

2022 - IID - MD4043 - Eksamen 3
Eksamensdato: 2022-12-16

1

[A boy is born at term after a normal pregnancy. His birth weight is 3.5 kg and he has Apgar scores of 5, 6 and 6 after 1, 5 and 10 minutes respectively. He is still pale and has reduced tone and irregular respiration after 15 minutes. The pediatrician is called and a pulse oximeter is placed on the child's right hand.]

[Why is the pulse oximeter placed on the right hand?]

- A X [Just after birth the pulmonary vascular resistance could still be high and the saturation in the right hand reflects the saturation in the blood going to the heart and brain]
(Correct answer)
- B [At this time the pulmonary vascular resistance has dropped and the oxygen saturation in the right hand reflects the true oxygen saturation in the blood which supplies the body]
- C [Just after birth the pulmonary vascular resistance could still be high and the oxygen saturation in the right hand reflects the true saturation in the blood which supplies the body]
- D [At this time the pulmonary vascular resistance has dropped and the saturation in the right hand reflects the oxygen saturation in the blood which flows from the aorta to the arteria pulmonalis]

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2

[A 6-year old girl comes to you, her GP, because her mother thinks that she has lost a bit of weight, even though she has recently been eating and drinking more than usual. She has also been quite thirsty at night. She has previously suffered a lot from constipation, accompanied by several urinary infections. She still takes Movicol when required. She did not stop wearing a nappy until she was 4, but she has now started wetting the bed at night again. She had a cold accompanied by a temperature a couple of weeks ago, but now she just has a little runny nose and is a little weak.

What type of examination would it be most suitable to undertake at the doctor's office now?]

- A X [Blood glucose]
[Correct! The development of diabetes mellitus is highly suspect based on her history of illness. The identification of high levels of blood glucose in this instance would give this diagnosis and then the Children's Department should be contacted for acute admission for instruction and treatment.]
- B [Urine culture]
- C [CRP]
- D [Hematology (Hb, WBC, thrombocytes)]

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3

[A 6-year old boy has been referred by the doctor at the primary health care centre because his growth in height has been poor. He has dropped from the 50th percentile to the 2.5 percentile between the ages of 4 and 6 years. His weight in relation to his height is in the 2.5 percentile range. He had atopic eczema when he was an infant. He feels fit and healthy, but his mother says that he often suffers from loose stools which cannot be easily flushed down the toilet. His blood samples show: Hb 9.7 g/dl (reference: 11.5-14.5 g/dl), ferritin 2 µmol/L (reference: 15-100 µmol/L, calprotectin in the stool 15 mg/kg (reference: <50 mg/kg), CRP <5 mg/l (reference: <5 mg/l).

What is the most likely diagnosis?]

- A [Milk allergy]
[Wrong age. Not steatorrhea, but could have blood in the faeces]
- B [Crohn's disease]
[IBD is not likely if the calprotectin levels are normal]
- C X [Celiac disease]
[Could (almost) without symptoms result in anaemia or affect growth]
- D [Giardia Lamblia infection]
[Could result in long-term infectious diarrhoea, but rarely anaemia or producing a negative impact on growth]

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4

[A woman from Somalia arrives at the maternity ward with contractions. She has been living in Norway for 3 years. Her pregnancy health card shows that she already has 2 children and is anti-HBs positive, anti-HBc negative, HBsAg and HBeAg negative.]

Which preventative guidelines apply to her newborn child?]

- A [Expedite vaccination due to the risk of infection: at birth, after 4 weeks and 3 months]
(If expedited vaccination is indicated, hyperimmune globulin + vaccinations should also be given at 5 and 12 months, as administered to other infants on the vaccination programme.)
 - B [Hepatitis B vaccinations are not included in the Norwegian child vaccination programme]
[Wrong, hepatitis B vaccines were introduced in the child vaccination programme from 2016 onwards]
 - C [Hyperimmune globulin and vaccination x 5: at birth, after 1, 3, 5 and 12 months]
(No, this does not apply if the woman is a chronic carrier/infectious (HBsAG and/or HBeAG positive))
 - D X [Follow the usual vaccination programme with vaccinations after 3, 5 and 12 months]
[Correct: the woman has probably been vaccinated, is not infectious and her child complies with the guidelines in the Norwegian vaccination programme in line with other infants.]
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5

A pregnant woman arrives at the maternity ward with spontaneous contractions at term. She suffered from several urinary infections during her pregnancy and during the days prior to the commencement of birth she had mild dysuria. While giving birth she had a high temperature. The child had an Apgar score of 5-7.8 and required stimulation before recovering. After several hours of observation in the maternity ward the child was transferred to the NICU due to lethargy, poor colour and a CRP of 15. The pediatrician suspects an infection (sepsis), takes a blood culture and starts broad spectrum antibiotics.

[What is the most likely microbe?]

- A [Group B streptococci]
[GBS is also often seen in cases of early-onset neonatal sepsis with symptoms appearing 0-48 hours after birth. The infection comes from the birth canal, but most often in asymptomatic woman giving birth who are carriers of GBS]
 - B [Staphylococcus epidermidis]
[This microbe is more associated with late-onset neonatal sepsis and long-term admittance to the ICU with central lines (catheter-related sepsis)]
 - C [Haemophilus influenzae]
[Unusual cause of neonatal sepsis]
 - D X [Escherichia coli]
[Correct: often gives early-onset sepsis with symptoms appearing 0-48 hours after birth. Infection comes from the birth canal. The mother giving birth often has a symptomatic (urinary tract) infection and a temperature is often seen during the birth]
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6

[A 3-year girl has been suffering from recurrent cystitis during the past year, most recently one month ago. She has not previously been examined for this. During the last 2 days she has once again been complaining about a burning sensation during urination and urinating more often than usual. She does not have a fever. A urine dipstick test of a recently let urine sample after her mother had washed her groin thoroughly shows positive nitrites and leucocytes. What is the most correct action?]

