The characteristics and amount of sputum

 b) The presence and severity of fever

**c) The character of the cough**

 d) Auscultation finding of inspiratory rales

25. Which measures are not recommended to decrease house dust mite’s exposure:

a) Washing bed linen above 60 °C once a week

 b) Removing carpets from the bedrooms

 c) Using special allergen-impermeable bedding

**d) Using a humidifier regularly**

26. The advantage of the second-generation antihistamines compared to the first-generation antihistamines is that:

**a) They have less sedative effect**

 b) They are cheaper

 c) They are much more effective

 d) They are sold over-the-counter

27. Which of the following drugs with adrenergic activity is used to treat bronchial asthma:

a) Alpha 1 agonists

 b) Alpha 2 agonists

 c) Beta 1 agonists

**d) Beta 2 agonists**

28. The least important for the diagnosis and treatment of bronchial asthma is:

a) Regular check-ups of the patient

**b) Genetic testing**

 c) Elimination of negative environmental influences

 d) Education of the patient and the parents

29. Atopic eczema is often associated with the following conditions except for:

a) Allergic rhinitis

 b) Bronchial asthma

 c) Eosinophilia in the blood count

**d) Lymphopenia**

30. Which of the following is the least likely in a child with bronchial asthma:

a) Tachypnoea

 b) Expiratory wheezes

 c) Enlarged anteroposterior diameter of the chest

**d) Nail clubbing**

31. What do we administer to an eight-year-old boy with a moderate acute exacerbation of bronchial asthma within the first hour:

**a) Beta 2 adrenergic agonist, 2-4 metered doses every 20 minutes, via spacer**

 b) Inhaled beta 2 adrenergic agonist, 2-4 metered doses every 20 minutes, via spacer

 c) Subcutaneous epinephrine or intravenous epinephrine

**d) Systemic corticosteroid (prednisone 1 mg/ kg/ day, max 40 mg)**

32. Which of the following is typical for bronchial asthma:

a) Chronic purulent inflammatory changes of the airways accompanied by bronchiectases

 b) Finding of an irreversible airway obstruction

**c) Chronic inflammatory airway disease**

 d) Allergic inflammatory disease of the pulmonary interstitium

33. The clinical presentation of bronchial asthma exacerbation does not include:

a) Prolonged expiration

**b) Prolonged inspiration**

 c) Rhonchi, wheezing

**d) Stridor**

34. In a tachydyspnoic patient with mild bronchial asthma exacerbation, what will be the pCO2 levels in blood?

**a) Low**

 b) Normal

 c) High

 d) It is not important to assess the severity of bronchial asthma exacerbation

35. Which statement applies to bronchial asthma in children:

a) A diagnosis of bronchial asthma cannot be made in children under three years of age

 b) Its prevalence in children in the Czech Republic is 2-4%

 c) In 70% of asthmatic patients, the first presentation is recurrent obstructive bronchitis in toddlerhood

**d) In 70% of children, the first difficulties appear at school age**

36. Which combination of symptoms and signs is characteristic for bronchial asthma:

a) Shortness of breath, stridor, dysphonia, chest tightness

 b) Wheezing, dysphagia, expectoration of purulent sputum, dyspnoea

**c) Shortness of breath, cough, chest tightness, wheezing**

 d) Shortness of breath, wheezing, dysphonia, dysphagia

37.Which finding supports the diagnosis of bronchial asthma:

a) Decreased translucency on chest X-ray

**b) Proof of reversible airway obstruction during a bronchodilator test**

 c) Proof of irreversible airway obstruction during a bronchodilator test

 d) Finding of honeycomb lung on HRCT

38. Which of the following are the risk factors increasing the likelihood of bronchial asthma in young children (under five years of age):

a) Presence of irritating cough during respiratory infections

**b) Bronchial asthma, allergic rhinitis, atopic dermatitis in close relatives**

 c) Presence of a pet in the household (mainly cat, dog, parrot)

**d) Presence of irritating cough when laughing, crying or during physical activity, without the presence of infection**

39. The general paediatrician examines a 3-year-old boy with a long-lasting wet cough, who suffers from recurrent otitis media acuta, bronchitis, and despite normal appetite, weight loss and growth retardation are evident in the percentile graphs. He has bulky, foul-smelling stools. Differential diagnosis should consider in the first place:

a) Cow’s milk protein allergy

 b) Celiac disease

**c) Cystic fibrosis**

 d) Autoinflammatory diseases

40. The signs of cystic fibrosis in newborns include:

**a) Meconium ileus**

 b) Dermatitis herpetiformis Duhring

 c) Microcephaly

 d) Enterorrhagia

41. The signs of cystic fibrosis in children include:

**a) Failure to thrive**

 b) Clinical manifestations of vitamin B1, B2, and B12 deficiency

**c) Rectal prolapse**

**d) Steatorrhea**

42. In children with cystic fibrosis, which measures are necessary to decelerate the progression of chronic pulmonary damage?

a) Regular inhalation of bronchodilators

**b) Prevention or eradication of bacterial colonization of airways (especially by *Burkholderia cep., Pseudomonas aeruginosa*)**

 c) Immunomodulatory therapy with bacterial lysates

**d) Chest physiotherapy, inhalation of mucolytics, recombinant DNase, hypertonic saline solutions several times a day**

43. Which is true for the diagnosis of cystic fibrosis:

a) In the Czech Republic, a nationwide screening for cystic fibrosis is performed in newborns by sweat test

 b) The concentration of chlorides in the sweat 15-30 mmol/L represents the borderline result of the sweat test

 c) In a school-aged child, the diagnosis of cystic fibrosis is determined by the concentration of immunoreactive trypsinogen in a blood sample

**d) The concentration of chlorides in the sweat 25 mmol/L is interpreted as a negative result**

44. The respiratory complications of cystic fibrosis include:

**a) Allergic bronchopulmonary aspergillosis**

**b) The development of bronchiectasis**

**c) Pneumothorax**

**d) Hemoptysis**

45. The criteria for exudate include:

**a) Total protein - effusion/serum > 0.5, LDH effusion/serum > 0.6**

 b) Total protein up to 30 g/L, LDH value not relevant

 c) Total protein > 30 g/L, albumin - effusion/serum > 12 g

 d) Total protein - effusion/serum < 0.5, LDH effusion/serum < 0.6

46. The bacterial agent causing pneumonia may be determined by:

a) The nasal swab cultures

 b) The throat swab cultures

**c) The blood cultures (hemoculture)**

 d) The urine cultures

47. First-line antibiotic for the treatment of pneumococcal pneumonia is:

a) Doxycycline

**b) Penicillin**

 c) Vancomycin

**d) Aminopenicillin**

48. Auscultation findings indicating croupous (bacterial) pneumonia are:

a) Creaky sound and/or rhonchi

**b) Diminished respiratory sounds**

**c) Tubular respiration**

**d) Crackles**

49. First-line antibiotics for the treatment of *Mycoplasma* pneumonia in a 5-year-old child are:

**a) Macrolides**

 b) Aminopenicillin

 c) Tetracycline

 d) Cephalosporin

50. Which is true for bacterial agents causing pneumonia:

a) In newborns up to 3 weeks, *Mycoplasma pneumoniae* and *Chlamydophila pneumoniae* are the most common pathogens

**b) In newborns, *Streptococcus agalactiae, E. coli, Listeria monocytogenes* and *Klebsiella pneumoniae*are the most common pathogens**

 c) In children over five years of age, *Streptococcus pyogenes* and *Enterococcus faecalis* are the most common pathogens

 d) In children over five years of age, *Chlamydophila trachomatis* and *Ureaplasma urealyticum* are the most common pathogens

51. The re-occurrence of pneumonia in the same location may be caused by:

**a) A vascular ring**

 b) Cystic fibrosis

 c) Immunodeficiency

**d) Congenital lung malformations such as pulmonary sequestration or cystic adenomatous malformation**

52. The aetiology of pneumonia may be assumed by

a) A single blood antibody examination (*Chlamydophila pneumoniae, Mycoplasma pneumoniae*)

