Station 9

Student ID No ……

Remember to fill in your student ID No.

A pre-school child is admitted to the hospital emergency room. The parents state that the child's general condition has decreased over the last few days, and they have noticed that the child has been to the toilet more often than usual, and he has been increasingly thirsty. They also suspect he has lost weight over the last weeks or months. They had visited their GP on the same day, and some tests were performed.

1.1 Which diagnosis is the most likely?

1.2 Which tests (in blood and/or urine) should be taken immediately

1.3 Name 3 important complications of this disease.

Examiners sheet

Student ID No ……

Examiner ID ……..

Station 9

A pre-school child is admitted to the hospital emergency room. The parents state that the child's general condition has decreased over the last few days, and they have noticed that the child has been to the toilet more often and has been increasingly thirsty. They also suspect he has lost weight during the last weeks or months. They had visited their GP on the same day, and some tests were performed.

1.4 Which diagnosis is the most likely?

1.5 Which tests (in blood and/or urine) is should be taken immediately

1.6 Name 3 important complications of this disease.

1		**Max**	**Student score:**
1.1	Diabetes mellitus (4 p) Diabetes insipidus (0 p) Pyelonephritis/cystitis (0 p)	4	
1.2	Blood glucose (2 p) Blood acid-base-balance/blood gas analysis (3 p) Ketones in urine (1 p)	6	
1.3	Nephropathy (2 p) Retinopathy (2 p) Cardiovascular disease (2 p)	6	

Answer paper

Examination: MEDSEM9_V14_ORD

Assessment: MEDSEM9_STATION13_V14_ORD

Part 1:

Kari is para 2 with delivery date 30/7. Two years ago she gave birth to a boy at term after an uncomplicated pregnancy.
The present pregnancy has mostly been uncomplicated, apart from vaginal bleeding at 12 weeks of gestation. At that time, ultrasound examination of the fetus showed normal findings. At regular antenatal check-up with her GP on 15 April, it was discovered that she had a urinary tract infection which was treated with antibiotics. She arrives in the Department with contractions, but her waters have not broken. According to the calculated ultrasound term she is 33 weeks and 4 days. The Labour ward is right next door to the Neonate ward.

Question 1:

What sort of treatment should Kari receive? (3 correct answers):

- ☐ Antibiotics
- ☐ Bed rest
- ☐ Amniotomy
- ☐ Antenatal steroids
- ☐ Tocolysis
- ☐ Emergency caesarean section

Answer:

Bed rest
Antenatal steroids
Tocolysis

Part 2:

Kari is para 2 with delivery date 30/7. Two years ago she gave birth to a boy at term after an uncomplicated pregnancy. The present pregnancy has mostly been uncomplicated, apart from vaginal bleeding at 12 weeks of gestation. At that time, ultrasound examination of the fetus showed normal findings. At regular antenatal check-up with her GP on 15 April, it was discovered that she had a urinary tract infection which was treated with antibiotics. She arrives in the Department with contractions, but her waters have not broken. According to the calculated ultrasound term she is 33 weeks and 4 days. The Labour ward is right next door to the Neonate ward.
She receives antenatal steroids, two intramuscular injections of betamethasone with a 12-hour interval. The contractions do not stop, and after 26 hours her waters break spontaneously. You are called as the on-duty doctor in the Paediatric department. A few minutes after you arrive in the Labour ward a boy is born vaginally who immediately cries, but who is breathing more slowly than you had expected. Apgar score is 7 after 1 min with deduction for colour, tone and respiration. Examination of the placenta and membranes reveals signs of chorioamnionitis.
Already at 5 minutes of life you notice that the boy's nostrils have started to flare, and at auscultation you can also hear a tendency to expiratory grunting. You also note that his hands and feet are blue, and at closer examination you see that his lips and surrounding skin are also blue. You transport him to the Neonate Department.

Question 1:

Which investigations would you perform at arrival in the department? (5 correct answers):

- ☐ Weight
- ☐ X-ray thorax
- ☐ Ultrasound of the head
- ☐ Blood gas analysis
- ☐ EEG
- ☐ Blood tests for possible infection
- ☐ Chromosome analysis
- ☐ Pulse oximetry

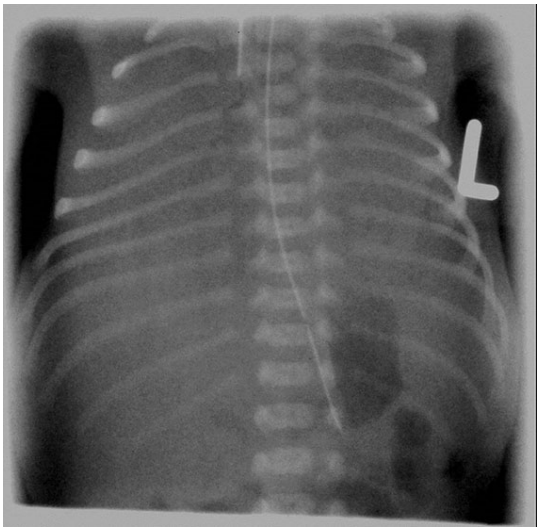
Answer:

Weight
X-ray thorax

Blood gas analysis
Blood tests for possible infection
Pulse oximetry

Part 3:

Kari is para 2 with delivery date 30/7. Two years ago she gave birth to a boy at term after an uncomplicated pregnancy. The present pregnancy has mostly been uncomplicated, apart from vaginal bleeding at 12 weeks of gestation. At that time, ultrasound examination of the fetus showed normal findings. At regular antenatal check-up with her GP on 15 April, it was discovered that she had a urinary tract infection which was treated with antibiotics. She arrives in the Department with contractions, but her waters have not broken. According to the calculated ultrasound term she is 33 weeks and 4 days. The Labour ward is right next door to the Neonate ward. She receives antenatal steroids, two intramuscular injections of betamethasone with a 12-hour interval. The contractions do not stop, and after 26 hours her waters break spontaneously. You are called as the on-duty doctor in the Paediatric department. A few minutes after you arrive in the Labour ward a boy is born vaginally who immediately cries, but who is breathing more slowly than you had expected. Apgar score is 7 after 1 min with deduction for colour, tone and respiration. Examination of the placenta and membranes reveals signs of chorioamnionitis. Already at 5 minutes of life you notice that the boy's nostrils have started to flare, and at auscultation you can also hear a tendency to expiratory grunting. You also note that his hands and feet are blue, and at closer examination you see that his lips and surrounding skin are also blue. You transport him to the Neonate Department.
He weighs 2050 gram which corresponds roughly to the 50 percentile at 34 weeks of gestation. X-ray reveals consolidations using an air bronchogram. The heart shadow cannot be evaluated.



The first blood test results revealed PaCO2 7.5 kPa; PaO2 4.2 kPa; pH 7.25; BE -5.5 mmol/L. Oxygen saturation varied between 86 and 89%. CRP was 30 mg /mL.

Question 1:

Which differential diagnoses do you consider? (3 correct answers):

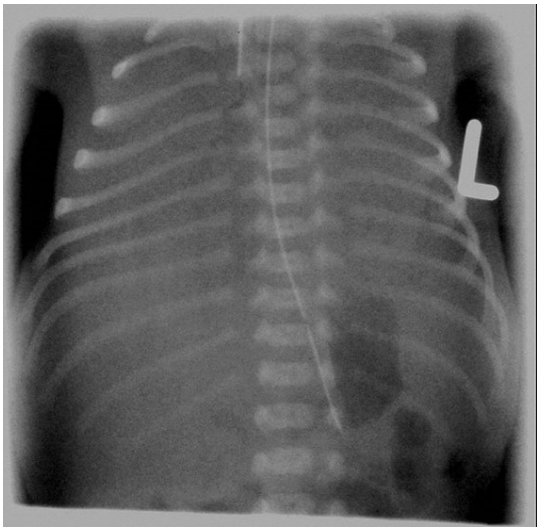
- ☐ Pneumothorax
- ☐ Congenital heart defect
- ☐ Pneumonia/sepsis
- ☐ Rhesus immunisation
- ☐ Respiratory distress syndrome
- ☐ Bronchopulmonary dysplasia

Answer:

Congenital heart defect
Pneumonia/sepsis
Respiratory distress syndrome

Part 4:

Kari is para 2 with delivery date 30/7. Two years ago she gave birth to a boy at term after an uncomplicated pregnancy. The present pregnancy has mostly been uncomplicated, apart from vaginal bleeding at 12 weeks of gestation. At that time, ultrasound examination of the fetus showed normal findings. At regular antenatal check-up with her GP on 15 April, it was discovered that she had a urinary tract infection which was treated with antibiotics. She arrives in the Department with contractions, but her waters have not broken. According to the calculated ultrasound term she is 33 weeks and 4 days. The Labour ward is right next door to the Neonate ward. She receives antenatal steroids, two intramuscular injections of betamethasone with a 12-hour interval. The contractions do not stop, and after 26 hours her waters break spontaneously. You are called as the on-duty doctor in the Paediatric department. A few minutes after you arrive in the Labour ward a boy is born vaginally who immediately cries, but who is breathing more slowly than you had expected. Apgar score is 7 after 1 min with deduction for colour, tone and respiration. Examination of the placenta and membranes reveals signs of chorioamnionitis. Already at 5 minutes of life you notice that the boy's nostrils have started to flare, and at auscultation you can also hear a tendency to expiratory grunting. You also note that his hands and feet are blue, and at closer examination you see that his lips and surrounding skin are also blue. You transport him to the Neonate Department. He weighs 2050 gram which corresponds roughly to the 50 percentile at 34 weeks of gestation. X-ray reveals consolidations using an air bronchogram. The heart shadow cannot be evaluated.