- A [Send the urine for culture, start treatment with oral amoxicillin - clavulanic acid for 7-10 days, refer for an ultrasound scan of the kidneys and micturition cystourethrography]
[Oral amoxycillin - clavulanic acid for 7-10 days is the treatment for unsuspected serious urinary infections. For serious urinary infections with no risk factors it would be enough to do an ultrasound scan of the kidneys after treatment. Fungal examination would be reserved for serious a UVI with risk factors (which she does not have)]
- B [Arrange for a urine culture, send positive samples to the microbiologist, start oral nitrofurantoin treatment for 5-7 days, no further examination]
[This would be the first choice of treatment in the case of first time cystitis in a girl >1-2 years old, but the cause of recurrence should be investigated.]
- C [Start immediate treatment with oral trimethoprim for 5-7 days and refer for examination in the children's ward after she is better]
[Frequent resistance to trimethoprim means that this choice of medication could only be used after taking a culture and resistance examination of cystitis. Recurrent minor uvi in girls can initially be investigated by the primary health service (incontinence, toilet habits and obstipation and possible ultrasound scan of the kidneys)]
- D X [Nitrofurantoin treatment for 5-7 days, check for incontinence, toilet habits and obstipation and refer for an ultrasound scan of the kidneys]
[CORRECT. This is a relevant first investigation for recurring lower urinary tract infections in girls. Nitrofurantoin and pivmecillinam for 5-7 days both constitute adequate treatment of lower urinary tract infections.]

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7

[A 14-year old girl with known migraine has been experiencing changes and a worsening of her headaches during the last two months. She has previously suffered from migraine attacks involving headaches and nausea once a month. During these attacks she responded well to analgesics and rest. She is now suffering from global headaches several times a week, varying in intensity and the time of day. Her headaches are slightly better when she takes paracetamol, which she has been taking daily for the last four weeks. During the past week she has also been nauseous and has been vomiting several times each day. Which diagnostic assessments and actions do you judge as most correct?]

- A [Medication induced headache, discontinue paracetamol]
- B [Worsening of migraine, trial of triptan nasal spray]
- C X [Different cause of headache, refer for a brain MRI]
*There are clear changes and a worsening of her headaches which are not consistent with migraine. Changes in the nature of headaches are a minefield in patients suffering from migraine where other serious differential diagnoses are overlooked. Escalating headaches, nausea and vomiting indicate suspected intracranial pressure, e.g. caused by a brain tumour. This needs to be investigated with rapid diagnostic imaging (MRI).
Ref: THE BRAIN PATHWAYS GUIDELINE: A GUIDELINE TO ASSIST HEALTHCARE PROFESSIONALS IN THE ASSESSMENT OF CHILDREN WHO MAY HAVE A BRAIN TUMOUR
Version 2 February 2017.*
- D [Intractable migraine, refer to pediatric neurologist]

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8

[Which is the correct inhalation technique when administering asthma medication through an aerosol spacer chamber and mask for a child aged 2-3 years?]

- A [Shake the aerosol and then spray the required number of doses into the chamber. Breathe out deeply, and then in and hold the breath for 3-5 seconds.]
- B X [Shake the spray and then deliver one dose into the chamber. Breathe in and out normally into the chamber approx. 5 times. Repeat if several doses are to be administered.]
[Answer: Forced inspiration when inhaling aerosols is not used until after childhood and in such cases it is necessary to ensure that the patient is using the correct technique. For children below secondary school age we use a tidal breathing technique and for more than one dose, one dose at a time is sprayed in followed by 5-7 breaths before the procedure is repeated.]
- C [Shake the aerosol and then deliver the required number of doses into the chamber. Breathe in and out normally into the chamber approx. 5 times.]
- D [Shake the aerosol and then spray one dose into the chamber. Breathe out deeply, then in with the mouth around the mouthpiece and hold the breath for 3-5 seconds. Repeat if several doses are to be administered.]
[Answer:]
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9

[A 2-year old boy has had atopic eczema since he was 3 months old. The allergy test which was carried out at that time for specific IgE for milk and eggs was negative. Which of the following recommendations are considered to be most effective in such a situation in respect of eczema?]

- A X [Avoid irritating soaps and wool clothing]
[When no allergies have been identified, the most important thing is to preserve moisture and avoid irritation of the skin barrier]
- B [Avoid eggs and food with added eggs]
[No egg allergy identified]
- C [Avoid dust mites by washing bed linen frequently]
[Dust mites do not cause eczema. Frequent washing of bed linen can increase irritation (washing powder/fabric softener)]
- D [Avoid cow's milk and food with added cow's milk]
[No allergies identified]
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10

[The maternity ward contacts you about a 5-hour old child born at term which weighs 4.7 kg. The pregnancy and birth were normal. The routine O2 saturation measurements are normal. The midwife thinks that the child is lethargic and a bit cold: 36.3 degrees. Which test would you like an answer to first?]

- A [Blood gas]
[If the saturation is normal, blood gas could be measured later on if the situation is not resolved]
- B [Bilirubin]
[Icterus/jaundice is prioritised after hypoglycemia and infection, but is included if there are clinical indications and the situation is not clarified after monitoring the blood glucose levels.]
- C X [Blood glucose]
[Investigating hypoglycemia is urgent and the test results are obtained quickly. The child is fairly large for its age, but could have a certain degree of hyperinsulinism. Hypoglycemia often has non-specific symptoms, but trembling and lethargy are common signs.]
- D [CRP]
[The child could have an infection and CRP is relevant, but it is important to investigate hypoglycemia first]
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11

A 5-week old boy is admitted due to poor weight gain and vomiting. Blood gas analysis produces the following values:

pH 7.51 (7.35-7.45), PCO₂ 6.9 (4.5-6.0), BE +12 (-3-+3)

Which diagnostic test would you prioritise in order to better understand the cause of this?

- A [Ultrasound scan of the head in order to investigate increased intracranial pressure]
[Clinical examination of fontanelle tension could clarify this question before doing an ultrasound scan]
 - B [Chloride (Cl-) analysis]
[Hypochloremic alkalosis could explain the blood gas test, but would not add much to an investigation of the cause of chloride depletion]
 - C X [Ultrasound scan of the abdomen]
[Ultrasound scan of the abdomen could possibly indicate an enlarged pylorus]
 - D [X-ray of the O+S+D (oesophagus+stomach+duodenum)]
[X-ray of the O+S+D is a more comprehensive examination and more demanding on resources than an ultrasound scan and would possibly be carried out later on in the investigation if the ultrasound scan failed to produce any results.]
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12

[A boy who was born and grew up in Norway with Norwegian-born parents is now 14 years old. He is in 8th grade and has had all the recommended vaccinations in the child vaccination programme at the correct times.]

[Which of the following infections is he probably poorly protected against?]