**b) A single serological examination of urinary antigen (*Streptococcus pneumoniae, Legionella pneumophila*)**

**c) A sputum cultures or pleural fluid cultures**

 d) A direct detection of viral antigens from urine

53. The severe forms of tuberculosis do not include:

a) Miliary tuberculosis

 b) Basilar leptomeningitis

**c) Tuberculous pneumonia**

 d) Cavernous TB

54. The term “mycobacteriosis” means:

a) *Mycoplasma pneumoniae* chronic pulmonary infection

 b) A localized form of pulmonary tuberculosis

**c) An infection caused by non-tuberculous mycobacteria**

 d) The systemic complications of BCG vaccination

55. The BCG vaccine:

a) Protects against the development of tuberculosis

**b) Protects against the development of basilar leptomeningitis**

**c) Protects against the development of miliary tuberculosis**

 d) Currently is of no importance

56. Which is true for the BCG vaccine:

**a) It is a live vaccine**

 b) It is an inactivated vaccine

 c) Its administration is a form of passive immunization

 d) It contains an attenuated strain of Mycobacterium tuberculosis

57. The epidemiologically important form of tuberculosis (TB) is:

**a) Sputum smear-positive TB**

 b) Isolated PCR positivity in bronchoalveolar lavage

 c) Positive urine culture

 d) Positive TB skin test

58. The chemoprophylaxis of tuberculosis:

a) Is the first-line treatment for a localized form of tuberculosis

**b) Is used in children who are already infected to prevent the infection from becoming a manifest disease**

**c) Involves the administration of antituberculotics in individuals who are at increased risk of developing tuberculosis**