The first blood test results revealed PaCO2 7.5 kPa; PaO2 4.2 kPa; pH 7.25; BE -5.5 mmol/L. Oxygen saturation varied between 86 and 89%. CRP was 30 mg /mL.
You perform an echocardiography examination which reveals a normal heart structure.

Question 1:

Which treatment would you immediately offer this boy? (3 correct answers):

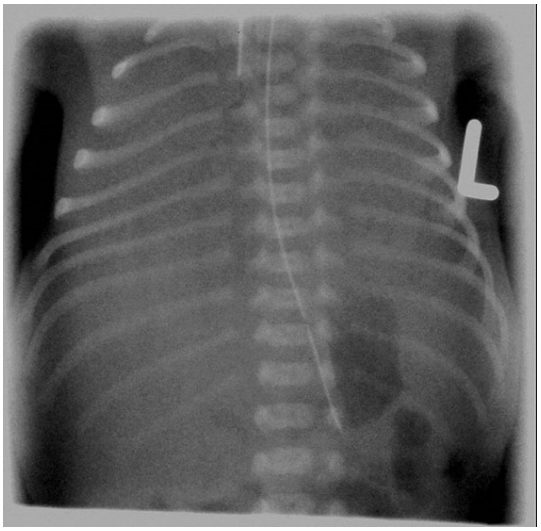
- ☐ Surfactant treatment
- ☐ Respirator treatment
- ☐ CPAP
- ☐ Antibiotics treatment
- ☐ Oxygen treatment
- ☐ Only monitoring in an incubator

Answer:

CPAP
Antibiotics treatment
Oxygen treatment

Part 5:

Kari is para 2 with delivery date 30/7. Two years ago she gave birth to a boy at term after an uncomplicated pregnancy. The present pregnancy has mostly been uncomplicated, apart from vaginal bleeding at 12 weeks of gestation. At that time, ultrasound examination of the fetus showed normal findings. At regular antenatal check-up with her GP on 15 April, it was discovered that she had a urinary tract infection which was treated with antibiotics. She arrives in the Department with contractions, but her waters have not broken. According to the calculated ultrasound term she is 33 weeks and 4 days. The Labour ward is right next door to the Neonate ward. She receives antenatal steroids, two intramuscular injections of betamethasone with a 12-hour interval. The contractions do not stop, and after 26 hours her waters break spontaneously. You are called as the on-duty doctor in the Paediatric department. A few minutes after you arrive in the Labour ward a boy is born vaginally who immediately cries, but who is breathing more slowly than you had expected. Apgar score is 7 after 1 min with deduction for colour, tone and respiration. Examination of the placenta and membranes reveals signs of chorioamnionitis. Already at 5 minutes of life you notice that the boy's nostrils have started to flare, and at auscultation you can also hear a tendency to expiratory grunting. You also note that his hands and feet are blue, and at closer examination you see that his lips and surrounding skin are also blue. You transport him to the Neonate Department. He weighs 2050 gram which corresponds roughly to the 50 percentile at 34 weeks of gestation. X-ray reveals consolidations using an air bronchogram. The heart shadow cannot be evaluated.



The first blood test results revealed PaCO2 7.5 kPa; PaO2 4.2 kPa; pH 7.25; BE -5.5 mmol/L. Oxygen saturation varied between 86 and 89%. CRP was 30 mg /mL. You perform an echocardiography examination which reveals a normal heart structure.
It becomes apparent that he does not have an infection and most probably has respiratory distress syndrome. He requires oxygen for 4 days, and is taken off CPAP after one week. Ultrasound of the head taken after one week reveals normal status.

Question 1:

Which complications should you be particularly aware of when following-up of this boy? (3 correct answers):

- ☐ Bronchopulmonary dysplasia
- ☐ Asthma
- ☐ Cerebral paresis
- ☐ School performance
- ☐ Nasal septum necrosis
- ☐ ADHD

Answer:

Asthma
School performance
ADHD

Assessment: MEDSEM9_STATION14_V14_ORD

Part 1:

Mohamed, 3 years of age, was brought to your attention because his mother was worried: Over the last few months he had become pale and less active, and he was sleeping more.
At clinical examination he appeared pale, otherwise normal. His haemoglobin in a capillary sample was 6.5 g/dL (normal range 11-13).

Question 1:

Which differential diagnoses should be considered (choose five)?

- ☐ Iron deficiency anaemia
- ☐ Urinary tract infection
- ☐ Coeliac disease
- ☐ Idiopathic thrombocytopenia purpura
- ☐ Gastrointestinal tumour
- ☐ Post-infection anaemia
- ☐ A haemoglobinopathy
- ☐ Leukaemia
- ☐ Rickets

Answer:

Iron deficiency anaemia
Coeliac disease
Post-infection anaemia
A haemoglobinopathy
Leukaemia

Part 2:

Mohamed, 3 years of age, was brought to your attention because his mother was worried: Over the last few months he had become pale and less active, and he was sleeping more. At clinical examination he appeared pale, otherwise normal. His haemoglobin in a capillary sample was 6.5 g/dL (normal range 11-13).
Iron deficiency anaemia, coeliac disease, post-infectious anaemia, a haemoglobinopathy and leukaemia are differential diagnoses that should be considered.
Mohamed's parents explained that the child did not eat well. However, he was very fond of milk. He attended kindergarten and had suffered from several episodes of fever and upper airway infections. Usually, he preferred to sit quietly and play whether he was indoors or outdoors.
You decide to perform some supplemental investigations/lab tests, including Hb, Leukocytes, Platelets, MCH, MCV and MCHC.

Question 1:

Which tests should be considered in addition to the list mentioned above (choose five)?

- ☐ CRP
- ☐ Chest x-ray
- ☐ Serum ferritin and iron
- ☐ Serology for gluten and gliadin
- ☐ Blood smear
- ☐ Reticulocytes
- ☐ Vitamin D metabolites
- ☐ AST

Answer:

CRP
Serum ferritin and iron
Serology for gluten and gliadin
Blood smear
Reticulocytes

Part 3:

Mohamed, 3 years of age, was brought to your attention because his mother was worried: Over the last few months he had become pale and less active, and he was sleeping more. At clinical examination he appeared pale, otherwise normal. His haemoglobin in a capillary sample was 6.5 g/dL (normal range 11-13). Iron deficiency anaemia, coeliac disease, post-infectious anaemia, a haemoglobinopathy and leukaemia are differential diagnoses that should be considered. Mohamed's parents explained that the child did not eat well. However, he was very fond of milk. He attended kindergarten and had suffered from several episodes of fever and upper airway infections. Usually, he preferred to sit quietly and play whether he was indoors or outdoors. You decide to perform some supplemental investigations/lab tests, including Hb, Leukocytes, Platelets, MCH, MCV and MCHC.
CRP, serum ferritin and iron, serology for gluten and gliadin, blood smear, and reticulocytes are the most relevant tests in addition to the pre-defined list.
The test results were: Hb 6.5 g/dL (low), leukocytes 7.5 x 10^9/L, platelets 455 x 10^9/L and CRP < 5 mg/L (all normal). Reticulocytes, MCV, MCH, MCHC, serum ferritin and serum iron were all below the reference range. Other results have not yet been reported.

Question 1:

What is the most likely diagnosis?

- Iron deficiency anaemia
- Coeliac disease
- Post-infection anaemia
- A haemoglobinopathy
- Leukaemia

Answer:

Iron deficiency anaemia

Part 4:

Mohamed, 3 years of age, was brought to your attention because his mother was worried: Over the last few months he had become pale and less active, and he was sleeping more. At clinical examination he appeared pale, otherwise normal. His haemoglobin in a capillary sample was 6.5 g/dL (normal range 11-13). Iron deficiency anaemia, coeliac disease, post-infectious anaemia, a haemoglobinopathy and leukaemia are differential diagnoses that should be considered. Mohamed's parents explained that the child did not eat well. However, he was very fond of milk. He attended kindergarten and had suffered from several episodes of fever and upper airway infections. Usually, he preferred to sit quietly and play whether he was indoors or outdoors. You decide to perform some supplemental investigations/lab tests, including Hb, Leukocytes, Platelets, MCH, MCV and MCHC. CRP, serum ferritin and iron, serology for gluten and gliadin, blood smear, and reticulocytes are the most relevant tests in addition to the pre-defined list. The test results were: Hb 6.5 g/dL (low), leukocytes 7.5 x 10^9/L, platelets 455 x 10^9/L and CRP < 5 mg/L (all normal). Reticulocytes, MCV, MCH, MCHC, serum ferritin and serum iron were all below the reference range. Other results have not yet been reported.
Iron deficiency anaemia is the most likely diagnosis.

Question 1:

What do you decide to do now?