- A [Diphtheria]
[Last vaccination in 2nd grade (7 years old), gives at least 10 years immunity]
 - B X [Whooping cough]
[Last vaccination at the age of 7 (2nd grade). Immunity only lasts for 3-5 years. Next vaccination in 10th grade]
 - C [Measles]
[Vaccination at 15 months + 6th grade (11-12 years old), lifelong immunity]
 - D [Human papillomavirus]
[Both girls (from 2009) and boys (from 2018) fully vaccinated (2 doses) in 7th grade (age 12-13)]
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13

[You are a GP and are contacted by the mother of one of your patients. She says that her 13-year old daughter has told her that she was subjected to involuntary intercourse the previous evening, committed by a 16-year old boy who she knew a bit previously.]

What is the most important medical measure that you would implement now?]

- A X [You contact the nearest children's ward in order to collect forensic trace evidence and give emergency contraception.]
[Forensic trace evidence and emergency contraception are the most urgent things.]
 - B [You take the patient to the office in order to give her emergency contraception and infection prophylaxis]
[Infection prophylaxis is not recommended, at least not if samples for microbiological analysis have not been taken beforehand.]
 - C [You take the patient to the office in order to give her emergency contraception and have samples taken for microbiological analysis.]
[Emergency contraception is important, but microbiological analysis is not quite as urgent.]
 - D [You write a prescription for emergency contraception and take the patient for an examination the following day.]
[In this case you would lose valuable time with respect to forensic trace evidence.]
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14

[A mother takes her 1.5-year old boy to you as their GP. She has just collected the boy from his father's and she notices something that she thinks looks like a bruise on the cartilage of his left ear. She is worried and adds that the boy's father was often violent. That was why they separated. You examine the boy and find bluish-red skin changes on an area covering approx. 1 x 1 cm on the upper part of the cartilage of his left ear. Otherwise no obvious bruises, wounds or scars. What should you do now?]

- A [You ask the mother to call the father to find out what happened.]
[In this case you are placing too much responsibility on the mother.]
 - B [You decide to examine the child by undertaking a coagulation screen.]
 - C X [Admit the child to the Children's Ward and submit a report about your concerns to the Child Welfare Services.]
[This a very conspicuous find which needs to be investigated further.]
 - D [You arrange for the boy to have a check-up and you also ask for the father to attend]
[In this case you could create a potentially dangerous situation.]
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15

[You are a GP and are on call. The mother of a boy who is almost 4 years phones you. She says that he has developed a lopsided mouth today and his speech is a bit unclear. He's dribbling a bit, but is otherwise in good shape. He is also having problems with closing one of his eyes properly. The mother is very stressed because his grandmother has recently had a stroke and she thinks that this is very similar. You examine him and send him to hospital for further tests. What diagnosis would one primarily exclude there?]

- A X [Borrelia encephalitis]
[This is peripheral facial paresis, since both the upper and lower parts of the face have been affected. No information about a temperature or pain to indicate severe otitis. He should have a lumbar puncture for a suspected Borrelia infection and possibly commence treatment. Bell's palsy is a diagnosis that can be excluded (idiopathic peripheral facial paresis) and cannot be either confirmed or excluded with a lumbar puncture.]
 - B [Thrombosis in the middle cerebral artery]
 - C [Severe otitis]
 - D [Bell's palsy]
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16

[The parents of little Karoline, who is 2 years old, have just learnt that their girl's slow motor development is caused by cerebral palsy (CP). You are their GP and have been following the mother during her pregnancy. The parents need an explanation about how their girl sustained this brain damage. They experienced her birth as being exhausting, but not dramatic. Both the mother and girl were a bit exhausted afterwards, but the girl recovered well after a while. You go through the pregnancy, the hospital birth records and a list of known risk factors for CP without being able to identify a sure cause. What conclusion should you end up with?]

- A [Genetic testing has now become so precise that this will reveal the cause if no other tests produce results.]
 - B [It is most likely a birth injury which has not been recognised.]
 - C [The parents must wait for the results of the MRI scan because this will provide the answer.]
 - D X [It is often not possible to find any individual causes. CP can be the sum of several unfortunate circumstances.]
[MRI scans are normal for 10-15% of patients who have received a CP diagnosis. Genetic causes may possibly be found in just over 10%, as a combination of several "risk genes"]
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17

[A 12-year old girl is receiving chemotherapy for osteogenic sarcoma every third week. She started the most recent 3-day treatment 10 days ago. You are a registrar with the local children's ward. The mother phones you and says that the patient has an axillary temperature of 38.2 degrees C, i.e. assuming a normal body temperature of 38.7 degrees. She is in good shape without any other symptoms. The mother wonders what she should do. What should you say to the patient's mother?]

- A [The patient's immune system is impaired and she has a temperature. She must start taking antibiotics. I will write a prescription for antibiotics that she needs to start taking today.]
[Wrong. The patient should go to hospital for blood tests. If she has severe neutropenia she should be admitted and be started on intravenous broad spectrum antibiotics.]
- B [The patient must take her temperature once again during in the next 1-2 hours. If her temperature is the same or higher, the patient will need to go to hospital for blood tests.]
[Wrong. The patient could have severe neutropenia, i.e. neutrophil granulocytes >0.5. For febrile neutropenia in children/young people who are receiving chemotherapy the requirements are as follows: a) a temperature measurement of >38.5, or b) two temperature measurements between 38.0 and 38.5, separated by 1-2 hours. Children/young people in this situation should always have their temperature taken in the armpit because taking the temperature in the rectum should be avoided in order to prevent the mucous membranes from becoming damaged. When taking an axillary temperature you should add 0.5 degrees in order to provide an estimated body temperature. In this case the patient satisfies the requirement for an actual temperature. The chemotherapy treatment which was commenced 10 days ago could definitely result in severe neutropenia at this time and the patient needs to go to hospital for a quick check-up to see if she has severe neutropenia and if so she should be admitted for the administration of intravenous antibiotics.]
- C [The patient can take paracet and take her temperature again tomorrow. If her temperature is above 39.0 tomorrow they should contact you again.]
[Wrong. Please see the comments.]
- D X [The patient needs to go to hospital today for blood tests and possibly be admitted.]
[Correct. Please see the comments.]
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18

[A 15-month old boy visits you, his GP, with his mother. He has atopic eczema. His mother says that he has been coughing a lot during the last 3 months. They have a dog and a cat at home. He has been admitted to the local hospital twice during the last 6 months with acute bronchiolitis and was discharged without any medication. In connection with his last admittance specific IgE blood tests against dog and cat were carried out, but these were negative. You examine the boy and observe discrete intercostal retractions and hear that he is wheezing during exhalation upon auscultation. He has a fair amount of eczema. What should you do?]