**d) Is used to protect people who are not infected but have been exposed to tuberculosis**

59. A 12-year-old boy with a positive culture for tuberculosis and a pathological chest X-ray will be treated with:

a) INH chemoprophylaxis for six months

**b) INH + RMP + PZA + STR for 2 months, RMP + INH for 4 months**

 c) INH + RMP for 2 months, INH for 6 months

**d) INH + RMP + PZA + EMB for 2 months, INH + EMB for 6 months**

60. The negative result of the tuberculin test in an BCG unvaccinated child is:

**a) < 5 mm induration**

 b) < 10 mm erythema

c) < 15 mm induration

 d) > 10 mm erythema

**9. Paediatric rheumatology**

1. JIA is an international acronym for:
2. Juvenile interstitial adenitis
3. **Juvenile idiopathic arthritis**
4. Jejunal intermittent afunction
5. **Chronic joint inflammation of unknown etiology**
6. Arthritis is defined by:
7. **Joint pain**
8. **Limited range of joint motion**
9. **Presence of intraarticular effusion**
10. Night sweats
11. Which statement/s about juvenile idiopathic arthritis is/are valid?
12. **Objective signs of joint inflammation last at least 6 weeks**
13. **Exclusion of known causes of joint problems**
14. **Objective synovitis in at least 1 joint**
15. Failure to gain weight is usually present
16. Choose the typical signs and symptoms of systemic JIA:
17. Subfebrile temperature
18. Hemorrhagic exanthema predominantly over lower limbs
19. **High erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)**
20. **Quotidian fever, rash, lymphadenopathy, hepatosplenomegaly, serositis**
21. The most common extra-articular manifestation of JIA is:
22. **Chronic anterior uveitis**
23. Interstitial pneumonitis
24. Valve defect
25. Malabsorption
26. Choose the correct statement/s about oligoarticular JIA:
27. Increased erythrocyte sedimentation rate, C-reactive protein and anemia are usually present
28. **The presence of antinuclear antibodies is a risk factor for the development of uveitis**
29. **Intra-articular application of long-acting corticosteroids is a first-line therapy for oligoarticular JIA**
30. **The limb overgrowth is a frequent manifestation of oligoarticular JIA**
31. Macrophage activation syndrome (MAS) is an acronym for:
32. **Life threatening complication of systemic diseases**
33. **Macrophage activation syndrome**
34. Microdeletion astigmatism
35. Myeloid aplasia syndrome
36. Choose the correct statement/s about polyarticular JIA:
37. **It is defined by more than 4 affected joints**
38. Seropositive form is common in children
39. Neither increased ESR or CRP are usually present
40. **The drug of the first choice is a low-dose methotrexate**
41. A 3-year-old previously healthy girl began to limp mainly in the morning. It improves during the day. She has no other problems. What is the most likely cause?
42. Congenital hip dysplasia
43. **Juvenile idiopathic arthritis**
44. Legg-Calvé-Perhes disease
45. Septic arthritis
46. „Strawberry tongue“ is a typical finding of:
47. Juvenile dermatomyositis
48. **Kawasaki disease**
49. **Scarlet fever**
50. Rheumatic fever
51. Which of the following test/s is/are always indicated in all JIA patients:
52. MRI of the affected bones
53. **Examination of the eyes in a slit lamp**
54. Echocardiography
55. Long bone CT
56. A 4 y/o boy suddenly refuses to walk because of leg pain. The pain has worsened since yesterday. The leg hurts and he is not able to move his leg or bear weight. His history is negative apart from the respiratory infection last week. He does not have fever anymore. Which of the following steps are not appropriate?
57. X-ray of the hips
58. Blood count examination
59. MRI of the hips
60. **Immediate intravenous antibiotic therapy with vancomycin and ceftriaxon**
61. Which of the listed investigations could help to confirm septic arthritis?
62. Affected joint X-ray
63. **Blood culture**
64. **White blood cell count of the synovial fluid obtained from affected joint**
65. **Culture of the synovial fluid obtained from affected joint**
66. What is the most common cause of rheumatic fever?
67. Impetigo caused by beta-haemolytic Streptococcus (group A)
68. **Acute tonsilopharyngitis caused by beta-haemolytic Streptococcus (group A)**
69. Skin infection caused by Staphylococcus aureus
70. Enterococcal infection
71. What is affected by inflammation in case of enthesitis?
72. Growth cartilage
73. Synchondrotic junction
74. **Insertion of ligament, tendon or fascia into bone**
75. Periarticular soft tissue
76. What is a typical skin manifestation of Still´s disease:
77. **Salmon-pink rash**
78. Eczema
79. Petechiae
80. Rosacea
81. If the child needs daily corticotherapy, what is the most appropriate time of administration?
82. **Just before breakfast**
83. Just before lunch
84. Just before dinner
85. Before sleeping
86. What is the most appropriate treatment option for an adolescent with fibromylgia?
87. Prednisone
88. NSAIDs
89. **Intensive exercise**
90. Patches with lidocaine
91. What is the cause of the knee pain and swelling with objective finding of patella ballottement?
92. Torn meniscus
93. **Synovitis of the knee**
94. Torn anterior cruciate ligament
95. Torn medial collateral ligament
96. What is the first line therapy in a 7-year-old child with Lyme arthritis?
97. Intraarticular corticosteroid
98. Penicillin
99. Doxycycline
100. **Amoxicillin**
101. What is the most common cause of the heart murmur in acute rheumatic fever?
102. Mitral stenosis
103. **Mitral regurgitation**
104. Tricuspid regurgitation
105. Pulmonary regurgitation
106. What kind of arthritis is associated with antigens of Yersinia enterocolitica?
107. Lyme arthritis
108. JIA
109. **Reactive arthritis**
110. Psoriatic arthritis
111. Choose the true statement/s about oligoarticular JIA:
112. **Blood count and erythrocyte sedimentation rate can be normal**
113. Antinuclear antibodies are present in all children
114. CRP is always increased in case of active joint inflammation
115. White blood count and complement are often decreased
116. What signs of the disease should be looked for if we suspect complex regional pain syndrome (algodystrophic syndrome):
117. Range of the joint movement
118. Muscle strength
119. **Skin color and temperature, subcutaneous edema, pain on palpation**
120. Sensation and coordination
121. Select the best test to identify pericardial effusion?
122. **Echocardiography**
123. Chest CT
124. Cardiac (heart) MRI
125. Chest X-ray
126. Which of the following features are typical for systemic scleroderma?
127. **Raynaud phenomenon**
128. Sicca syndrome (dryness of mucous membranes)
129. Increasing of anti-DNase B titers
130. Non-caseating granuloma
131. Select the correct statement about antiphospholipid syndrome:
132. It is more common in men than in women
133. **It is an autoimmune disease associated with recurrent venous and arterial thromboses**
134. It requires periodic anticoagulant therapy
135. It does not occur in children
136. Juvenile systemic scleroderma is characterized by:
137. Large vessel vasculitis
138. **Esophageal motility disorder**
139. Dry mucous membranes
140. Raised anti-DNase B titers
141. Which of the systemic lupus erythematosus antibodies is associated with a heart block in neonatal lupus?
142. Anti-dsDNA
143. Anti-Sm
144. Anti-histones
145. **Anti-SSA (Ro)**
146. Choose the correct statement about paediatric (juvenile) systemic lupus erythematosus (jSLE):
147. **jSLE manifests most often in adolescent girls**
148. IgM rheumatoid factor positivity is one of the immunological criteria
149. **The discrepancy between high erythrocyte sedimentation rate and low CRP is typical**
150. Renal involvement is rare in children
151. Which of the following tests will not help us in case of suspected systemic lupus erythematosus?
152. APTT
153. Antinuclear antibodies
154. **HLA B-27**
155. Urinary sediment
156. Scaly dermatitis above the extensor surfaces of the joints with redness of eyelids and cheeks are typical for:
157. Psoriasis
158. Rheumatic fever
159. Pediatric eczema
160. **Juvenile dermatomyositis**
161. Muscular weakness in juvenile dermatomyositis is characterized by:
162. **Affected pelvic and humeral girdles**
163. Normal EMG findings
164. **Risk of pharyngeal and respiratory muscle involvement**
165. Absent tendon reflexes
166. Myopathy with symmetrical proximal muscle weakness is:
167. **Typical manifestation of juvenile dermatomyositis**
168. **Typical manifestation of Duchenne muscular dystrophy**
169. Initially accompanied by decreased grip strength
170. **Usually accompanied by increased muscle enzymes**
171. The first line of diagnostic tests in case of suspected juvenile dermatomyositis includes:
172. **Liver function tests, Creatine phosphokinase, lactate dehydrogenase**
173. Electromyography
174. **Muscle strength tests**
175. Muscle biopsy
176. A ten-years-old previously healthy boy comes with a history of 1 day lasting severe pain and swollen right ankle. In addition to this finding you can see some petechiae over the shins. A likely diagnosis is:
177. Acute lymphoblastic leukemia
178. Idiopathic trombocytopenic purpura
179. Juvenile systemic lupus erythematosus
180. **IgA vasculitis**
181. IgA vasculitis is characterized by:
182. **Petechial skin bleeding**
183. **Enterorrhagia**
184. **Microhematuria**
185. Trombocytopenia
186. Seven-years-old previously healthy girl presents with haematuria and petechiae over her shins and buttocks. She has normal platelet count. She will probably have:
187. Coagulopathy
188. Menarche praecox
189. **Primary small vessels vasculitis**
190. **Painful joint swelling**
191. A child with IgA vasculitis can be acutely at risk of:
192. **Invagination**
193. Malabsorption
194. Hemarthros
195. Acute endocarditis
196. The finding of petechiae in a febrile child with high inflammatory activity can be a typical manifestation of:
197. **Meningococcal infections**
198. IgA vasculitis
199. Idiopathic thrombocytopenic purpura
200. **Acute lymphoblastic leukemia**
201. Typical manifestations of Kawasaki disease include:
202. **Exanthema in the perineum**
203. Purulent conjunctivitis
204. Protracted subfebrile temperature
205. **Strawberry tongue**
206. A typical manifestation of Kawasaki disease is:
207. **Peeling of the skin**
208. **Prolonged fever lasting more than 5 days**
209. Previous infection by beta-haemolytic Streptococcus (group A)
210. **Dilatation of coronary arteries**
211. The differential diagnosis of a toddler with fever and exanthema includes:
212. Juvenile systemic lupus erythematosus
213. **Kawasaki disease**
214. Rheumatic fever
215. **Measles**
216. Typical manifestations of Kawasaki disease do not include:
217. **Papulo-pustular rash**
218. Irritability of the child
219. Erythema of the palms and soles
220. Cervical lymphadenopathy
221. Select the correct statement/s about fever of unknown origin:
222. Lasts at least 4 days
223. **Cultures are negative**
224. **Presence of fever is documented in hospital**
225. **Fever lasts despite a week of antibiotic treatment**
226. Select true statement/s about periodic fever syndromes:
227. Fever coincides with menstruation
228. **Fever episodes alternate with afebrile intervals**
229. **The duration of fever episodes is not affected by antibiotic administration**
230. Serum amyloid A is elevated only in fever episodes
231. A four-year-old healthy-looking thriving child comes with a history of recurrent tonsillitis every month from 2 years of age. A likely diagnosis is:
232. Carrier of group A beta-haemolytic Streptococcus
233. Rheumatic fever
234. Systemic JIA
235. **PFAPA** (Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis**) syndrome**
236. The term „autoinflammatory“ means:
237. Antibody-mediated systemic inflammation
238. A group of congenital immunodeficiencies associated with infection from neonatal age
239. **Disorder of innate immune system**
240. Tumor cell elimination process
241. Familial Mediterranean fever is:
242. **The most common monogenic fever**
243. **Usually accompanied by severe abdominal pain**
244. Caused by *Leishmania donovani* infection in the Mediterranean region
245. **Most commonly treated by colchicine**
246. PFAPA syndrome is:
247. **The most common periodic fever syndrome in children**
248. **Characterized by periodic fever, pharyngitis, lymphadenitis and aphthous stomatitis**
249. Periodic fever caused by TNFRS1A gene mutation
250. Periodic fetal aplastic anemia syndrome

**10. Paediatric nephrology**

* + - 1. The nephrotic proteinuria in children:
  1. Is typical for acute poststreptococcal glomerulonephritis
  2. **Is defined as a proteinuria greater than 1 g/day/m2 of body surface area**
  3. **Is typical for an idiopathic nephrotic syndrome**
  4. Is defined as a proteinuria greater than 3,5 g/day

1. Which of the following is necessary for the diagnosis of nephrotic syndrome
   1. The presence of oedema
   2. **Proteinuria and hypalbuminaemia**
   3. Proteinuria and haematuria
   4. The evidence of reduction of renal functions with oliguria
2. The treatment of the first episode of primary idiopathic nephrotic syndrome is:
   1. The administration of antibiotics
   2. **The administration of corticosteroids**
   3. No medication is administrated, we just observe the patient
   4. The administration of cytostatics at an immunosuppressive dose
3. A child is about to be discharged from the hospital after successful treatment of the first episode of idiopathic nephrotic syndrome with corticosteroids. Which is the correct information for the child’s caretakers:
   1. The child is cured, the probability of relapse is minimal
   2. The probability of relapse is almost 100 %
   3. **The probability of not relapsing is approximately 30%**
   4. The probability of relapse is 50%
4. A typical laboratory sign of tubular renal impairment is:
   1. Microalbuminuria
   2. **Glycosuria with normoglycaemia**
   3. **The presence of beta-2-microglobulin/alpha-1-microglobulin in urine**
   4. Selective proteinuria
5. The so-called 'functional proteinuria' comprises:
6. Microalbuminuria
7. **Febrile proteinuria**
8. **Orthostatic proteinuria**
9. Proteinuria during cystitis
10. The source of proteinuria > 1.5 g/m2/day is probably:
    1. Tubular
    2. Postrenal
    3. **Glomerular**
    4. Febrile
11. The causes of primary monosymptomatic enuresis do not include:
    1. Night polyuria
    2. **Mental health issues in the family**
    3. Waking disorder
    4. Low capacity of the urinary bladder