- Order more blood tests in order to confirm the diagnosis definitively
- Start with iron supplement
- Refer for bone marrow examination
- No treatment, no follow up
- No treatment at this stage, but a follow-up consultation within two weeks to check whether the Hb level improves spontaneously or not

Answer:

Start with iron supplement

Assessment: MEDSEM9_STATION15_V14_ORD

Part 1:

Charlotte is 10 weeks old and was born at term after an uncomplicated pregnancy. She is her mother's first child, and the birth was uncomplicated. The baby's weight was 3710 gram and length 51 cm. She has been breastfed and has been to regular follow-up at the health centre where she has followed her percentile. At the last check-up one week ago she weighed 5000 gram.
The last two days, she has had a slightly snotty nose and perhaps taken slightly less breast milk than before. Yesterday she started with loose and frequent stools, but not vomited. Her mother states however that she is less interested in feeding than before. She has also developed a fever and her rectal temperature this morning was 38.4oC. Her mother contacts you at the office in the afternoon.

Question 1:

You examine her and are particularly interested in (choose four):

- ☐ Weight
- ☐ Contact
- ☐ Blood pressure
- ☐ Pulse
- ☐ Respiration rate
- ☐ Length
- ☐ Head circumference
- ☐ Psychomotor development

Answer:

Weight
Contact
Pulse
Respiration rate

Part 2:

Charlotte is 10 weeks old and was born at term after an uncomplicated pregnancy. She is her mother's first child, and the birth was uncomplicated. The baby's weight was 3710 gram and length 51 cm. She has been breastfed and has been to regular follow-up at the health centre where she has followed her percentile. At the last check-up one week ago she weighed 5000 gram.
The last two days, she has had a slightly snotty nose and perhaps taken slightly less breast milk than before. Yesterday she started with loose and frequent stools, but not vomited. Her mother states however that she is less interested in feeding than before. She has also developed a fever and her rectal temperature this morning was 38.4oC. Her mother contacts you at the office in the afternoon.
She has a pulse of 100 per minute and a respiration rate of 50 per minute.

Question 1:

Which actions would you initiate?

- ○ Send her home and ask the mother to contact you again the next day
- ○ Send her home and try to give her extra fluids such as oral rehydration fluid
- ○ Admit her to the nearest Paediatric Department

Answer:

Admit her to the nearest Paediatric Department

Part 3:

Charlotte is 10 weeks old and was born at term after an uncomplicated pregnancy. She is her mother's first child, and the birth was uncomplicated. The baby's weight was 3710 gram and length 51 cm. She has been breastfed and has been to regular follow-up at the health centre where she has followed her percentile. At the last check-up one week ago she weighed 5000 gram.
The last two days, she has had a slightly snotty nose and perhaps taken slightly less breast milk than before. Yesterday she started with loose and frequent stools, but not vomited. Her mother states however that she is less interested in feeding than before. She has also developed a fever and her rectal temperature this morning was 38.4oC. Her mother contacts you at the office in the afternoon. She has a pulse of 100 per minute and a respiration rate of 50 per minute.
She is admitted to the nearest Paediatric Department with suspected dehydration and gastroenteritis. You are now the on-call doctor who receives her at reception.

Question 1:

How will you assess her hydration status clinically and using laboratory tests (choose up to ten):

Contactability
Weight
Sunken fontanelle
Wet nappy
Sunken eyes (halonering)
Capillary refill time
Skin turgor
Palpation of the liver
Haemoglobin
Creatinine
Serum electrolytes
X-ray thorax

Answer:

Contactability Yes
Weight Yes
Sunken fontanelle Yes
Wet nappy Yes
Sunken eyes (halonering) Yes
Capillary refill time Yes
Skin turgor Yes
Palpation of the liver No
Haemoglobin Yes
Creatinine Yes
Serum electrolytes Yes
X-ray thorax No

Part 4:

Charlotte is 10 weeks old and was born at term after an uncomplicated pregnancy. She is her mother's first child, and the birth was uncomplicated. The baby's weight was 3710 gram and length 51 cm. She has been breastfed and has been to regular follow-up at the health centre where she has followed her percentile. At the last check-up one week ago she weighed 5000 gram.
The last two days, she has had a slightly snotty nose and perhaps taken slightly less breast milk than before. Yesterday she started with loose and frequent stools, but not vomited. Her mother states however that she is less interested in feeding than before. She has also developed a fever and her rectal temperature this morning was 38.4oC. Her mother contacts you at the office in the afternoon. She has a pulse of 100 per minute and a respiration rate of 50 per minute. She is admitted to the nearest Paediatric Department with suspected dehydration and gastroenteritis. You are now the on-call doctor who receives her at reception.
She now weighs 4720 gram (she weighed 5000 gram initially) and has a haemoglobin of 14.3 g/dl and serum sodium is 134 (reference range 135-145) mmol/L

Question 1:

What do you assess her degree of dehydration to be?

- Mild
- Moderate
- Severe

Answer:

Moderate

Assessment: MEDSEM9_STATION16_V14_ORD

Part 1:

Kirsten is 33 years old and pregnant for the first time. She is previously healthy, she does not smoke, and she has abstained from all alcoholic beverages since she conceived. The pregnancy was uncomplicated up until week 32; at that time, she developed a high fever as well as sudden-onset spontaneous uterine contractions. 12 hours later, she gave birth to a boy.
Initially, the newborn baby had a strong cry; later, however, he appeared quite floppy. 5 minutes after delivery, the heart rate was 110 beats/min. His respiration was highly irregular with occasional gasps. The baby reacted somewhat to nostril suction, but there were no spontaneous movements of arms nor legs. His skin colour was blue all over.

Question 1:

What is the Apgar score five minutes after delivery?

- 4
- 5
- 6

Answer:

5

Question 2:

What kind of resuscitation has to be initiated immediately?

- Oxygen supply through a nasal catheter
- Artificial ventilation using mask and bag
- Tracheal intubation followed by artificial ventilation

Answer:

Artificial ventilation using mask and bag

Part 2:

Kirsten is 33 years old and pregnant for the first time. She is previously healthy, she does not smoke, and she has abstained from all alcoholic beverages since she conceived. The pregnancy was uncomplicated up until week 32; at that time, she developed a high fever as well as sudden-onset spontaneous uterine contractions. 12 hours later, she gave birth to a boy. Initially, the newborn baby had a strong cry; later, however, he appeared quite floppy. 5 minutes after delivery, the heart rate was 110 beats/min. His respiration was highly irregular with occasional gasps. The baby reacted somewhat to nostril suction, but there were no spontaneous movements of arms nor legs. His skin colour was blue all over.
Apgar score five minutes after delivery was 5. Artificial ventilation using mask and bag was initiated. After a few minutes, the clinical situation had improved considerably. Apgar score ten minutes after delivery was 8. The baby was transferred to the Neonatal Intensive Care Unit. A capillary blood gas analysis performed about 30 minutes after delivery reported the following values [normal range]: pCO_2 6.8 [4.7 to 5.9] kPa, pH 7.18 [7.36 to 7.44] and BE -11.7 [-3 to 3] mmol/L.

Question 1:

The capillary blood gas analysis shows…

- A combined respiratory and metabolic acidosis
- A respiratory acidosis which is partly metabolically compensated
- A metabolic acidosis that is partly compensated by respiration

Answer:

A combined respiratory and metabolic acidosis

Question 2:

The high, negative value of BE («base excess») is probably caused by:

- Increased lactic acid levels due to slight asphyxia
- Attenuated excretion of acids due to slight renal failure
- Increased loss of bicarbonate due to gastrointestinal disease

Answer:

Increased lactic acid levels due to slight asphyxia

Part 3:

Kirsten is 33 years old and pregnant for the first time. She is previously healthy, she does not smoke, and she has abstained from all alcoholic beverages since she conceived. The pregnancy was uncomplicated up until week 32; at that time, she developed a high fever as well as sudden-onset spontaneous uterine contractions. 12 hours later, she gave birth to a boy. Initially, the newborn baby had a strong cry; later, however, he appeared quite floppy. 5 minutes after delivery, the heart rate was 110 beats/min. His respiration was highly irregular with occasional gasps. The baby reacted somewhat to nostril suction, but there were no spontaneous movements of arms nor legs. His skin colour was blue all over. Apgar score five minutes after delivery was 5. Artificial ventilation using mask and bag was initiated. After a few minutes, the clinical situation had improved considerably. Apgar score ten minutes after delivery was 8. The baby was transferred to the Neonatal Intensive Care Unit. A capillary blood gas analysis performed about 30 minutes after delivery reported the following values [normal range]: pCO_2 6.8 [4.7 to 5.9] kPa, pH 7.18 [7.36 to 7.44] and BE -11.7 [-3 to 3] mmol/L.
The blood gas analysis revealed a combined respiratory and metabolic acidosis. The high, negative value of BE («base excess») was probably caused by increased lactic acid levels due to slight asphyxia. Other blood tests showed blood glucose 1.3 mmol/L, Hb 17.9 g/dL and CRP 19 mg/L

Question 1:

Which treatment procedures (choose two) should be initiated at this stage?