- A [You refer the boy to a pediatric specialist for a prick test in order to obtain full clarification about allergies.]
[Both specific IgG blood tests and prick tests are very good tests, but this may vary slightly depending on the allergen. Generally speaking blood tests detect most IgE-mediated allergies. One important point is that such young children rarely have animal hair allergies. Therefore further examination involving a prick test would probably not be necessary.]
- B [You still suspect that he is allergic and recommend starting him on daily antihistamines on a regular basis.]
[Most patients with allergies have positive results in their blood tests (specific IgE). In most cases negative blood tests mean that one cannot exclude IgE-mediated allergies. Starting the patient on regular antihistamines is not indicated and would not improve the boy's condition.]
- C X [You assess this as being toddler asthma. In this case it is correct to treat it with an inhaled steroid and a beta 2 agonist.]
[This is toddler asthma which affects the general state of health (the respiration is affected) and is accompanied by an atopic illness, not a "happy wheezer". In this case it is therefore correct to administer treatment in the form of inhaled steroids and a beta 2 agonist in order to avoid acute deterioration with severe obstructivity. Specific IgE blood test measurement is a good test. One-year old children very rarely suffer from animal hair allergies. He has previously had 2 definite obstructive episodes and you can hear wheezing when you examine him. He has atopic eczema and is at risk of developing asthma.]
- D [He is clinically obstructive, but this is a "happy wheezer" and inhaling a beta 2 agonist as-needed would be enough.]
[This is toddler asthma in which the general state of health is affected (the respiration is affected) and it is accompanied by an atopic illness, not a "happy wheezer". In this case it is therefore correct to administer treatment involving inhaled steroids and a beta 2 agonist in order to avoid acute deterioration with severe obstructivity. Specific IgE blood test measurement is a good test. One-year old children very rarely suffer from animal hair allergies. He has previously had 2 definite obstructive episodes and you can hear wheezing when you examine him. He has atopic eczema and is at risk of developing asthma.]
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19

[A 3-year old girl who had had atopic eczema and a milk allergy from the age of 8 months visits you, her GP. Before she was put on a dairy-free diet she had suffered from vomiting and stomach ache, but no serious allergic reactions. She is still on a dairy-free diet and her eczema has gradually improved considerably. She no longer needs corticosteroid medication. Her father wonders if she needs any further allergy tests. What should you reply?]

- A X [Yes, it might be useful to do further IgE blood tests for allergens against milk. If the results are low it might be an indication for doing a milk provocation]
[Yes, it might be useful to do further IgE blood tests for allergens against milk. If the results are low it might be an indication for doing a milk provocation test. This could be done at home with gradual exposure to increasing quantities of milk since she has not had any severe allergic reactions.]
- B [Yes, it is time that she starts having milk. Blood tests (IgE) are unnecessary in this assessment.]
- C [Yes, but she needs to be referred to a pediatrician because a possible provocation test must be done at a hospital]
- D [No, no reason to think that anything has changed. However, she should continue on a dairy-free diet.]
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20

[You are a doctor at a health centre. You examine a boy who attends for a 6-month check-up. During examination of his scrotum you find one testicle in the scrotum, on the right side. On the left side you are unable to find a testicle, but possibly feel something in his groin. What should you do next?]

- A [Conclude that the boy does not have a left testicle and no further follow-up]
- B [You refer him for an ultrasound scan in order to verify your suspicions about retentio testis before you refer him to a pediatric surgeon/urologist]
- C X [Refer him to a pediatric surgeon/urologist with suspected retentio testis]
[CORRECT. Retentio testis is a clinical diagnosis which should be suspected when a testicle is missing. At the age of 6 months no further descent can be expected and the patient should therefore be referred to a specialist.]
- D [Wait for further descent and book the boy in for a check-up when he is 1 year old.]

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21

[In your capacity as a primary doctor you are called to see a 4-month old child with Tetralogy of Fallot who has suddenly become extremely cyanotic and has lost consciousness.]
[What measures should you take while you are waiting for the ambulance?]

- A X [Lay the patient in the foetal position, administer i.m. morphine and oxygen if available]
[Correct: This is optimal in order to secure central circulation, oxygenate and give morphine in order to reverse cyanotic spells in cases of Fallot]
- B [Lay the patient on his/her stomach and administer i.m. morphine from your medical bag]
[Lying on the stomach serves no purpose. Morphine is good, but should be supplemented with oxygen.]
- C [Lay the patient on his/her back and administer i.v. beta blockers from your medical bag]
[Lying on the back could make the situation worse. Beta blockers might be relevant, but oxygen and morphine are more important.]
- D [Lay the patient in the recovery position and administer oxygen if available]
[This is not wrong, but it is far more effective to place the child in the foetal position, as well as give oxygen.]

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22

In your job as GP you see a 3-year old girl who has previously been healthy, and who for the last two weeks has had bruises on her arms and legs. She had a fever and cough a few weeks ago. Normal bowel movements and urination. Had one episode of nose bleed 1 week ago. Has since had slight pain in one foot. At examination you find she is in good general health, temp 38.0°C, no respiratory problems, some bruises on her arms and legs. She also has some small red spots on her calfs that do not disappear when you stretch the skin slightly. Individual glands in the neck; largest diameter 5 mm. Normal sounds over the heart, lungs and abdomen. No swelling over the ankles/lower legs/knees. Blood tests give the following results:

Test	Result	Ref. range
Hb	8.5 g/dL	10.5-135 g/dL
MCV	79 fL	75-87 fL
MCH	28.8 pg	23.9-34.1 pg
Tot. leukocytes	8.0 x 10 ⁹ /L	4.0-14.0 x 10 ⁹ /L
Granulocytes	0.8 x 10 ⁹ /L	1.5-7.5 x 10 ⁹ /L
Thrombocytes	25 x 10 ⁹ /L	145-390 x 10 ⁹ /L
CRP	<5 mg/L	< 5 mg/L
Creatine	30 µmol/L	23-37 µmol/L

What is the most probable diagnosis?