10. A 6-year-old afebrile girl is being admitted with mild oedema of the eyelids, macroscopic haematuria, a marginally high blood pressure without dysuria. The most likely diagnosis is:

* 1. Acute cystitis
  2. Minimal change nephrotic syndrome (MCNS)
  3. **Acute glomerulonephritis**
  4. Acute pyelonephritis

11. Which of the following is true for the nephritic syndrome in childhood:

* 1. **Is mostly caused by acute post-streptococcal glomerulonephritis**
  2. **Is mostly associated with hypertension**
  3. Its necessary laboratory manifestation is proteinuria
  4. **Its necessary laboratory manifestation is haematuria**

12. A reduction of the C3 component of the complement is not typical for:

1. Acute post-streptococcal glomerulonephritis
2. Lupus glomerulonephritis
3. **Primary idiopathic nephrotic syndrome**
4. Chronic membranoproliferative glomerulonephritis type II

13. Repeated episodes of macroscopic haematuria coinciding with ongoing infection (synpharyngitic haematuria) are typical for:

* 1. Acute post-streptococcal glomerulonephritis
  2. **IgA glomerulonephritis**
  3. **Alport syndrome**
  4. ARPKD - autosomal recessive polycystic kidney disease

14. An 8-year-old boy presents with recurrent microscopic haematuria. His mother is followed by a nephrologist for haematuria, proteinuria and hypertension. His grandfather receives regular dialysis treatment and has a hearing impairment. What is the most likely diagnosis?

* 1. Congenital nephrotic syndrome
  2. Thin membrane syndrome
  3. **Alport syndrome**
  4. Chronic membranoproliferative glomerulonephritis

15. A macroscopic haematuria manifesting after a symptom-free period (approx. 7-14 days) following a tonsillitis, is typical for:

* 1. IgA nephropathy
  2. Henoch-Schönlein purpura
  3. ADPKD - autosomal dominant polycystic kidney disease
  4. **Acute glomerulonephritis**

16. Which of the following is (are) not characterized as the sterile post-streptococcal complications:

* 1. Rheumatic fever
  2. **Submandibular lymphadenitis**
  3. Acute glomerulonephritis
  4. **Chronic tonsillitis**

17. Positive blood dye reaction in chemical urine test may indicate:

* 1. **Myoglobinuria**
  2. **Erythrocyturia**
  3. **Haemoglobinuria**
  4. Diabetes insipidus

18. Unilateral congenital high-grade hydronephrosis in infants may have following symptoms:

* 1. The clinical and laboratory signs of renal failure
  2. **Is asymptomatic in most cases**
  3. Oliguria or anuria
  4. **Palpable abdominal resistance**

19. A non-surgical therapeutic approach is selected in congenital hydronephrosis:

* 1. Always
  2. **If the function of the affected kidney is normal**
  3. **If it is asymptomatic**
  4. Never

20. A non-surgical treatment of primary vesicoureteral reflux (VUR) in children below the age of one year is indicated:

* 1. Only in low- or middle-grade VUR
  2. **In most cases**
  3. Only in boys
  4. Never

21. In primary high-grade vesicoureteral reflux, a surgical therapeutic approach is selected:

1. More often in boys
2. **More often in girls**
3. **After the first year of age in most cases**
4. **More frequently in symptomatic children with repeated acute pyelonephritis**

22. Posterior urethral valve:

* 1. **Is a serious defect of the uropoetic tract**
  2. Occurs in boys as often as in girls
  3. **Is the most common cause of chronic renal insufficiency in children**
  4. **Has characteristic ultrasound prenatal findings**

23. The foetal uropathies:

* 1. **Are inborn developmental defects of the urinary tract diagnosed usually prenatally**
  2. Are rare developmental defects
  3. **Have an asymptomatic postnatal course in most cases**
  4. Their clinical relevance is negligible and therefore we do not actively search for them

24. The success rate of surgical treatment – the reimplantation of primary VUR - is:

* 1. 60 - 70%
  2. **Over 95%**
  3. 10 - 20%
  4. 30 - 50%

25. The autosomal dominant polycystic kidney disease (ADPKD):

* 1. **Is one of the most common monogenic disorder in the population**
  2. Affects only men
  3. **Often progresses into a chronic renal insufficiency in adulthood**
  4. Manifests usually in pre-school age

26. Which is true for the multicystic renal dysplasia:

* 1. It requires a surgical treatment in most cases
  2. **Is managed conservatively in most cases**
  3. **The affected kidney regresses (disappears) in adulthood in most cases**
  4. **Only one kidney is affected in most cases**

27. The most important diagnostic criteria for the urinary tract infection is:

1. An abnormal foetor and discoloration of urine
2. A macroscopic haematuria
3. **A significant bacteriuria**
4. A painful urination

28. A typical and specific manifestation in chemical urine test during urinary tract infection is:

1. **The presence of white blood cells in the urine**
2. The presence of red blood cells in the urine
3. The presence of protein in the urine
4. **A positive reaction to nitrites**

29. The most common cause of urinary tract infections in children is:

1. *Enterococcus faecalis*
2. *Pseudomonas aeruginosa*
3. ***Escherichia coli***
4. *Klebsiella pneumonia*

30. What is recommend to an 8-month-old girl with the second episode of acute pyelonephritis:

1. Excretory urography
2. A prophylactic ATB therapy and a follow-up in 6 months
3. **Micturating (voiding) cystourethrography (MCUG)**
4. The same treatment as in the first episode of acute pyelonephritis without any further investigations

31. The parents of a 3-month-old baby infant seek medical attention in ER due to fevers (body temperature up to 39.8°C), CRP 120 mg/L. Urine dipstick is positive for leukocytes and nitrites. The recommended course of action is:

1. We prescribe oral ATB and send the child home. We recommend follow-up at the general Paediatrician’s clinic
2. **We send the urine sample for microbiology cultures**
3. **Because the diagnosis of acute pyelonephritis is highly probable, we start i.v. ATB therapy immediately after the biological material is collected**
4. We investigate FW, blood count, basic biochemistry, lung X-ray and we will invite him for a follow-up in 48 hours.

32. The recommended empirical antibiotic treatment for suspected acute pyelonephritis is:

1. Nitrofurantoin
2. G-penicillin
3. **Aminopenicillin with clavulanate**
4. **Cefuroxime**

33. A significant bacteriuria is:

1. **Any bacteriuria when collected from suprapubic aspiration**
2. **A value > 105/mL when a “mid-stream” urine sample is collected**
3. **A value > 104/mL when urine is collected by catheterisation**
4. Any bacteriuria in a sample collected during spontaneous urination

34. The most common aetiology of acute renal failure in childhood is:

1. Renal aetiology
2. Postrenal aetiology
3. **Prerenal aetiology**
4. All previous causes are involved with the same frequency

35. The typical manifestation of acute renal failure of prerenal aetiology (in contrast with renal aetiology) is:

1. Hypertension
2. **High osmolality/specific mass of urine**
3. **Low Na+ excretion fraction in urine**
4. **Clinical signs of dehydration**

36. The diagnostic criteria of haemolytic-uremic syndrome do not include:

1. Haemolytic anaemia
2. Thrombocytopenia
3. A retention of nitrogen metabolites (i.e. the increase of urea and creatinine)
4. **An evidence of enteropathogenic *E. coli* in the stool**

37. Oliguria in infants is defined as:

1. Diuresis below 10 ml/kg/hour
2. **Diuresis below 1 ml/kg/hour**
3. Diuresis below 10 ml/kg/day
4. Less than 3 wet diapers per day

38. The most common cause of chronic renal failure in childhood is:

1. Chronic glomerulonephritis
2. **Congenital developmental defects of the uropoetic tract**
3. Post-traumatic renal impairment
4. Chronic pyelonephritis