- ☐ Intubation and artificial ventilation by means of a respirator
- ☐ Rapid intravenous infusion of isotonic saline
- ☐ Rapid intravenous infusion of glucose
- ☐ Intravenous antibiotics
- ☐ Intravenous buffer
- ☐ Surfactant in the tracheal tube

Answer:

Rapid intravenous infusion of glucose
Intravenous antibiotics

Part 4:

Kirsten is 33 years old and pregnant for the first time. She is previously healthy, she does not smoke, and she has abstained from all alcoholic beverages since she conceived. The pregnancy was uncomplicated up until week 32; at that time, she developed a high fever as well as sudden-onset spontaneous uterine contractions. 12 hours later, she gave birth to a boy. Initially, the newborn baby had a strong cry; later, however, he appeared quite floppy. 5 minutes after delivery, the heart rate was 110 beats/min. His respiration was highly irregular with occasional gasps. The baby reacted somewhat to nostril suction, but there were no spontaneous movements of arms nor legs. His skin colour was blue all over. Apgar score five minutes after delivery was 5. Artificial ventilation using mask and bag was initiated. After a few minutes, the clinical situation had improved considerably. Apgar score ten minutes after delivery was 8. The baby was transferred to the Neonatal Intensive Care Unit. A capillary blood gas analysis performed about 30 minutes after delivery reported the following values [normal range]: pCO_2 6.8 [4.7 to 5.9] kPa, pH 7.18 [7.36 to 7.44] and BE -11.7 [-3 to 3] mmol/L. The blood gas analysis revealed a combined respiratory and metabolic acidosis. The high, negative value of BE («base excess») was probably caused by increased lactic acid levels due to slight asphyxia. Other blood tests showed blood glucose 1.3 mmol/L, Hb 17.9 g/dL and CRP 19 mg/L.
The patient received rapid intravenous infusion of glucose as well as intravenous antibiotics (blood cultures were obtained in advance). The situation was stable at this stage, allowing a more thorough clinical examination. The weight was found to be 1404 g, which is clearly less than expected. Thus, the boy is small for gestational age (SGA).

Question 1:

A variety of causes might explain why this patient was SGA, including…

- Rhesus-immunization (haemolytic anaemia of the newborn)
- Maternal diabetes, not recognized during routine follow-up
- A chromosomal abnormality/dysmorphic syndrome

Answer:

A chromosomal abnormality/dysmorphic syndrome

Part 5:

Kirsten is 33 years old and pregnant for the first time. She is previously healthy, she does not smoke, and she has abstained from all alcoholic beverages since she conceived. The pregnancy was uncomplicated up until week 32; at that time, she developed a high fever as well as sudden-onset spontaneous uterine contractions. 12 hours later, she gave birth to a boy. Initially, the newborn baby had a strong cry; later, however, he appeared quite floppy. 5 minutes after delivery, the heart rate was 110 beats/min. His respiration was highly irregular with occasional gasps. The baby reacted somewhat to nostril suction, but there were no spontaneous movements of arms nor legs. His skin colour was blue all over. Apgar score five minutes after delivery was 5. Artificial ventilation using mask and bag was initiated. After a few minutes, the clinical situation had improved considerably. Apgar score ten minutes after delivery was 8. The baby was transferred to the Neonatal Intensive Care Unit. A capillary blood gas analysis performed about 30 minutes after delivery reported the following values [normal range]: pCO_2 6.8 [4.7 to 5.9] kPa, pH 7.18 [7.36 to 7.44] and BE -11.7 [-3 to 3] mmol/L. The blood gas analysis revealed a combined respiratory and metabolic acidosis. The high, negative value of BE («base excess») was probably caused by increased lactic acid levels due to slight asphyxia. Other blood tests showed blood glucose 1.3 mmol/L, Hb 17.9 g/dL and CRP 19 mg/L. The patient received rapid intravenous infusion of glucose as well as intravenous antibiotics (blood cultures were obtained in advance). The situation was stable at this stage, allowing a more thorough clinical examination. The weight was found to be 1404 g, which is clearly less than expected. Thus, the boy is small for gestational age (SGA).
A chromosomal abnormality/dysmorphic syndrome is one possible explanation for SGA. (In contrast, SGA is not a common feature of rhesus-immunization, and maternal diabetes tends to result in large babies, not small ones). As far as this boy is concerned, his special appearance further suggested a chromosomal abnormality/dysmorphic syndrome: low set and dysplastic ears, a small chin and six fingers on the left hand. Auscultation of the heart revealed an uncharacteristic murmur. SaO2 was 95% measured on the right hand and 84% measured on the right foot.

Question 1:

What might be the underlying explanation of the cardiac murmur and the differences in oxygen saturation between the right hand and the right foot?

- A ventricular septal defect (VSD) and left-to-right shunt in the ventricles
- An open arterial duct with right-to-left shunt
- Transposition of the great arteries (TGA)
- Tetralogy of Fallot and right-to-left shunt in the ventricles
- An atrioventricular defect (AVSD) and a left-to-right shunt both in the atria and in the ventricles

Answer:

An open arterial duct with right-to-left shunt

Part 6:

Kirsten is 33 years old and pregnant for the first time. She is previously healthy, she does not smoke, and she has abstained from all alcoholic beverages since she conceived. The pregnancy was uncomplicated up until week 32; at that time, she developed a high fever as well as sudden-onset spontaneous uterine contractions. 12 hours later, she gave birth to a boy. Initially, the newborn baby had a strong cry; later, however, he appeared quite floppy. 5 minutes after delivery, the heart rate was 110 beats/min. His respiration was highly irregular with occasional gasps. The baby reacted somewhat to nostril suction, but there were no spontaneous movements of arms nor legs. His skin colour was blue all over. Apgar score five minutes after delivery was 5. Artificial ventilation using mask and bag was initiated. After a few minutes, the clinical situation had improved considerably. Apgar score ten minutes after delivery was 8. The baby was transferred to the Neonatal Intensive Care Unit. A capillary blood gas analysis performed about 30 minutes after delivery reported the following values [normal range]: pCO_2 6.8 [4.7 to 5.9] kPa, pH 7.18 [7.36 to 7.44] and BE -11.7 [-3 to 3] mmol/L. The blood gas analysis revealed a combined respiratory and metabolic acidosis. The high, negative value of BE («base excess») was probably caused by increased lactic acid levels due to slight asphyxia.

Other blood tests showed blood glucose 1.3 mmol/L, Hb 17.9 g/dL and CRP 19 mg/L. The patient received rapid intravenous infusion of glucose as well as intravenous antibiotics (blood cultures were obtained in advance). The situation was stable at this stage, allowing a more thorough clinical examination. The weight was found to be 1404 g, which is clearly less than expected. Thus, the boy is small for gestational age (SGA). A chromosomal abnormality/dysmorphic syndrome is one possible explanation for SGA. (In contrast, SGA is not a common feature of rhesus-immunization, and maternal diabetes tends to result in large babies, not small ones). As far as this boy is concerned, his special appearance further suggested a chromosomal abnormality/dysmorphic syndrome: low set and dysplastic ears, a small chin and six fingers on the left hand. Auscultation of the heart revealed an uncharacteristic murmur. SaO2 was 95% measured on the right hand and 84% measured on the right foot.
An open arterial duct with right-to-left shunt might explain the cardiac murmur and the differences in oxygen saturation. Echocardiography confirmed this diagnosis. The underlying reason for the right-to-left direction of the shunt was assumed to be high pulmonary resistance. No other cardiac abnormalities were discovered. During the next couple of days, the clinical situation improved considerably. Five weeks after delivery, the parents were allowed to take their boy home for the first time. His weight had increased to approximately 2600 g. However, a new echocardiographic examination prior to departure revealed that the arterial duct was still open. Now, there was a quite large left-to-right shunt.

Question 1:

Taking the echocardiographic finding into consideration, which symptoms should the parents be particularly aware of during the coming weeks? List a maximum of 4 symptoms (4 sentences).

Answer:

Low weight gain
Eats just a little/needs long breaks during a meal
Sweats during meals
Breathes rapidly
These are the most important symptoms of neonatal heart failure which can observed by the parents .
Other symptoms/signs include: tachycardia, enlarged liver and pale skin. Students listing these signs, but who fail to mention at least three of the most important ones, should be awarded 3 points instead of full score (ie 6 points)

Assessment: MEDSEM9_STATION17_V14_ORD

Part 1:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor.
Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison.

Question 1:

Which differential diagnoses (choose three) can most likely be excluded?

- ☐ Acute pyelonephritis
- ☐ Heart failure
- ☐ Leukaemia
- ☐ Inflammatory bowel disease
- ☐ Anorexia
- ☐ Maltreatment/abuse/deprivation
- ☐ Pneumonia
- ☐ Diabetes mellitus
- ☐ Intoxication with paracetamol

Answer:

Acute pyelonephritis
Pneumonia
Intoxication with paracetamol

Part 2:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor. Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison.
Acute pyelonephritis, pneumonia and intoxication with paracetamol can most likely be excluded from the list of differential diagnoses, as these conditions normally develop more acutely.
Clinical examination reveals blood pressure 90/50 mm Hg, heart rate 115 beats/min, respiratory rate 20 breath/min, SaO2 98% and rectal temperature 37.1°C. There are normal findings regarding heart, lungs, abdomen, ears and throat.

Question 1:

How do you evaluate the vital signs?