- A Henoch-Schönlein/allergic purpura (HSP)
HSP is an acute vasculitis that gives a rash, skin haemorrhage, affects the joints (often swollen ankles/feet), gastrointestinal symptoms (stomach ache/vomiting), frequently affects the kidneys, never thrombocytopenia. The symptoms match poorly with those typical for HSP.
 - B X** Acute lymphoblastic or myeloid leukemia (ALL/AML)
She has bruising and petechia most probably due to thrombocytopenia. She has normochromic/normocytic anaemia and neutropenia, i.e. pancytopenia. In addition, bone pain and moderately swollen glands. These are clear indications of acute leukemia. Not everyone with leukemia has an obvious hepatosplenomegaly at debut.
 - C Idiopathic/immune thrombocytopenic purpura (ITP)
Isolated thrombocytopenia with preservation of the other cell constituents combined with petechia, echymoses and possibly nose bleeds are typical in ITP. Here, however, the other cell constituents are also affected, so leukemia is the most likely.
 - D Hemolytic uremic syndrome (HUS)
As a rule preceded by gastroenteritis and then often, but not always, with bloody diarrhoea. Rarely such pronounced thrombocytopenia, but generally clear (haemolytic) anaemia, and elevated creatine. The clinical picture refutes HUS.
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23

[A previously healthy 45-year-old man visits you at the GP's office due to problems with urination. During the last few months he has observed a noticeable reduction in pressure. He also needs to get up once during the night, but quickly falls asleep again. You examine his prostate, but cannot feel any signs of a tumour. What is the most correct thing to do?

- A X** [You take a urine sample and recommend a PSA test and the patient is given another appointment in a week's time]
[Even if you are unable to feel a tumour, information should be provided about PSA testing and such should be recommended when men experience problems with the urinary tract.]
 - B [You take a urine sample and when the results of the dipstick test are negative you recommend alpha blockers in order to improve his urination problems]
[In this case it is wrong to start treatment without the patient being examined more thoroughly. 45-year-old men rarely suffer from LUTS caused by prostatic hyperplasia so more tests are required before administering any treatment.]
 - C [You take a urine sample and when the results of the dipstick test are negative you recommend alpha reductase inhibitors in order to improve his urination problems]
[The patient needs to be examined before any treatment is administered. Furthermore, alpha reductase inhibitors are not the first choice in cases of BPH]
 - D [You ask the patient to fill out IPSS and micturation questionnaires and arrange for a check-up in one week's time]
[If the patient has normal PSA levels such an approach could be good, but with a short case history of just 1 month and a relatively young patient I would nevertheless probably have referred the patient to the Urology Outpatient Clinic for an assessment.]
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24

[What type of urinary tract cancer is most likely to be found when investigating macroscopic haematuria?]

- A [Cancer of the ureter/renal pelvis]
[These are rare types of cancer, the first symptoms of which are often macrohaematuria]
 - B X** [Bladder cancer]
[Is the second most common type of cancer of the urinary tract and one which is most commonly detected when there is macroscopic haematuria]
 - C [Prostate cancer]
[Rarely results in macroscopic haematuria]
 - D [Kidney cancer]
[Can result in macrohaematuria if there is a growth in the collection system, but it is not very common]
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25

[What are the most common symptoms of an acute, uncomplicated kidney stone attack?]

- A X [Colicky pain, vomiting, restlessness]
[These are typical symptoms of a classical, uncomplicated kidney stone attack]
- B [Colicky pain, urine retention, microhaematuria]
[Urine retention is not common in an uncomplicated kidney stone attack]
- C [Colicky pain, macrohaematuria, cold sweats]
[All three symptoms can occur, but macrohaematuria and cold sweats less frequently]
- D [Colicky pain, fever, vomiting]
[If the patient has a temperature then this is not an uncomplicated attack, but a complicated one and the patient needs to be sent to hospital]
-

00001638887head

26

[You are a GP for a man in his 50s who is suffering from recurring kidney stones. He has been informed that he is producing calcium oxalate stones. He would like some advice and is wondering if he can do anything in order to prevent stone attacks. What advice should you give?]

- A X [You advise the patient to drink a lot of water]
[An increased intake of water is the only thing that has been shown in studies to be able to reduce stone attacks or the formation of new stones. The risk can be reduced by 50%]
- B [You advise the patient to take sodium bicarbonate in order to make the urine more alkaline]
[This does not reduce the risk of recurrence. One could try to make the urine more acidic by drinking orange juice, for example, in order to reduce the formation of stones as a result of infections]
- C [You advise the patient to reduce his intake of foods containing calcium, especially dairy products such as milk and cheese]
[It is not known if this reduces recurring calcium oxalate stones]
- D [You advise the patient to reduce his intake of food with a high salt and sugar content]
[This can reduce the risk of recurrence, but better hydration is definitely your best advice]
-

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27

[A 60-year old man comes to you, his GP, because he has heard that there is a blood test that can be used for checking to see if you have prostate cancer. He has mild LUTS symptoms with a slightly reduced flow pressure, but he does not have a family history of prostate cancer. You inform him about PSA testing which is easy to do, but that it is not very sensitive or specific for prostate cancer and the levels can be slightly elevated for benign reasons. He wants to have his PSA levels tested and wonders if there are other options available for ruling out prostate cancer. What should you do?]

- A [Do two PSA tests with a few weeks in between them. Do not palpate the prostate since this is not precise.]
[Prostate palpation is imprecise, but important because finding a tumour upon palpation is direct route towards a treatment regime for prostate cancer.]
- B [Palpate the prostate and order an MRI scan of the prostate. Only do a PSA test if palpation or imaging diagnostics are pathological.]
[An MRI scan of the prostate is a resource recommended by urology specialists when starting a treatment regime. They are not ordered by GPs.]
- C X [Palpate the prostate and order a PSA test regardless of the palpation findings, because the patient still wants it after being informed about the advantages and disadvantages of the test.]
[In Norway it is currently recommended to do the test for well-informed patients who want it. One should always palpate the prostate because there are some highly aggressive cancers that could give PSA levels below 3 ng/ul (which is the normal level for this age group).]
- D [Do not do a PSA test due to low sensitivity and specificity and instead palpate the prostate and order a CT scan of the prostate.]
[The PSA test has both low sensitivity and specificity and it is therefore only recommended in two countries for population-based screening for prostate cancer. Furthermore, there are no lower cut-offs that would ensure that a patient does not have prostate cancer. It would therefore be correct to avoid doing a PSA test in this situation if palpation of the prostate was normal. However, CT scanning is not a suitable imaging modality for the prostate and consequently this answer is wrong.]
-

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28

An ultrasound scan has shown that a patient has a 2 cm tumour on one of his testicles. A CT scan of his abdomen/pelvis/thorax shows normal conditions. His blood tests with tumour markers are normal. What will the next intervention be now?