39. The most serious laboratory finding in a patient with acute renal failure is:

1. An increase of creatinine
2. An increase of urea
3. **Hyperkalemia**
4. Hyponatraemia

40. The clinical examination of a child with chronic renal insufficiency may uncover:

1. Skin purpura
2. **A flattening of the growth curve**
3. **Hypertension**
4. Unilateral lumbalgia

41. Chronic renal insufficiency (CHRI) is likely to develop the soonest in a patient with:

1. ADPKD - autosomal dominant polycystic kidney disease
2. **ARPKD - autosomal recessive polycystic kidney disease**
3. CHRI due to lupus nephritis
4. Reflux nephropathy

**11. Neonatology**

1. A full-term neonate brought to the observation box after delivery is strikingly hypotonic, pale, not crying and not breathing in the first minute of life. What should you do?
   1. Assess the vital functions and observe the neonate
   2. Wait for the nurse to mark, weigh and measure the neonate and monitor if its clinical condition improves
   3. Assess the vital functions and ask the anaesthesiologist to secure the airways by endotracheal intubation
   4. **Assess the heart rate, initiate the tactile stimulation and commence cardiopulmonary resuscitation if the neonate does not start breathing**
2. What will be the first minute Apgar score of a full-term neonate brought to the observation box after delivery with marked hypotonia, whole-body pallor, absent breathing and crying, and irresponsiveness to tactile stimulation with a heart rate below 40/min?
   1. **0**
   2. 2
   3. 6
   4. 8
3. Mark the true statement(s) about the cardiopulmonary resuscitation of a full-term neonate after perinatal asphyxia:
   1. **One of the possibilities are chest compressions of 1/3 the depth of the anterior-posterior chest size using two fingers technique**
   2. **The compression to breathing ratio is 3:1**
   3. Intratracheal surfactant administration prior to the initiation of the resuscitation is recommended
   4. The frequency of chest compressions in a neonate is 150/min
4. The umbilical arterial pH is 7.08 and the lactate level 9 mmol/L. Which of the following is true:
   * 1. This does not denote hypoxia – pH would have to be below 7.05
     2. **These are laboratory signs of hypoxia**
     3. Sodium bicarbonate administration is indicated
     4. The values are normal
5. Which is true for a therapeutic whole-body hypothermia:
   * 1. It is not indicated for term neonates - it is only used in preterm neonates
     2. It typically lasts for 48 hours
     3. **EEG is a significant indication criterion for therapeutic whole-body hypothermia**
     4. The initiation within 10 hours after the hypoxic event is an essential prerequisite
6. Which is true for the cerebral palsy:
7. It does not occur as the polio vaccines are administered in the Czech Republic
8. It is a progressive motor impairment linked to an insult in the perinatal period
9. **It is a non-progressive motor impairment linked to an insult in the perinatal period**
10. **Its main causes are hypoxia, prematurity and infection**
11. Which is true for the cerebral palsy:
12. Hypotonic and cerebral types exist
13. **Botulotoxin application is one of the treatment options**
14. **Physiotherapy is important**
15. **Surgical elongation of Achilles tendon is performed in some cases**
16. The complications of perinatal asphyxia in a full-term neonate may include:
    1. **Hypoxic-ischemic encephalopathy**
    2. **The development of persistent pulmonary hypertension**
    3. **The development of disseminated intravascular coagulation**
    4. A hypoxic injury to epiphyseal growth plates
17. The therapeutic hypothermia decreases the body temperature to:
    1. **33-34°C**
    2. 28-32°C
    3. 35-36°C
    4. 18-26°C
18. A premature neonate was born at 32+3 weeks of pregnancy weighing 1920 grams. The Apgar score was 6-9-9. It is a neonate:
    1. **With a low birth weight**
    2. Of extreme prematurity
    3. With a very low birth weight
    4. Of very preterm stage of gestation
19. A premature neonate at 29+6 weeks of gestation is in a risk of hypoglycaemia, therefore:
20. Is to be breastfed every 2 hours after delivery
21. Glucagon may be administered as a prevention of hypoglycemia
22. Hypoglycemia is to be managed only if symptomatic (tremor, sweating, apnoea), because it is a stimulatory mechanism
23. **A parenteral nutrition is to be administered via a peripheral vein catheter of via an umbilical vein catheter in case of higher glucose requirements**
24. Within 30 minutes after the delivery of a neonate at 34th week of gestation, the nurse summons the doctor because the neonate is dyspnoeic – breathes rapidly, intercostal and suprasternal retractions are present, grunting is audible. Which of the following is true:
25. These may be the signs of sepsis – ampicillin and gentamicin may be needed
26. Respiratory Distress Syndrome (RDS) may be evolving – the therapeutic approach may include nasal distension, intubation and surfactant administration
27. Meconium Aspiration Syndrome (MAS) may be the cause
28. **All answers are correct**
29. A premature neonate born at 33rd week of gestation will have:
30. **A thin tender skin of rose colour with lanugo**
31. Palpable and well-developed nipples
32. Fingernails extending the fingertips
33. One testicle descended
34. Physical examination of a premature neonate born at 28 weeks of gestation reveals markedly distended abdomen on the 15th day of life. Temperature instability, ventilation deterioration, hypotension and signs of pain are present. Abdominal horizontal X-ray in supine position displays the cupola sign, distension of the intestines and gastric residues. Which of the following is true:
35. Hemoperitoneum is suspected, abdominal drainage and hematoma removal are indicated
36. **Pneumoperitoneum due to necrotising enterocolitis (NEC) is very likely**
37. **Antibiotics administration and surgical revision in case of severe NEC is needed**
38. **Nasogastric tube is to be administered to deviate the gastric residues**
39. Which statement is true for the retinopathy of prematurity:
40. **Prematurity is a risk factor**
41. **Hyperoxia is a risk factor**
42. **Hypoxia is a risk factor**
43. **Can be managed by laser photocoagulation or cryotherapy**
44. Which statement is true for bronchopulmonary dysplasia (BPD) or chronic lung disease:
45. It is defined as oxygen or ventilatory dependency in neonates of any age
46. It does not affect neonates with birth weight below 1000 grams
47. **The main pathophysiologic mechanism is currently believed to be inflammation; risk factors are oxygen and its toxicity and mechanical ventilation combined with prematurity**
48. **Children suffering from BPD are indicated to receive RSV vaccination**
49. Which statement is true for the patent ductus arteriosus (PDA):
50. **The risk factors include prematurity, Respiratory Distress Syndrome (RDS), asphyxia**
51. **Ductus arteriosus closes spontaneously in healthy full-term neonates within 72-96 hours after the delivery and even later in preterm neonates**
52. **Deteriorates circulatory parameters of the neonate**
53. In case of cyanotic congenital heart diseases, the ductus arteriosus closure can be prevented by intravenous ibuprofen/indomethacin

**12. Paediatric neurology**

1. The primary headaches do not include:
2. Migraine
3. Tension-type headache
4. **Post-traumatic headache**
5. **Headache due to arterial hypertension**
6. Select the true statement about the tension-type headache:
7. **It may occur everyday**
8. It is of strong to very strong intensity
9. It often wakes the patient from sleep at night
10. **The neurological examination of the child is normal**
11. The symptoms of headache indicating an increased risk of intracranial hypertension are:
12. **Gradual worsening of pain**
13. **Morning vomiting**
14. Photophobia
15. Spastic diparesis
16. Select the true statement about migraine in children:

**a) The intensity of pain is usually medium to strong**

**b) It is often accompanied by vomiting**

**c) It may not be lateralized**

d) A specific neurological finding is often present, e.g. hemiparesis, hemianopsia