- ○ The heart rate is too high and the blood pressure is normal
- ○ The heart rate is too high and the blood pressure is too low
- ○ The heart rate is normal and the respiratory rate is too high
- ○ The blood pressure is too low and the respiratory rate is normal

Answer:

The heart rate is too high and the blood pressure is normal

Part 3:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor. Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison. Acute pyelonephritis, pneumonia and intoxication with paracetamol can most likely be excluded from the list of differential diagnoses, as these conditions normally develop more acutely. Clinical examination reveals blood pressure 90/50 mm Hg, heart rate 115 beats/min, respiratory rate 20 breath/min, SaO2 98% and rectal temperature 37.1°C. There are normal findings regarding heart, lungs, abdomen, ears and throat.
Heart rate is a little too high, whereas blood pressure and respiratory rate are normal.
A blood sample has been drawn from a venous puncture, and the preliminary answers from the laboratory are as follows (reference values in parentheses): Hb 9.3 (11.7 – 15.3) g/dL, leukocytes 4.4 (4.5 – 14.0) x 10^9 cells/L, platelets 191 (150 – 450) x 109 cells/L, blood glucose 4.5 (4.2 – 6.3) mmol/L, CRP < 4 (< 4) mg/L, proBNP 16 (< 20) pmol/L, ferritin 6 (10 – 140) µg/L, albumin 29 (36 – 48) g/L.

Question 1:

Based on these answers, which differential diagnoses (choose two) might further be excluded from the list?

- ☐ Heart failure
- ☐ Leukaemia
- ☐ Inflammatory bowel disease
- ☐ Anorexia
- ☐ Maltreatment/abuse/deprivation
- ☐ Diabetes mellitus

Answer:

Heart failure
Diabetes mellitus

Question 2:

Which differential diagnosis should be **added** to the list?

- ○ Coeliac disease
- ○ Acute pancreatitis
- ○ Colon cancer

Answer:

Coeliac disease

Part 4:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor. Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison. Acute pyelonephritis, pneumonia and intoxication with paracetamol can most likely be excluded from the list of differential diagnoses, as these conditions normally develop more acutely. Clinical examination reveals blood pressure 90/50 mm Hg, heart rate 115 beats/min, respiratory rate 20 breath/min, SaO2 98% and rectal temperature 37.1°C. There are normal findings regarding heart, lungs, abdomen, ears and throat. Heart rate is a little too high, whereas blood pressure and respiratory rate are normal. A blood sample has been drawn from a venous puncture, and the preliminary answers from the laboratory are as follows (reference values in parentheses): Hb 9.3 (11.7 – 15.3) g/dL, leukocytes 4.4 (4.5 – 14.0) x 10^9 cells/L, platelets 191 (150 – 450) x 109 cells/L, blood glucose 4.5 (4.2 – 6.3) mmol/L, CRP < 4 (< 4) mg/L, proBNP 16 (< 20) pmol/L, ferritin 6 (10 – 140) µg/L, albumin 29 (36 – 48) g/L.
Heart failure and diabetes mellitus can most likely be excluded in patients having, respectively, normal proBNP and normal blood glucose.
Coeliac disease is a possible diagnosis and should therefore be added to the list of differentials; this disorder

causes malabsorption, possibly explaining why Aimée has low ferritin and low albumin.

Question 1:

Another blood analysis is a sensitive indicator of malabsorption, and therefore useful in this case – which one?

- ALT
- Folic acid
- Sodium

Answer:

Folic acid

Part 5:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor. Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison. Acute pyelonephritis, pneumonia and intoxication with paracetamol can most likely be excluded from the list of differential diagnoses, as these conditions normally develop more acutely. Clinical examination reveals blood pressure 90/50 mm Hg, heart rate 115 beats/min, respiratory rate 20 breath/min, SaO2 98% and rectal temperature 37.1°C. There are normal findings regarding heart, lungs, abdomen, ears and throat. Heart rate is a little too high, whereas blood pressure and respiratory rate are normal. A blood sample has been drawn from a venous puncture, and the preliminary answers from the laboratory are as follows (reference values in parentheses): Hb 9.3 (11.7 – 15.3) g/dL, leukocytes 4.4 (4.5 – 14.0) x 10^9 cells/L, platelets 191 (150 – 450) x 109 cells/L, blood glucose 4.5 (4.2 – 6.3) mmol/L, CRP < 4 (< 4) mg/L, proBNP 16 (< 20) pmol/L, ferritin 6 (10 – 140) µg/L, albumin 29 (36 – 48) g/L. Heart failure and diabetes mellitus can most likely be excluded in patients having, respectively, normal proBNP and normal blood glucose. Coeliac disease is a possible diagnosis and should therefore be added to the list of differentials; this disorder causes malabsorption, possibly explaining why Aimée has low ferritin and low albumin.
Folic acid is absorbed in the proximal part of the small intestine, and patients suffering from malabsorption tend to have low levels. In addition, there might be iron deficiency. Low levels of folic acid and low levels of iron both cause anaemia.

Question 1:

What is the mechanism by which folic acid deficiency and iron deficiency causes anaemia?

- The production of red blood cells is lowered
- The mucous membrane of the gut is weakened, resulting in chronic, low-grade intestinal bleeding
- The red blood cells are more easily destroyed (haemolysis)

Answer:

The production of red blood cells is lowered

Part 6:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor. Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison. Acute pyelonephritis, pneumonia and intoxication with paracetamol can most likely be excluded from the list of differential diagnoses, as these conditions normally develop more acutely. Clinical examination reveals blood pressure 90/50 mm Hg, heart rate 115 beats/min, respiratory rate 20 breath/min, SaO2 98% and rectal temperature 37.1°C. There are normal findings regarding heart, lungs, abdomen, ears and throat. Heart rate is a little too high, whereas blood pressure and respiratory rate are normal. A blood sample has been drawn from a venous puncture, and the preliminary answers from the laboratory are as follows (reference values in parentheses): Hb 9.3 (11.7 – 15.3) g/dL, leukocytes 4.4 (4.5 – 14.0) x 10^9 cells/L, platelets 191 (150 – 450) x 109 cells/L, blood glucose 4.5 (4.2 – 6.3) mmol/L, CRP < 4 (< 4) mg/L, proBNP 16 (< 20) pmol/L, ferritin 6 (10 – 140)

µg/L, albumin 29 (36 – 48) g/L. Heart failure and diabetes mellitus can most likely be excluded in patients having, respectively, normal proBNP and normal blood glucose. Coeliac disease is a possible diagnosis and should therefore be added to the list of differentials; this disorder causes malabsorption, possibly explaining why Aimée has low ferritin and low albumin. Folic acid is absorbed in the proximal part of the small intestine, and patients suffering from malabsorption tend to have low levels. In addition, there might be iron deficiency. Low levels of folic acid and low levels of iron both cause anaemia.
Folic acid deficiency and iron deficiency lower the production of red blood cells. In serious cases, patients suffering from malabsorption might develop a bleeding disorder. This, however, is not caused by the lack of iron or folic acid.

Question 1:

What is the cause of bleeding disorder in patients with severe malabsorption?

- Low levels of fibrinogen due to reduced absorption of amino acids
- Low levels of certain coagulation factors due to reduced absorption of vitamin K
- Low levels of platelets due to reduced absorption of vitamin B_{12}

Answer:

Low levels of certain coagulation factors due to reduced absorption of vitamin K

Part 7:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor. Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison. Acute pyelonephritis, pneumonia and intoxication with paracetamol can most likely be excluded from the list of differential diagnoses, as these conditions normally develop more acutely. Clinical examination reveals blood pressure 90/50 mm Hg, heart rate 115 beats/min, respiratory rate 20 breath/min, SaO2 98% and rectal temperature 37.1°C. There are normal findings regarding heart, lungs, abdomen, ears and throat. Heart rate is a little too high, whereas blood pressure and respiratory rate are normal. A blood sample has been drawn from a venous puncture, and the preliminary answers from the laboratory are as follows (reference values in parentheses): Hb 9.3 (11.7 – 15.3) g/dL, leukocytes 4.4 (4.5 – 14.0) x 10^9 cells/L, platelets 191 (150 – 450) x 109 cells/L, blood glucose 4.5 (4.2 – 6.3) mmol/L, CRP < 4 (< 4) mg/L, proBNP 16 (< 20) pmol/L, ferritin 6 (10 – 140) µg/L, albumin 29 (36 – 48) g/L. Heart failure and diabetes mellitus can most likely be excluded in patients having, respectively, normal proBNP and normal blood glucose. Coeliac disease is a possible diagnosis and should therefore be added to the list of differentials; this disorder causes malabsorption, possibly explaining why Aimée has low ferritin and low albumin. Folic acid is absorbed in the proximal part of the small intestine, and patients suffering from malabsorption tend to have low levels. In addition, there might be iron deficiency. Low levels of folic acid and low levels of iron both cause anaemia. Folic acid deficiency and iron deficiency lower the production of red blood cells. In serious cases, patients suffering from malabsorption might develop a bleeding disorder. This, however, is not caused by the lack of iron or folic acid.
Severe malabsorption might result in low levels of vitamin K, which in turn reduces the production of certain coagulation factors causing bleeding disorder. Coeliac disease is the most common cause of malabsorption in children. However, inflammatory bowel disease might also reduce the uptake of certain nutrients.

Question 1:

Which laboratory test is useful in order to differentiate between these two disorders (i.e. coeliac disease and inflammatory bowel disease)?