- A [Scrotal orchiectomy]
[Both the testicle and the spermatic cord must be removed and scotal access does not allow for this]
 - B [Open biopsy and a frozen section. In cases of cancer the testicle is removed.]
[The testicle is removed without a biopsy]
 - C X [Inguinal orchiectomy]
[An opening is made in the groin and the testicle is pulled up to bring the spermatic cord all the way out into the inner groin opening]
 - D [Needle biopsy of the tumour]
[Although benign tumours in the testicles are very rare, a biopsy is not recommended as part of the investigation since the testicle would have to be removed any way in order to be sure.]
-

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29

[What is paraphimosis?]

- A [Phimosis with oedema and balanitis.]
[Phimosis with a different condition to paraphimosis.]
 - B [Phimosis where the foreskin cannot be retracted.]
[Phimosis means that the foreskin is tight and it can usually be retracted, but not always.]
 - C X [Foreskin which is fixed proximal to the glans with oedema.]
[Can occur as a result of phimosis when the foreskin, which is tight, cannot be pulled back due to the tightness. Can also develop in patients with a permanent catheter where the foreskin has not been pulled forwards following insertion of the catheter.]
 - D [Phimosis with lichen sclerosus et atrophicus.]
[See comment b]
-

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30

[A 19-year-old boy pays an emergency visit to the doctor's surgery suffering from severe pain in his scrotum. Upon examination testicular torsion is suspected. How should this patient be treated?]

- A X [Operation within 6 hours to fix both testicles]
[An ultrasound scan is not required in order make a diagnosis, but should be carried out if it does not cause any delays in operating. This can reveal if the patient has epididymitis and an unnecessary operation can thus be avoided. On rare occasions a bleeding tumour can cause pain, something which can also be detected by an ultrasound scan. Using the wrong operating technique can then be avoided since testicles with tumours are removed via a groin section while torsion operations are carried out via the scrotum.]
 - B [Operation to fix the relevant testicle within 6 hours of the symptoms appearing.]
[Both testicles need to be fixed since a congenital defect in the attachments for both testicles could result in subsequent torsion of the other side unless it is fixed.]
 - C [Always confirm the diagnosis with a doppler ultrasound test, followed by the operation, preferably within 6 hours]
[A doppler ultrasound is not required. In the event of clinical suspicion the patient can be operated directly in order to save time.]
 - D [Operation to fix the relevant testicle as quickly as possible within 3 hours of the symptoms appearing.]
[Up to 6 hours is probably OK]
-

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31

[When a man is diagnosed with prostate cancer the aggressiveness of the disease is decisive for his future treatment. It can be hard to make a decision when the aim is to minimise both over and under-treatment. In addition the patient should also be included in the decision. Comorbidity and the expected life prognosis are important aspects of such decisions. What is the correct treatment for low-risk prostate cancer?]

- A [Radical prostatectomy or radical radiation treatment.]
[Relevant treatments for intermediate or high-risk PCa]
- B X [When low-risk prostate cancer is diagnosed the patient should be offered active monitoring]
[The natural course for low-risk prostate cancer is now more well-known and men in this group live longer than the standard population of men without low-risk PCa. This is probably because of their healthy lifestyle. They should therefore be monitored under a protocol until the disease requires treatment.]
- C [Watchful waiting until progression of the disease indicates that the patient should be treated.]
[Before castration treatment can be started, watchful waiting is an alternative for highly comorbid patients while waiting for metastatic disease to develop. Not a relevant choice for low-risk PCa.]
- D [Neoadjuvant chemotherapy followed by radical prostatectomy.]
[Neoadjuvant treatment has not been shown to give any survival benefits before radical surgery. Before radical radiation the patient should receive 3 months of neoadjuvant castration treatment.]

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32

[A 73-year old man has been diagnosed with muscle invasive bladder cancer during a transurethral resection (TUB-B). He is otherwise fit and healthy. A CT scan of his thorax/abdomen/pelvis has not shown any signs of metastases. What treatment should this patient receive?]

- A [Intravesicle immunotherapy with a 6-week Bacille Calmette-Guerin (BCG) induction course]
- B X [Either a radical cystoprostatectomy or radiation treatment]
[The best curative treatment is an operation. For patients who cannot be operated on, radiation treatment is the best alternative treatment.]
- C [Another transurethral bladder resection (TUB-B) within 4-6 weeks]
- D [Cystoscopy check-up in 3 months]

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33

You are on duty in A&E when a 63-year-old man is admitted due to a poor state of general health. He suffers from type 2 diabetes, hypertension and periodic alcohol abuse. He has been admitted with acute pancreatitis on two previous occasions. He now denies having drunk any alcohol recently. He is accompanied by his wife who confirms this.

Upon arrival he is very exhausted, BP 85/55, p 80, afebrile, thin and appears to be dehydrated.

His medication is as follows: metformin, amlodipine (ca-antagonist), creon (digestive enzyme) og total vit B.

Arterial blood gas:

	Test results	Ref. range
pH	6.96	7.38-7.46
pO2	17.8	> 10.6
pCO2	1.72	4.3-6.0
Bicarbonate	2.9	21-27
BE	-2	-3 to +3
Lactate	12.9	0.5-2.2

Venous tests:

	Test results	Ref. range
Creatinine	919	60-105
eGFR	<5	≥90
Carbamide	40	3.5-8.1
Potassium	7.5	3.6-4.6
Lipase	28	26-64
Glucose	7.8	4.2-6.3

You calculate the anion and osmolarity gaps which are both normal (corrected for high carbamide). What is the likely cause of the acidosis?