1. The therapy of migraine in children consists of:

**a) A timely administration of paracetamol or ibuprofen**

**b) Rest in a quiet, dark room**

c) A timely administration of triptans (e.g. eletriptan)

d) Psychotherapy

1. The therapy of tension-type headache in children does not include:
2. Psychotherapy

b) Adjustments of the daily routine and sleep habits

**c) A regular administration of analgetics (e.g. paracetamol, ibuprofen)**

**d) Dietary interventions**

1. In case of headache due to suspected intracranial hypertension/hydrocephalus, it is necessary to:

**a) Perform the brain imaging (CT or MR) as soon as possible**

**b) Monitor the body vital functions**

c) Perform the lumbar puncture immediately

d) Discharge the patient in order to avoid unnecessary discomfort and stress

1. Select all correct answers about cerebral palsy:

a) It is a result of an infection and may be prevented by vaccination

**b) It is a non-progressive posture and movement disorder caused by a damage to the immature brain**

**c) Evolves over time**

**d) May be accompanied by a disorder of speech development and/or a deficiency of cognitive and sensory functions**

1. The risk factors of cerebral palsy include:

**a) Perinatal asphyxia**

**b) Prematurity**

**c) Infections**

d) Season of year at birth

1. The forms of cerebral palsy do not include:
2. Spastic diparesis
3. Spastic quadriparesis
4. **Spastic paraparesis**
5. Extrapyramidal form of cerebral palsy
6. Mark the false statements about cerebral palsy:

**a) The clinical presentation of cerebral palsy does not change significantly during the first year**

b) It may manifest in the first trimenon as abnormal muscle tone

c) Some developmental reflexes may be absent in neonatal age

d) Some developmental reflexes may persist after 6 months of age

1. Select the true statement(s) about spastic diparesis:

**a) Typically affects children born between 28th – 32nd week of pregnancy**

**b) Is often associated with periventricular leukomalacia**

c) Affects mainly the upper limbs

d) Most children some form of intellectual disability and shortened survival

1. Spastic quadriparesis:

a) Is one of the milder forms of cerebral palsy

**b) Is often associated with severe mental deficiency, epilepsy, visual and hearing impairment**

**c) Is usually the result of severe perinatal asphyxia**

**d) Is associated with a shortened life expectancy**

1. Select the true statement(s) about the extrapyramidal form of cerebral palsy:

**a) Is usually associated with severe asphyxia in full-term children**

**b) Leads to a severe disorder of the motor and speech development**

c) Is mainly associated with severe mental retardation

d) The development of independent bipedal locomotion is not affected in most children

1. The recommended modalities of cerebral palsy management do not include:

a) Physiotherapy

b) Botulinum toxin application

c) Prosthetic treatment

**d) Stem cell treatment**

1. Select the true statement(s) about Duchenne/Becker muscle dystrophy:

**a) It is caused by mutation of the dystrophin gene**

b) The disease usually manifests clinically in the newborn age

c) It usually causes a delayed onset of walking

**d) The typical clinical symptom is pseudohypertrophy of the calves**

1. Select the true statement(s) about the most severe form of spinal muscular atrophy (Werdnig-Hoffman disease):
2. **It manifests in the newborn age**
3. **It manifests with hypotonia, muscle weakness, hyporeflexia and muscle atrophy**
4. Respiratory failure due to hypoventilation never occurs
5. **Shows noticeably weak cry**
6. Neonatal myasthenia:
7. May not be diagnosed – does not occur in this age
8. **May be caused by transplacental transfer of maternal autoantibodies against the acetylcholine receptor**
9. **May manifest with noticeably weak cry and poor feeding**
10. **May be transient**

1. Diagnostic methods used in children with suspected neuromuscular disease include:
2. **EMG**
3. **Muscle MR**
4. **Echocardiography**
5. **Spirometry**
6. The clinical symptoms of neuromuscular disease usually do not include:
7. Hypotonia
8. Contractures
9. Muscle weakness
10. **Epilepsy**
11. The typical signs of central hypotonia include:
12. **Hyperreflexia**
13. Muscle weakness
14. **The development of spasticity**
15. **The presence of irritative (spastic) pyramidal signs**
16. The typical signs of peripheral hypotonia include:
17. **Muscle weakness**
18. **Hyporeflexia**
19. **Weak cry in a newborn/infant**
20. **Poor feeding in a newborn/infant**

1. Peripheral hypotonia may be caused by dysfunction at the level of:
2. **Alpha motor neuron**
3. **Peripheral nerve**
4. **Neuromuscular junction**
5. Central motor neuron
6. Herpetic encephalitis:
7. **Typically presents with lymphocytic pleocytosis in cerebrospinal fluid**
8. **May manifest as complicated febrile seizures**
9. Typically presents with decreased protein and glucose and elevated lactate in cerebrospinal fluid
10. Typically presents with monocytic pleocytosis in cerebrospinal fluid

1. The two most common causative pathogens of meningitis in children are:
2. Escherichia coli
3. Staphylococcus aureus
4. **Streptococcus pneumoniae**
5. **Neisseria meningitidis**
6. The cerebral oedema in CNS infections:
7. Is predominantly cytotoxic
8. Is predominantly interstitial
9. Is predominantly vasogenic
10. **Is caused by combination of all subtypes**
11. Bacterial meningitis in infants may manifest as:
12. **Irritability or lethargy, seizures, altered consciousness**
13. Horizontal nystagmus and photophobia
14. **Vomiting, diarrhea, feeding intolerance**
15. Depressed anterior fontanelle, dehydratation
16. A typical finding in cerebrospinal fluid in purulent meningitis is:
17. **Increased level of protein ≥ 2 g/l**
18. Increased level of glucose ≥ 4 mmol/l
19. Increased count of erytrocytes ≥ 50/3
20. Increased count of leukocytes ≤ 100/3
21. Select the correct answer (s). The lumbar puncture in suspected CNS infection:
22. It is performed in a sitting position at L1/L2 level, 2-5 ml of CSF is sampled
23. In a child with circulatory or ventilation failure, it is performed in a sitting position only, a maximum of 2 ml of CSF is sampled
24. In infants younger than 6 months, it is performed in a lying position at Th12 level, a maximum of 2 ml of CSF is sampled
25. **It is performed in a lying or sitting position at L3/L4 level, 2-5 ml of CSF is sampled**
26. The first-choice antibiotic therapy for bacterial meningitis is:
27. Second-generation cephalosporins intravenously
28. **Thirdgeneration cephalosporins intravenously**
29. Carbapenems intravenously
30. Aminopenicillins intravenously
31. The meningeal syndrome is:
32. **A set of symptoms resulting from irritation of the meninges and spinal roots by any pathological process**
33. A set of symptoms resulting from irritation of the meninges and spinal roots only by CNS infection
34. **A set of symptoms resulting from irritation of the meninges and spinal roots in high fever**
35. **A set of symptoms resulting from irritation of the meninges and spinal roots in subarachnoid hemorrhage**
36. Seizures in childhood are often:
37. **Symptomatic**
38. **A symptom of epilepsy**
39. **Febrile**
40. A manifestation of oppositional defiant disorder
41. During seizures in a child, special attention should be paid to the presence of:
42. **Symmetry/asymmetry (hemiconvulsion, turning of the head and eyes, ...)**
43. **Pupil size and reactivity**
44. **Vegetative signs (cyanosis, sweating, salivation)**
45. **Patient’s reactivity to verbal or tactile stimuli**
46. In the case of first episode of seizures in a child, it is necessary:
47. **To measure glycemia**
48. **To examine acid-base parameters and blood gases**
49. **To measure the temperature**
50. To weigh the patient
51. Febrile seizures typically:
52. **Occur in children from 6 months to 6 years**
53. **May reoccur in the same patient**
54. Have serious prognosis and high risk of permanent neurological consequences
55. Manifest as fever over 39,5°C
56. Simple (uncomplicated) febrile seizures:
57. **Are symmetrical**
58. **Last less than 10 minutes**
59. May reoccur 2-3 times during one febrile infection
60. Do not require any medical attention. It is not necessary to examine the child, only to assure the parents
61. First aid for a child with seizures should include:
62. Airway management and fixation of the tongue
63. Immediate mouth-to-mouth breathing, especially if the patient is cyanotic
64. **Diazepam administration, if available**
65. **Placing the patient in the recovery position and careful monitoring after the cessation of the convulsions**
66. In acute seizures, diazepam should be administered:
67. **Intravenously**
68. Intramuscularly (because venous access is difficult to secure)
69. Orally
70. **Rectally**
71. In acute seizures, diazepam should be administered:
72. **Intravenously: 0.15-0.2 mg/kg/dose**
73. **Rectally: 5 mg for a child below 15 kg, can be administered in multiple doses for a child above 10 kg**
74. Intramuscularly: 0,6 mg/kg/dose
75. Intranasally: 0,8 mg/kg/dose
76. Childhood absence is:
77. **A childhood epileptic syndrome typical for younger school-age**
78. A daydreaming typical for preschool age
79. A synonym for truancy
80. **A brief break in the activity associated with unconsciousness lasting few seconds**
81. Juvenile myoclonic epilepsy typically:
82. Begins in infancy
83. **Manifests with generalized tonic-clonic seizures**
84. **Is often triggered by lack of sleep**
85. **Relapses in adulthood after discontinuation of treatment**