- Fecal calprotectin (FeCal-test)
- Stool culture
- Urine urobilinogen

Answer:

Fecal calprotectin (FeCal-test)

Part 8:

13-year old Aimée attends the local Paediatric Department together with her parents. She has been losing weight for quite a long time; in addition, she has been fatigued and out of sorts. Because the symptoms evolved quite slowly, her parents did not consider that she might be ill. However, a visiting grandmother, who had not seen Aimée for some time, was alarmed by her condition, and the parents therefore decided to take her to a doctor. Aimée herself seems to be a little anxious and shy. However, she does complain about abdominal discomfort. Her skin is pale, and she is indeed slim: 2.5 percentile for height vs age, and below 2.5 percentile for weight vs. height. There are no previous measurements for comparison. Acute pyelonephritis, pneumonia and intoxication with paracetamol can most likely be excluded from the list of differential diagnoses, as these conditions normally develop more acutely. Clinical examination reveals blood pressure 90/50 mm Hg, heart rate 115 beats/min, respiratory rate 20 breath/min, SaO2 98% and rectal temperature 37.1°C. There are normal findings regarding heart, lungs, abdomen, ears and throat. Heart rate is a little too high, whereas blood pressure and respiratory rate are normal. A blood sample has been drawn from a venous puncture, and the preliminary answers from the laboratory are as follows (reference values in parentheses): Hb 9.3 (11.7 – 15.3) g/dL, leukocytes 4.4 (4.5 – 14.0) x 10^9 cells/L, platelets 191 (150 – 450) x 109 cells/L, blood glucose 4.5 (4.2 – 6.3) mmol/L, CRP < 4 (< 4) mg/L, proBNP 16 (< 20) pmol/L, ferritin 6 (10 – 140) µg/L, albumin 29 (36 – 48) g/L. Heart failure and diabetes mellitus can most likely be excluded in patients having, respectively, normal proBNP and normal blood glucose. Coeliac disease is a possible diagnosis and should therefore be added to the list of differentials; this disorder causes malabsorption, possibly explaining why Aimée has low ferritin and low albumin. Folic acid is absorbed in the proximal part of the small intestine, and patients suffering from malabsorption tend to have low levels. In addition, there might be iron deficiency. Low levels of folic acid and low levels of iron both cause anaemia. Folic acid deficiency and iron deficiency lower the production of red blood cells. In serious cases, patients suffering from malabsorption might develop a bleeding disorder. This, however, is not caused by the lack of iron or folic acid. Severe malabsorption might result in low levels of vitamin K, which in turn reduces the production of certain coagulation factors causing bleeding disorder. Coeliac disease is the most common cause of malabsorption in children. However, inflammatory bowel disease might also reduce the uptake of certain nutrients. **Fecal calprotectin (FeCal-test) is normally positive in inflammatory bowel disease and negative in coeliac disease, and might therefore differentiate between these two conditions. Aimée had a negative FeCal test. A characteristic of coeliac disease is antibodies to gluten and gliadin. Such antibodies were detected in Aimée's blood sample, and she was therefore referred for endoscopic examination including biopsy from the small intestine.**

Question 1:

Which specific finding in the biopsy will definitely confirm a diagnosis of coeliac disease?

- Patchy inflammation with granulomas
- Villous hypertrophy and acute inflammatory infiltrations
- Villous atrophy and chronic inflammatory infiltrations

Answer:

Villous atrophy and chronic inflammatory infiltrations

Assessment: MEDSEM9_STATION18_V14_ORD

Part 1:

A 38-year old woman presents at your office as general practitioner because of pregnancy. She is previously healthy including no known gynaecological diseases. She has regular periods at about 28-day intervals. Her last period started on April 10th.

Question 1:

When is the estimated date of delivery based on her last period? (1 line)

Answer:

January 17th

Part 2:

A 38-year old woman presents at your office as general practitioner because of pregnancy. She is previously healthy including no known gynaecological diseases. She has regular periods at about 28-day intervals. Her last period started on April 10th.
Because of her age the woman is concerned about the risk that her baby might have chromosomal aberrations. She wants to have genetic counselling and prenatal diagnostic examination.

Question 1:

Which chromosomal diseases increase in frequency with maternal age?

- Trisomy 21/18/13
- Sex chromosome aberrations
- Translocations

Answer:

Trisomy 21/18/13

Question 2:

Which screening tests are available for prenatal detection of chromosomal aberrations? (3 lines)

Answer:

Double test (maternal serum screening) + Nuchal translucency scan ("early ultrasound") or Combined ultrasound and maternal serum screening.
Free fetal DNA in maternal blood (not available in Norway)

Part 3:

A 38-year old woman presents at your office as general practitioner because of pregnancy. She is previously healthy including no known gynaecological diseases. She has regular periods at about 28-day intervals. Her last period started on April 10th. Because of her age the woman is concerned about the risk that her baby might have chromosomal aberrations. She wants to have genetic counselling and prenatal diagnostic examination.
The woman had a nuchal translucency scan (“early ultrasound”) that showed low risk for chromosomal aberrations. The scan disclosed a twin pregnancy with monochorionic, diamniotic membranes.

Question 1:

When in pregnancy (gestational weeks) should the nuchal translucency scan be performed?

- Weeks 17 – 19
- Weeks 11 – 13
- Weeks 8 – 10

Answer:
Weeks 11 – 13

Question 2:

What kind of twin pregnancy has monochorionic, diamniotic membranes? (1 line)

Answer:
Monozygotic twin pregnancy (identical twins)

Question 3:

At 23 weeks pregnancy she consults you because her uterus has increased markedly in size, more than should be anticipated because of a twin pregnancy.
What specific condition (syndrome) do you suspect? (1-2 lines)

Answer:
Twin-twin transfusion syndrome (TTTS) / polyhydramnios

Question 4:

What do you do? (1-2 lines)

Answer:
The answer must include "prompt referral" (by phone)

Part 4:

A 38-year old woman presents at your office as general practitioner because of pregnancy. She is previously healthy including no known gynaecological diseases. She has regular periods at about 28-day intervals. Her last period started on April 10th. Because of her age the woman is concerned about the risk that her baby might have chromosomal aberrations. She wants to have genetic counselling and prenatal diagnostic examination. The woman had a nuchal translucency scan (“early ultrasound”) that showed low risk for chromosomal aberrations. The scan disclosed a twin pregnancy with monochorionic, diamniotic membranes. At 23 weeks pregnancy she consults you because her uterus has increased markedly in size, more than should be anticipated because of a twin pregnancy. At 23 weeks pregnancy she consults you because her uterus has increased markedly in size, more than should be anticipated because of a twin pregnancy.
You suspect twin-twin transfusion syndrome (TTTS) and refer the woman to the Obstetric Department. At the hospital they perform an ultrasound examination.

Question 1:

What are the most probable characteristics revealed on the ultrasound examination?

- Two growth-restricted fetuses, both with polyhydramnios
- One large twin with polyhydramnios, one small twin with no amniotic fluid
- Two large fetuses with no amniotic fluid

Answer:
One large twin with polyhydramnios, one small twin with no amniotic fluid

Question 2:

What are the treatment options for twin-twin transfusion syndrome (two alternatives)? (1-2 lines)

Answer:
Laser ablation of anastomosing vessels on the placental surface (3 points)
Amnion-reduction (removal of amniotic fluid) (3 points)

Question 3:

What is the most frequent complication of twin pregnancies, in general, of those listed below?

- Twin-twin transfusion syndrome
- Gestational diabetes
- Preeclampsia
- Preterm delivery

Answer:

Preterm delivery

Assessment: MEDSEM9_STATION19_V14_ORD

Part 1:

A 32-year old woman in her first pregnancy presents at your office as general practitioner. She is 30 weeks pregnant. She has not gained any weight during the two last weeks and suspects that her womb has not increased in size during the same period. Otherwise she has no complaints. She feels a lot of fetal movements. Her blood pressure is 120/75 mmHg and there are no traces of proteinuria on a urine dipstick. You measure the symphysis-fundal height to be in the lower normal range.

Question 1:

When should she been seen for her next appointment?

- Within 3 days
- Within two weeks
- Within six weeks

Answer:

Within two weeks

Part 2:

A 32-year old woman in her first pregnancy presents at your office as general practitioner. She is 30 weeks pregnant. She has not gained any weight during the two last weeks and suspects that her womb has not increased in size during the same period. Otherwise she has no complaints. She feels a lot of fetal movements. Her blood pressure is 120/75 mmHg and there are no traces of proteinuria on a urine dipstick. You measure the symphysis-fundal height to be in the lower normal range.
At the visit two weeks later (32 weeks pregnant) the symphysis-fundal height measures the same in cm as two weeks ago and is now on the lower percentiles. She feels fetal movement but the number of movements have declined during the last days.

Question 1:

What is the most likely tentative diagnosis? (1 line)

Answer:

Fetal growth restriction and/or fetal hypoxia

Question 2:

What do you do? (1-2 lines)

Answer:

The answer must include "prompt referral" (by phone)

Part 3:

A 32-year old woman in her first pregnancy presents at your office as general practitioner. She is 30 weeks pregnant. She has not gained any weight during the two last weeks and suspects that her womb has not increased in size during the same period. Otherwise she has no complaints. She feels a lot of fetal movements. Her blood pressure is 120/75 mmHg and there are no traces of proteinuria on a urine dipstick. You measure the symphysis-fundal height to be in the lower normal range. At the visit two weeks later (32 weeks pregnant) the symphysis-fundal height measures the same in cm as two weeks ago and is now on the lower percentiles. She feels fetal movement but the number of movements have declined during the last days.
Your tentative diagnosis is fetal growth restriction and/or fetal hypoxia and you refer your patient to the hospital the same day.