- A [Acute pancreatitis]
[Normal lipase, no abdominal pain]
- B [Metabolic acidosis due to acute, prerenal kidney failure]
[Does not give high lactate levels]
- C [Intoxication with toxic alcohol (ethylene glycol or metanol)]
[Would have expected elevated osmolarity and/or anion gaps, depending on the stage of intoxication. And HIGH during the early phase (alcohol) and AG during the later phase. Nothing in his notes to indicate intoxication.]
- D X [Metformin-induced lacto acidosis]
[Best answer, he has high lactate levels which are obviously contributing towards his severe acidosis]

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34

[A 79-year-old man has been suffering from hypertension for many years and had a myocardial infarction 5 years ago. During the last few weeks he has been taking NSAIDs for pain in one of his knees. His creatinine levels have been gradually increasing during the last 5 years from approx. 70 to 115 micromol/l the last year (ref. range 60-105).

Urine dipstick test = 2+ for albumin, otherwise negative results for blood and leucocytes. His albumin/creatinine ratio is 87 mg/mmol (ref. range <3).

His GP has referred him for an ultrasound scan which shows that the size of his kidneys is slightly reduced bilaterally. 2-3 simple cysts are visible on both kidneys, no obstacles in the outlets.

What kidney disease is most likely?

- A [Interstitial nephritis caused by NSAIDs]
- B [Chronic glomerulonephritis]
- C X [Hypertensive nephrosclerosis]
[A chronic condition caused by increasing levels of creatinine during the last few years, and small kidneys on the ultrasound scan. NSAIDs are therefore less likely. Chronic glomerulonephritis will usually also cause hematuria. It is not uncommon to find cysts in the kidneys in old people, and polycystic kidney disease is accompanied by several cysts (> 10 cysts in each kidney) and the kidneys are often enlarged. There has been a long progression in his history of illness and small kidneys without hematuria are most consistent with hypertension.]
- D [Polycystic kidney disease]

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35

(What conditions can result in rapidly progressive glomerulonephritis (RPGN) with crescentic formation?)

- A [ANCA vasculitis, anti-GBM nephritis, IgA nephritis, SLE]
- B [ANCA vaculitis, anti-GBM nephritis]
- C X [ANCA vasculitis, anti-GBM nephritis, IgA nephritis, SLE, post-streptococcal nephritis]
[These are the most common (i.e. most GN cases can have such a progression, but ANCA vasculitis is the most typical)]
- D [ANCA vasculitis, IgA nephritis, SLE]

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36

[You have just been visited by a patient (65-years old) for the 3rd BP measurement and their average reading is 160/80 mmHg. You are now going to undertake a simple examination before you start treatment.

Which tests would it be most correct to order in this situation?]

- A** [Blood tests: creatinina, HbA1c, total cholesterol
Urine: u-albumin/creatinine ratio]
- B** [Blood tests: creatinine, Na, K, HbA1c, total cholesterol, HDL cholesterol, uric acid, aldosterone, renin, TSH, free T4
Urine: U-dipstick, u-albumin/creatinine ratio]
- C** [Blood tests: creatinine, K, HbA1c, total cholesterol, HDL cholesterol, uric acid, aldosterone, renin
Urine: u-albumin/creatinine ratio]
- D X** [Blood tests: creatinine, Na, K, HbA1c, total cholesterol, uric acid
Urine: u-dipstick, u-albumin/creatinine ratio]
[Aldosterone, renin, TSH, free T4 are not necessary now. This is to examine resistant hypertension and there is nothing to indicate that the patient is in such a situation (i.e. alt. B+C are not correct). You should include u-dipstick and K and uric acid in order to reveal any signs of kidney disease and asses the risks of hypokalemia and hyperuricemia which are important in respect of the choice of medication]

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37

You have a male patient (35 years old) whose BP results are 150/95 (average from 3 consultations). He feels slightly short of breath upon exertion. He is otherwise fit and healthy and is a non-smoker, but he is overweight (BMI 32) and does not see that he has any opportunities for losing weight. His laboratory tests show the following results:

		ref. range
Na	140 mmol/l	135-145
K	3.7 mmol/l	3.5-4.5
Creatinine	81 umol/l	60-105
HbA1c	40 mmol/mol	28-40
Total cholesterol	6.7 mmol/l	3.5-6.9
u-dipstick	neg	neg
u-albumin/creatinine ratio	4 mg/mmol	<3

How should this patient be treated in the future?

- A X** [Start moderate doses of both calcium blockers and angiotension receptor inhibitors (e.g. 5 mg x 1 amlodipine and 16 mg x 1 atacand) because his pressure needs to be reduced by approx. 20-25 mmHg]
[He has stage 1 HT and several risk factors so treatment needs to be started. The treatment goal is 120-130, i.e. he will probably need two types of medication. Tiazide should not be chosen due to the obvious metabolic disturbances that are already present in this young patient.]
- B** [Start moderate doses of beta blockers (e.g. 100 mg x 1 metoprolol depot) due to dyspnea/heart failure]
- C** [No treatment necessary because he is young and only has stage 1 hypertension, i.e. low total cardiovascular risk.]
- D** [Start moderate doses of both calcium blockers and tiazide (e.g. 5 mg x 1 amlodipine and 12.5 mg x 1 esidrex) because he does not have proteinuria and his pressure needs to be reduced by approx. 20-25 mmHg]

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38

(A 50-year-old women with a kidney transplant which function is stable. Normally her creatinine levels are around 100. For several weeks she has been experiencing increasing fatigue and lethargy. She is moderately short of breath, has a dry cough, but no temperature.

Her blood tests show (ref. range in brackets):

CRP 35 mg/l (<5),

Blood gas pO₂ 8.2 kPa (11.0-14.4),

D-dimer 0.4 (< 0.5),

Creatinine 120 micromol/l (45-90).

What is the most likely diagnosis?

A Influenza

[Less likely due to the lack of a temperature and the long-term progression]

B X Pneumocystis jirovecii

[Most likely due to a long-term progression, low pO₂, lethargy and dry cough. This is not uncommon in people who have recently had a kidney transplant.]

C Pulmonary embolism

[Less likely due to long-term moderate symptoms]

D Bacterial pneumonia

[Less likely due to the lack of a temperature, low CRP and a long-term progression]

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39

[A 50-year-old man visits his doctor due to increased oedema in his legs and lethargy. No known additional illnesses.

This could be nephrotic syndrome.

In addition to oedema, what other 2 criteria are required in order to make a diagnosis of nephrotic syndrome?]