**13. Paediatric oncology**

1. Tumors typical for childhood:
   1. Are intestine and breast carcinoma
   2. Never generalize
   3. **Often do not produce specific tumor markers**
   4. **Grow rapidly and generalize early**
2. The most common localization of medulloblastoma is:
   1. The orbit
   2. The brain hemisphere
   3. **The posterior cranial fossa**
   4. Medulla oblongata
3. The general symptoms of Hodgkin lymphoma may be:
   1. **Itching**
   2. **Intermittent fevers**
   3. **Weight loss**
   4. **Night sweats**
4. The lymphomas localized in mediastinum can manifest as:
   1. **Dyspnea**
   2. **Superior vena cava syndrome**
   3. A sore throat
   4. **Fluidothorax**
5. Dyspnea as a presentation of cancer can be caused by:
   1. **Anaemia**
   2. **Atelectasis**
   3. **Ascites**
   4. Thrombocytopenia
6. Nephroblastoma:
   1. Is a typical tumor of adolescence
   2. **Is a typical tumor in infancy and toddler age**
   3. The most common manifestation is macroscopic haematuria
   4. **Can affect both kidneys**
7. Primary bone tumors of children and adolescents include:
   1. Retinoblastoma
   2. **Ewing sarcoma**
   3. Hepatoblastoma
   4. **Osteosarcoma**
8. Neuroblastoma:
   1. Is a typical tumor of adolescence
   2. Produces alpha-fetoprotein (AFP)
   3. **May infiltrate the bone marrow**
   4. **Produces catecholamines**
9. The typical tumors of infants and toddlers include:
   1. **Neuroblastoma**
   2. **Hepatoblastoma**
   3. Hodgkin lymphoma
   4. Glioblastoma
10. Typical symptoms of Hodgkin lymphoma are:
    1. Seizures
    2. Diarrhoea
    3. **Painless lymphadenopathy of neck and supraclavicular area**
    4. Diplopia

**14 Immunology**

1. Which of the following is correct about immunoglobulins:
   1. The basic immunoglobulin molecule consists of two identical heavy chains and two light chains linked together with a covalent bond
   2. **A polyclonal production of immunoglobulins is triggered as a response to antigen stimulation**
   3. IgM is usually detectable in urine
   4. An inborn defect of immunoglobulin production manifests in a newborn period
2. Severe combined immunodeficiency (SCID):
   1. Is a combination of defects in both the innate and adaptive mechanisms
   2. Manifests as craniofacial dysmorphia, failure to thrive and susceptibility to infections
   3. **Does not always present with lymphopenia**
   4. **Is paediatric emergency**
3. Cow’s milk protein allergy (CMPA) can be diagnosed by:
   1. Examining the serum IgA and IgG antibodies against casein/whey proteins, their negativity does exclude CMPA
   2. Examining serum level of IgE against lactose
   3. **Examining serum IgE antibodies against casein/whey proteins, their negativity does not exclude CMPA**
   4. **The standardized diagnostic elimination-exposition test**
4. Antiallergic drugs do not include:
   1. H1 antagonists
   2. **H2 antagonists**
   3. Corticosteroids
   4. Leukotriene receptor antagonists
5. Graft versus host disease:
   1. **Is utilized in haematopoietic stem cell transplantations in patients with haematological malignancies**
   2. Is caused by immunoglobulins present in HLA non-identical donor
   3. **Is caused by donor T-lymphocytes in the graft that recognize the recipient's tissue antigens as "foreign**"
   4. It manifests as a hyperacute complication of transplantation
6. The viral defence mechanism is orchestrated mainly via:
   1. The mechanisms of oxidative burst of mononuclear phagocytes
   2. The high production of interferon gamma by T lymphocytes
   3. **NK cells and cytotoxic T lymphocytes**
   4. **The type I. interferons**
7. Select the disease(s) caused by immunopathological reaction type II. (antibody-mediated):
   1. Acute post-streptococcal glomerulonephritis
   2. **Haemolytic disease of the newborn**
   3. **Myasthenia gravis**
   4. Contact dermatitis
8. The disorders of the complement system are not involved in the etiopathogenesis of:
   1. Paroxysmal nocturnal haemoglobinuria
   2. Atypical haemolytic-uremic syndrome
   3. **Graves-Basedow thyreotoxicosis**
   4. Increased susceptibility to infections with encapsulated bacteria
9. A fifteen-year-old boy with a history of a previous anaphylactic reaction to wasp venom is stung by a wasp into his forearm on a walk through the woods and became short of breath shortly afterwards. Choose the most appropriate FIRST step of action:
   1. An immediate oral administration of antihistamines ifl he is able to swallow
   2. A strangulation of the limb above the elbow and immobilization, in order to reduce the spread of the allergen
   3. An inhalation of 6 doses of salbutamol
   4. **An immediate administration of Adrenaline, e.g. 300 μg i.m. from an autoinjector**

1. Which of the following does NOT exclude a person from becoming a bone marrow donor:
   1. **Mild forms of allergic diseases**
   2. **Past history of infectious mononucleosis**
   3. History of cancer therapy
   4. Permanent chronic medication for diseases of the heart, blood vessels, lungs, joints