Question 1:

What examinations will be performed at the hospital to verify or exclude your diagnosis and to examine the general vitality of her fetus? (1-2 lines)

Answer:

Ultrasound examination (3 points)
Antenatal CTG (3 points)

Part 4:

A 32-year old woman in her first pregnancy presents at your office as general practitioner. She is 30 weeks pregnant. She has not gained any weight during the two last weeks and suspects that her womb has not increased in size during the same period. Otherwise she has no complaints. She feels a lot of fetal movements. Her blood pressure is 120/75 mmHg and there are no traces of proteinuria on a urine dipstick. You measure the symphysis-fundal height to be in the lower normal range. At the visit two weeks later (32 weeks pregnant) the symphysis-fundal height measures the same in cm as two weeks ago and is now on the lower percentiles. She feels fetal movement but the number of movements have declined during the last days. Your tentative diagnosis is fetal growth restriction and/or fetal hypoxia and you refer your patient to the hospital the same day.
The ultrasound examination at the hospital revealed fetal size in the lower normal range and normal fetal vital signs. The CTG registration was normal. She was sent home but with an appointment at the outpatient clinic in two weeks. Ten days after the first examination at the hospital she contacts you because she feels generally unwell and complains of frontal headache. Her blood pressure is 160/95 mmHg and you measure proteinuria 1+ on a dipstick. She has no oedema.

Question 1:

What is the most likely diagnosis (one answer)?

- Preeclampsia
- HELLP syndrome
- Superimposed preeclampsia
- Migraine

Answer:

Preeclampsia

Part 5:

A 32-year old woman in her first pregnancy presents at your office as general practitioner. She is 30 weeks pregnant. She has not gained any weight during the two last weeks and suspects that her womb has not increased in size during the same period. Otherwise she has no complaints. She feels a lot of fetal movements. Her blood pressure is 120/75 mmHg and there are no traces of proteinuria on a urine dipstick. You measure the symphysis-fundal height to be in the lower normal range. At the visit two weeks later (32 weeks pregnant) the symphysis-fundal height measures the same in cm as two weeks ago and is now on the lower percentiles. She feels fetal movement but the number of movements have declined during the last days. Your tentative diagnosis is fetal growth restriction and/or fetal hypoxia and you refer your patient to the hospital the same day. The ultrasound examination at the hospital revealed fetal size in the lower normal range and normal fetal vital signs. The CTG registration was normal. She was sent home but with an appointment at the outpatient clinic in two weeks. Ten days after the first examination at the hospital she contacts you because she feels generally unwell and complains of frontal headache. Her blood pressure is 160/95 mmHg and you measure proteinuria 1+ on a dipstick. She has no oedema.
Your diagnosis is preeclampsia.

Question 1:

You consider her to need an appointment at the Obstetric ward. When?

- Prompt referral
- She has an appointment in four days and does not need any further referral

Answer:

Prompt referral

Part 6:

A 32-year old woman in her first pregnancy presents at your office as general practitioner. She is 30 weeks pregnant. She has not gained any weight during the two last weeks and suspects that her womb has not increased in size during the same period. Otherwise she has no complaints. She feels a lot of fetal movements. Her blood pressure is 120/75 mmHg and there are no traces of proteinuria on a urine dipstick. You measure the symphysis-fundal height to be in the lower normal range. At the visit two weeks later (32 weeks pregnant) the symphysis-fundal height measures the same in cm as two weeks ago and is now on the lower percentiles. She feels fetal movement but the number of movements have declined during the last days. Your tentative diagnosis is fetal growth restriction and/or fetal hypoxia and you refer your patient to the hospital the same day. The ultrasound examination at the hospital revealed fetal size in the lower normal range and normal fetal vital signs. The CTG registration was normal. She was sent home but with an appointment at the outpatient clinic in two weeks. Ten days after the first examination at the hospital she contacts you because she feels generally unwell and complains of frontal headache. Her blood pressure is 160/95 mmHg and you measure proteinuria 1+ on a dipstick. She has no oedema. Your diagnosis is preeclampsia.
You refer the patient immediately to the hospital. The same evening at the antenatal observational unit at the hospital she complains of epigastric discomfort. The blood pressure is stabilized at 150/90 mmHg with the use of antihypertensive medication. Blood tests suggest the possible development of HELLP syndrome.

Question 1:

What does the acronym HELLP mean? (1-2 lines)

Answer:

Haemolysis (2 points), Elevated Liver enzymes (2 points), Low Platelets (2 points)

Question 2:

The next morning she has painful uterine contractions. The uterus is tense and painful between the contractions. You notice some vaginal bleeding. Ultrasound examination shows placental location in the fundal area and fetal bradycardia.
What is the most likely diagnosis (one alternative)?

- Placenta praevia
- Placental abruption
- Superimposed preeclampsia
- Normal labour

Answer:

Placental abruption

Part 7:

A 32-year old woman in her first pregnancy presents at your office as general practitioner. She is 30 weeks pregnant. She has not gained any weight during the two last weeks and suspects that her womb has not increased in size during the same period. Otherwise she has no complaints. She feels a lot of fetal movements. Her blood pressure is 120/75 mmHg and there are no traces of proteinuria on a urine dipstick. You measure the symphysis-fundal height to be in the lower normal range. At the visit two weeks later (32 weeks pregnant) the symphysis-fundal height measures the same in cm as two weeks ago and is now on the lower percentiles. She feels fetal movement but the number of movements have declined during the last days. Your tentative diagnosis is fetal growth restriction and/or fetal hypoxia and you refer your patient to the hospital the same day. The ultrasound examination at the hospital revealed fetal size in the lower normal range and normal fetal vital signs. The CTG registration was normal. She was sent home but with an appointment at the outpatient clinic in two weeks. Ten days after the first examination at the hospital she contacts you because she feels generally unwell and complains of frontal headache. Her blood pressure is 160/95 mmHg and you measure proteinuria 1+ on a dipstick. She has no oedema. Your diagnosis is preeclampsia. You refer the patient immediately to the hospital. The same evening at the antenatal observational unit at the hospital she complains of epigastric discomfort. The blood pressure is stabilized at 150/90 mmHg with the use of antihypertensive medication. Blood tests suggest the possible development of HELLP syndrome. The next morning she has painful uterine contractions. The uterus is tense and painful between the contractions. You notice some vaginal bleeding. Ultrasound examination shows placental location in the fundal area and fetal bradycardia.

Question 1:

You suspect placental abruption. What is your treatment option (one alternative)?

- Maternal steroid treatment to mature fetal lung development
- Induce delivery by amniotomy and oxytocin
- Prompt delivery by caesarean section

Answer:

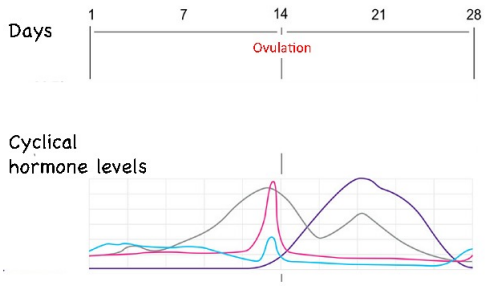
Prompt delivery by caesarean section

Assessment: MEDSEM9_STATION20_V14_ORD

Part 1:

Question 1:

The figure demonstrates cyclical changes in sex hormone levels during a normal menstrual cycle



Name the four sex hormones and indicate which curve (blue, grey, red, violet) each hormone belongs to.

Answer:

Blue: FSH (follicle-stimulating hormone)(1p)
Grey: Oesteogen (1p)
Red: LH (luteinizing hormone) (1p)
Violet: Progesterone (1p)

Part 2:

Question 1:

The menstrual cycle consists of two different phases.
Name the phases before (1) and after ovulation (2)

Answer:

1. Follicular phase (3p)
2. Luteal phase (3p)

Question 2:

The climacteric is characterized by changes in sex hormone levels. Name two sex hormones that typically rise (1, 2) and one sex hormone that declines in climacteric women (3)

Answer:

1. FSH (LH) (2p)
2. LH (FSH) (2p)
3. Oesterogen (2p)

Part 3:

The sex hormones used in the evaluation of women suffering from various gynaecological symptoms or conditions include:
-Oestrogen
-Progesterone
-LH (luteinizing hormone)
-FSH (follicle-stimulating hormone)
-SHGB (sex-hormone binding globulin)
-Testosterone
-AMH (anti-müllerian hormone)
-HCG (human chorionic gonadotropin)
-Prolactin
In the following questions, you will be asked to relate some of the listed hormones to clinical cases.

Question 1:

A 25-year old obese woman is suffering from irregular menstruations, acne and hirsutism. You suspect that she is suffering from PCOS (polycystic ovarian syndrome). Which **four** hormones from the list above would you check in order to diagnose PCOS?

- ☐ Oestrogen
- ☐ Progesterone
- ☐ LH (luteinizing hormone)
- ☐ FSH (follicle-stimulating hormone)
- ☐ SHGB (sex-hormone binding globulin)
- ☐ Testosterone
- ☐ AMH (anti-müllerian hormone)
- ☐ HCG (human chorionic gonadotropin)
- ☐ Prolactin

Answer:

LH (luteinizing hormone)
FSH (follicle-stimulating hormone)
SHGB (sex-hormone binding globulin)
Testosterone

Question 2:

A 25-year old pregnant woman with last menstruation 8 weeks earlier. She is suffering from vaginal bleeding and mild abdominal discomfort.
Which hormone would you consider most relevant?