Other

1. The TORCH infections include:
   1. **Cytomegalovirus**
   2. Toxocariasis
   3. **Herpes simplex virus**
   4. Rickettsiosis
2. Which of the following applies to the intrauterine infections:
   1. **Congenital cytomegalovirus infection is the most common congenital infection of children**
   2. **Congenital cytomegalovirus infection is asymptomatic in the vast majority of cases**
   3. Serological examination of syphilis in pregnant women is performed in risk groups in I. and III. trimester of pregnancy
   4. Screening for hepatitis B is not performed in newborns in the Czech Republic
3. Which of the following does NOT apply to the foetal intrauterine infection with rubella virus:
   1. It is the most teratogenic of all viruses
   2. Causes cataracts, heart defects and deafness
   3. **The first-line approach after detecting the infection in a pregnant woman is passive immunization**
   4. **The prevention is vaccination, which is given only to girls**
4. What clinical signs may be present in an infant with a congenital cytomegalovirus infection:
   1. **Microcephaly**
   2. **Deafness**
   3. Duodenal atresia
   4. **Failure to thrive**
5. Which of the following applies to foetal varicella zoster virus infection during pregnancy:
   1. **It may lead to embryopathy with hypoplastic limb malformations and pigmented skin scars**
   2. Visceral varicella infection with liver and lung involvement has a 30% mortality and occurs if a woman becomes infected 2-3 weeks before delivery
   3. **Hyperimmune immunoglobulin and acyclovir are administered to all neonates whose mothers developed varicella related exanthema 5-7 days before delivery and up to one week after delivery**
   4. **The risk of developing congenital varicella syndrome is about 2 %, if the infection occurs after 20th gestational week**
6. Which of the following does NOT apply to the intrauterine infection of the foetus with Parvovirus B19:
   1. Up to 17% of the foetuses die after an infection in the first trimester
   2. May lead to foetal hydrops
   3. Leads to attenuation of erythropoiesis
   4. **When the disease is detected, abortion is recommended due to high risk of birth defects**
7. Which of the following applies to the intrauterine foetal infection with Toxoplasma gondii:
   1. **During the primary infection in the mother, the risk of foetal infection increases, while the teratogenic risk decreases with the length of pregnancy**
   2. **It may be a cause of hydrocephalus**
   3. **The late symptoms of intrauterine infection of an asymptomatic newborn include chorioretinitis**
   4. To prevent the infection, contact with dogs, especially puppies and their faeces should be avoided
8. Which of the following does NOT apply to the foetal intrauterine infection and perinatal infection of the newborn with herpes simplex virus:
   1. Embryopathy is a rare complication and causes brain calcifications
   2. In the perinatally infected newborns, the disease manifests from several days and up to 3 weeks after birth
   3. **The perinatally acquired infection is typically characterized by severe neonatal aphthous gingivostomatitis**
   4. **The perinatal herpetic infection does not belong to the differential diagnosis of neonatal seizures**
9. In which position may air-fluid levels in the distended intestinal loops (string-of-beads sign) be observed on the native abdominal image by scanning with a horizontal beam:
   1. **Standing**
   2. **Lying on back**
   3. **Lying on the left side**
   4. **Lying on the right side**
10. On the chest X-ray, we describe:
    1. **Shadows**
    2. **Hyperlucency**
    3. Density changes
    4. Echogenicity
11. We evaluate the X-ray image in infants according to:
    1. **The degree of inspiration**
    2. **The signs of positional asymmetry of the baby in the image**
    3. Scapular position
    4. Liver size
12. The most common cause of mediastinal shadow widening in infants is:
    1. Pneumothorax
    2. Pneumomediastinum
    3. **An enlarged thymus**
    4. A mediastinal tumor
13. A newborn with a birth weight of 1620 g develops respiratory insufficiency shortly after birth. The X-ray image shows a rich homogeneous shadowing of both lung wings. The underlying cause is most likely:
    1. Bilateral fluidothorax
    2. Bilateral pneumothorax
    3. **Respiratory distress syndrome**
    4. Bronchopulmonary dysplasia
14. The radiation exposure caused by a chest X-ray is:
    1. Zero
    2. **Very low (equivalent to days of natural radiation background)**
    3. Medium high (**equivalent to** months of natural radiation background)
    4. Very high (**equivalent to** years of natural radiation background)
15. In a one-week-old, premature newborn, with respiratory distress syndrome on an artificial lung ventilation, a bed chest scan was performed due to decreases in peripheral blood oxygen saturation levels. The image shows a decrease in transparency in the right upper lung field, a decrease in the volume of the right lung and shifting of the right lung hilum cranially. The underlying cause is most likely:
    1. Pneumothorax on the right
    2. Fluidothorax on the right
    3. **Right upper lung lobe collapse**
    4. Pneumomediastinum
16. When the presence of pleural fluid is suspected, which of the following is the method of choice in young children:
    1. **Ultrasound examination**
    2. CT imaging
    3. MR imaging
    4. Radiograph
17. When horizontal beam imaging in a standing position is performed, pneumoperitoneum manifests as:
    1. **Sickle-shaped translucency under the diaphragm**
    2. Air-fluid levels in intestinal loops
    3. Contouring of psoas muscles
    4. Reduced epigastric transparency
18. A four-year-old girl accompanied by her parents visits the paediatrician because of "nasal obturation", "runny nose", "coughing" and "fever" in the last three days. The physical findings are insignificant, therefore:
    1. We perform an X-ray of the paranasal sinuses
    2. We perform a chest X-ray
    3. We perform a tonsillar ultrasound
    4. **We do not perform any imaging methods**
19. Important genetic causes of short stature in children include:
    1. Klinefelter's syndrome
    2. **Turner syndrome**
    3. ***SHOX* gene deficiency**
    4. *FBN1* gene deficiency
20. A microarray type of examination (most often an array-CGH or SNP-array) can detect:
    1. Fully balanced chromosomal aberrations (e.g. inversions or translocations)
    2. **Chromosomal deletions or duplications (including submicroscopic changes)**
    3. Sequence changes at the level of individual genes (e.g. substitutions)
    4. Changes on a level of gene expression (affected splicing, DNA hypermethylation)
21. In a hypertrophic newborn with organomegaly, macroglossia, umbilical hernia and an episode of hypoglycaemia, the following should be suspected:
    1. Down syndrome
    2. Noonan's syndrome
    3. **Beckwith-Wiedemann syndrome**
    4. Prune belly syndrome
22. Which of the following statements about prenatal diagnosis of chromosomal aberrations is true:
    1. Invasive prenatal procedures are the only possible way to detect the most common autosomal trisomies in the foetus
    2. The chorion-villi sampling has replaced the previously used amniotic fluid collection in recent years
    3. **The most important indication for the foetal karyotyping is currently a positive screening test**
    4. Foetoscopy is increasingly used to confirm the diagnosis of chromosomal aberrations in the foetus
23. Frequent genetically determined causes of mental retardation in boys include:
    1. **Down syndrome**
    2. Klinefelter's syndrome
    3. **Fragile X syndrome**
    4. Gilbert´s syndrome
24. The examination of chromosomes using an optical microscope is a suitable method for the diagnosis of:
    1. **Numerical chromosomal aberrations**
    2. Uniparental disomy
    3. **Chromosomal translocations and inversions**
    4. **Chromosomal instability**
25. In the classic (complete) form of androgen insensitivity syndrome (autosomal recessive inheritance trait), the following would be detected:
    1. A normal female karyotype, normal female external genitalia
    2. A normal female karyotype, normal male external genitalia
    3. **A normal male karyotype, normal female external genitalia**
    4. A normal male karyotype, normal male external genitalia
26. In Angelman syndrome, the underlying molecular-genetic cause may be detected at the level of:
    1. **Point mutations**
    2. **Microdeletions**
    3. **Uniparental disomy**
    4. **Methylation disorders**
27. An autosomal recessive inheritance trait is typical for:
    1. **Cystic fibrosis (*CFTR* gene mutations)**
    2. **Phenylketonuria (*PAH* gene mutations)**
    3. Androgen insensitivity syndrome (*AR* gene mutation)
    4. **Congenital adrenal hyperplasia (*CYP21A2* gene mutations)**
28. Which of the following statements about genetic laboratory methods is true:
    1. **Missense gene mutations may be detected using sequencing methods**
    2. **MLPA is a suitable method for the diagnostics of selected deletions or duplications**
    3. Karyotyping with an optical microscope detects only gene/chromosomal rearrangements of at least 100 nucleotides
    4. Uniparental disomy may be diagnosed by FISH with a fluorescence microscope
29. Which of the following statements about cytogenetic examination is true:
    1. Within one hour after obtaining a blood sample for cytogenetic examination, the cells must be inhibited with colcemid or 90% ethanol
    2. **Cell culturing is a key step of the laboratory process, as the chromosomes are only visible in dividing cells**
    3. **In patients after bone marrow transplant, skin fibroblasts may be used for cytogenetic examination**
    4. The so-called banding methods (such as G-banding) are no longer used for the visualization of chromosomes for examination with an optical microscope as a simpler, classical staining using Giemsa dye, is used nowadays
30. Healthy, unrelated parents conceived a boy, who was diagnosed with Haemophilia B at pre-school age. According to the pedigree, what is the theoretical risk of recurrence of the same disease for another child of this couple:
    1. **50% - if it was a boy**
    2. 25% - if it was a girl
    3. 75% - if it was a boy
    4. **0% - if it was a girl**