- ○ Oestrogen
- ○ Progesterone
- ○ LH (luteinizing hormone)
- ○ FSH (follicle-stimulating hormone)
- ○ SHGB (sex-hormone binding globulin)
- ○ Testosterone
- ○ AMH (anti-müllerian hormone)
- ○ HCG (human chorionic gonadotropin)
- ○ Prolactin

Answer:

HCG (human chorionic gonadotropin)

Question 3:

A 42-year old woman with no previous pregnancy and regular menstrual periods. She wants to become pregnant. Which hormone analysis would you evaluate in order to examine whether she ovulates?

- ○ Oestrogen
- ○ Progesterone

- LH (luteinizing hormone
- FSH (follicle-stimulating hormone)
- SHGB (sex-hormone binding globulin)
- Testosterone
- AMH (anti-müllerian hormone)
- HCG (human chorionic gonadotropin)
- Prolactin

Answer:
Progesterone

Part 4:

Question 1:

You decide to measure s-progesterone in order to evaluate whether a 42-year old woman with no previous pregnancy and regular menstrual periods ovulates.
When during the menstrual cycle would you measure the serum concentration of the hormone?

- Day 1-3
- Day 12-14
- Day 21-23

Answer:
Day 21-23

Question 2:

A 35-year old woman with endometriosis. She has previously had surgical resection of both ovaries (removal of parts of both ovaries) due to endometrial cysts. She now wants to become pregnant, and is worried whether the previous surgery has reduced her ability to conceive. She has read on the internet about a hormone which can measure her ovarian reserve.
Which hormone is she most likely referring to?

- Oestrogen
- Progesterone
- LH (luteinizing hormone)
- FSH (follicle-stimulating hormone)
- SHGB (sex-hormone binding globulin)
- Testosterone
- AMH (anti-müllerian hormone)
- HCG (human chorionic gonadotropin)
- Prolactin

Answer:
AMH (anti-müllerian hormone)

Assessment: MEDSEM9_STATION21_V14_ORD

Part 1:

You are a general practitioner. A 48-year old, P2, woman visits you because she has been suffering from heavy and irregular vaginal bleeding during the last 6 months. Her bleeding lasts for about 10 days every month. She is otherwise healthy and uses no medication.

Question 1:

Which examinations will you as a GP carry out and which specimen will you take? (1-2 lines)

Answer:

Gynecological examination (2p)
Cervical smear (2p)
Endometrial biopsy (2p)

Question 2:

Which two blood tests from the list below would you consider most relevant?

- ☐ s-CRP
- ☐ s-White blood cells
- ☐ s-Hb
- ☐ s-Ferritin
- ☐ s-ASAT
- ☐ s-ALP
- ☐ s-Oestrogen
- ☐ s-HCG

Answer:

s-Hb
s-Ferritin

Part 2:

You are a general practitioner. A 48-year old, P2, woman visits you because she has been suffering from heavy and irregular vaginal bleeding during the last 6 months. Her bleeding lasts for about 10 days every month. She is otherwise healthy and uses no medication.
You perform a gynaecological examination and take a cervical smear and an endometrial biopsy, and take blood for analysis of s-Hb and Ferritin. Inspection of the vulva, vagina and portio is normal. During bimanual palpation, you find the uterus moderately enlarged.

Question 1:

Which is the most likely diagnosis?

- ○ Endometriosis
- ○ Ovarian cyst
- ○ Uterine myoma
- ○ Pregnancy

Answer:

Uterine myoma

Part 3:

You are a general practitioner. A 48-year old, P2, woman visits you because she has been suffering from heavy and irregular vaginal bleeding during the last 6 months. Her bleeding lasts for about 10 days every month. She is otherwise healthy and uses no medication. You perform a gynaecological examination and take a cervical smear and an endometrial biopsy, and take blood for analysis of s-Hb and Ferritin. Inspection of the vulva, vagina and portio is normal. During bimanual palpation, you find the uterus moderately enlarged.
You inform her that she most probably has a uterine myoma and refer her to a gynaecologist. The woman wants information regarding possible treatment options for uterine myoma and heavy bleeding.

Question 1:

Name two different **medical** (non-surgical) treatment options

Answer:
Cyclokaprone (3p)
Mirena (3p)

Question 2:

She also wants information regarding surgical treatment options. Which of the following surgical procedures would you recommend to a 48-year old woman with uterine myoma, moderately enlarged uterus and heavy bleeding?

- transcervical resection of the myoma
- myomectomy
- hysterectomy

Answer:
hysterectomy

Part 4:

You are a general practitioner. A 48-year old, P2, woman visits you because she has been suffering from heavy and irregular vaginal bleeding during the last 6 months. Her bleeding lasts for about 10 days every month. She is otherwise healthy and uses no medication. You perform a gynaecological examination and take a cervical smear and an endometrial biopsy, and take blood for analysis of s-Hb and Ferritin. Inspection of the vulva, vagina and portio is normal. During bimanual palpation, you find the uterus moderately enlarged. You inform her that she most probably has a uterine myoma and refer her to a gynaecologist. The woman wants information regarding possible treatment options for uterine myoma and heavy bleeding.

Question 1:

Hysterectomy in women suffering from a benign condition may be performed by three different approaches. Name these three approaches.

Answer:
Vaginal hysterectomy (2p)
Abdominal (or open) hysterectomy (2p)
Laparoscopic hysterectomy (2p)

Question 2:

Which of the following surgical procedures would you recommend for a 30-year old woman with a submucous myoma and heavy bleeding?

- transcervical resection of the myoma
- laparoscopic myomectomy
- hysterectomy

Answer:
transcervical resection of the myoma

Question 3:

Which of the following surgical procedures would you recommend for a 30-year old woman with a 7 cm intramural myoma and heavy bleeding?

- transcervical resection of the myoma
- laparoscopic myomectomy
- hysterectomy

Answer:

laparoscopic myomectomy

Assessment: MEDSEM9_STATION22_V14_ORD

Part 1:

You are a general practitioner. A 30-year old, P2, woman visits you to have a routine gynaecological examination including her regular cervical smear. She has no gynaecological complaints. She is planning to have another child within the next few years. Findings during the gynaecological examination are normal. The cytological report of her cervical smear is: HSIL

Question 1:

What do you do?

- Nothing
- Recommend her to have a new cervical smear within 4 weeks
- Refer her to a gynaecologist within 2 days
- Refer her to a gynaecologist within 4 weeks

Answer:

Refer her to a gynaecologist within 4 weeks

Part 2:

You are a general practitioner. A 30-year old, P2, woman visits you to have a routine gynaecological examination including her regular cervical smear. She has no gynaecological complaints. She is planning to have another child within the next few years. Findings during the gynaecological examination are normal. The cytological report of her cervical smear is: HSIL.
You refer your patient to a gynaecologist within 4 weeks. The gynaecologist performs colposcopy and obtains portio biopsies for histological examination.
The report from the pathologist shows CIN III.

Question 1:

What does the acronym CIN mean?

Answer:

Cervical (2p) Intraepitelial (2p) Neoplasia (2p)

Part 3:

You are a general practitioner. A 30-year old, P2, woman visits you to have a routine gynaecological examination including her regular cervical smear. She has no gynaecological complaints. She is planning to have another child within the next few years. Findings during the gynaecological examination are normal. The cytological report of her cervical smear is: HSIL. You refer your patient to a gynaecologist within 4 weeks. The gynaecologist performs colposcopy and obtains portio biopsies for histological examination. The report from the pathologist shows CIN III.

Question 1:

Infection with some HPV types is known as a risk factor for the development of CIN. What does the acronym HPV mean?

Answer:

Human (2p) Papilloma (2p) Virus (2p)

Part 4:

You are a general practitioner. A 30-year old, P2, woman visits you to have a routine gynaecological examination including her regular cervical smear. She has no gynaecological complaints. She is planning to have another child within the next few years. Findings during the gynaecological examination are normal. The cytological report of her cervical smear is: HSIL. You refer your patient to a gynaecologist within 4 weeks. The gynaecologist performs colposcopy and obtains portio biopsies for histological examination. The report from the pathologist shows CIN III.

Question 1:

The HPV vaccine usually used in Norway is effective on two oncogenic HPV types. Which HPV types?

Answer:

HPV-16 (3p)
HPV-18 (3p)

Question 2:

What is the risk for development of invasive disease (cervical cancer) if CIN III is left untreated?

- 1-2%
- 11-12%
- 21-22%

Answer:

11-12%

Question 3:

The gynaecologist refers the patient to the hospital for treatment due to CIN (Cervical Intraepithelial Neoplasia) III. Which treatment will she be recommended?

- Conisation
- Amputation of the cervix
- Hysterectomy

Answer:

Conisation

Part 5:

You are a general practitioner. A 30-year old, P2, woman visits you to have a routine gynaecological examination including her regular cervical smear. She has no gynaecological complaints. She is planning to have another child within the next few years. Findings during the gynaecological examination are normal. The cytological report of her cervical smear is: HSIL. You refer your patient to a gynaecologist within 4 weeks. The gynaecologist performs colposcopy and obtains portio biopsies for histological examination. The report from the pathologist shows CIN III.

Question 1:

The woman is concerned regarding eventual side effects of the treatment in general and in a future pregnancy. Name three possible side effects of conisation (both postoperative and long-term side effects).

Answer:

Bleeding following the procedure (2p)
Cervical stenosis (2p)
Premature delivery (2p)