A [High blood pressure, high creatinine (low eGFR)]

[None of the criteria are present]

B X [Hypoalbuminemia, proteinuria > 3g/d]

[All the criteria are present here]

C [High blood pressure, proteinuria (1g/d)]

[Proteinuria, but not in nephrotic quantities]

D [Hematuria, mild proteinuria (u-dipstick 1+)]

[Proteinuria should be quantified, hematuria is not included in the definition]

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40

The health of an old man has been declining during the past year and his general state of health is deteriorating. He visits his GP who take blood tests for information purposes. These show the following results:

	Results	Ref. range
Hgb	7.3 g/dl	13.5 - 17.4
Creatinine	450 µmol/L	60 - 120
eGFR	10 mL/min/1.73m ²	≥90
Bicarbonate in venous blood	20 mmol/L	24-31
Potassium	5.2 mmol/l	3.3 - 4.3

Which of these differences is it most important to do something about (i.e. what should be done first)?

- A [His hyperkalemia should be treated by starting him on a glucose-insulin infusion]
 - B [He should start taking bicarbonate tablets in order to treat his metabolic acidosis, avoid skeletal damage and prevent the progression of his kidney disease]
 - C [Dialysis should be started so that his s-creatinine levels are reduced and any toxic small molecular substances are removed (uremic toxins)]
 - D X [His anaemia should be corrected, probably by transfusing 2 units of blood]
[It is not necessary to correct his slightly elevated levels of potassium. There are no absolute indications for dialysis. The treatment of acidosis is a preventative treatment over a relatively long timescale (effective after > 6 months of treatment). On the other hand his severe anaemia should be treated as soon as possible, and transfusion is the only option (EPO takes > 4-6 weeks before producing any noticeable effects)]
-

41

(A 74-year old woman is admitted to A&E due to a decline in her general state of health/she is unable to manage at home. Upon arrival her s-creatinine level is 320 $\mu\text{mol/l}$ (reference range: 45 - 90 $\mu\text{mol/l}$), something which indicates acute kidney damage since her kidney function was previously normal. In this situation it is important to be able to distinguish between prerenal kidney failure and acute renal tubular necrosis (the most common renal cause of acute kidney damage). Clinical suspicion of acute renal tubular damage/necrosis and the plan is to give her relatively moderate quantities of liquid supplements. What are the typical urinary findings associated with such damage?)

- A [Relatively low u-Na and relatively low urinary osmolality]
 - B [Urine dipstick Blood ++, urine dipstick albumin +++]
 - C [Extremely high u-Na and high urinary osmolality]
 - D X [Relatively high urinary Na and relatively low urinary osmolality]
*[Low urinary osmolality and relatively high u-Na indicates renal tubular damage.
B is not correct because low u-Na indicates functioning tubules which reabsorb salt in order to keep the pressure up.
C is not correct because heavy hematuria and proteinuria are not expected in acute cases of tubular damage.
D is not correct because one would never see extremely high u-Na combined with high osmolality]*
-

42

[You are the GP for a 30-year-old woman who was previously fit and healthy and who has just been admitted to the Medical Ward with stomach pain and a diagnosis of "polycystic kidney disease". She was given a bit of information when she was discharged, but she does not remember much of what was said, apart from being told that her kidneys were very large (approx 25 cm lengthwise). You therefore have to provide her with the information again.
What best describes her situation?]

- A [There is a 25% chance that her children will inherit the disease. There is a high risk that she will end up having dialysis and there are no treatments which could delay the development.]
 - B [There is a 25% chance that her children will inherit the disease. There is a high risk that she will end up having dialysis, but there is a treatment that could probably delay the development.]
 - C [There is a 50% chance that her children will inherit the disease. There is a low risk that she will end up having dialysis, and there are no treatments that could delay the development.]
 - D X [There is a 50% chance that her children will inherit the disease. There is a high risk that she will end up having dialysis, but there is a treatment that could probably delay the development.]
(Previously healthy and without any symptoms + large kidneys at the age of 30 --> it must be Autosomal Dominant PKD, as the recessive variant appears early on in newly borns/children. Large kidneys (25 cm) as early as the age of 30 indicate a rapid progression which will continue and she will probably end up having dialysis in around 10 years' time. There is now a treatment which can slow down development of the growths (tolvaptan))
-

43

[What is macroprolactin?]

- A [Extra large prolactin peptides without biological activity]
[No]
 - B X [Large molecular prolactin complexes with low biological activity]
[Yes]
 - C [Extra large prolactin peptides with high biological activity]
[No]
 - D [Large molecular prolactin complexes with high biological activity]
[No, they normally have low biological prolactin activity]
-

00001639887testbed

44

[You suspect that a patient has Graves' disease (hyperthyreosis).
What tests would be relevant to order?]

- A [Thyroid stimulating hormone (TSH) in serum
Free thyroxine (FT4) in serum
Iodine in urine

Genetic testing]
 - B X [Autoantibodies to the TSH receptor in serum
Thyroid stimulating hormone (TSH) in serum
Free triiodothyronine (FT3) in serum
Free thyroxine (FT4) in serum]

[When Grave's disease is suspected TSH receptor antibodies, TSH, FT4 and FT3 are the most relevant biochemical markers to be measured. In Grave's hyperthyreosis 40% of patients have anti-TPO in the serum, but it is unnecessary to investigate this in Grave's disease because the results have no consequences. The indication for measuring iron in the urine is suspicion of the iodine levels being either too low or too high.]
 - C [Autoantibodies to the TSH receptor in serum
Thyroid stimulating hormone (TSH) in serum
Free triiodothyronine (FT3) in serum
Iodine in the urine]
 - D [Autoantibodies to the TSH receptor in serum
Thyroid stimulating hormone (TSH) in serum
Free thyroxine (FT4) in serum
Antibodies to thyroid peroxidase (anti-TPO) in serum]
-

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45

Blood tests are taken for a woman in her 12th week of pregnancy who is suffering from severe nausea. They show free T4 of 30 pmol/l (ref 13.5-21.2), TSH <0.01. TSH receptor antibodies/TRAS is negative. What do you do?

- A [Start on carbimazole and beta blockers]
[Wrong. This is probably HCG mediated and treatment is not usually necessary. Beta blockers should not be taken during pregnancy due to the risk of intrauterine growth retardation.]
 - B X [Repeat the tests in 3-4 weeks' time]
[Correct. This is probably HCG mediated. The tests are often normalised during weeks 14-18 and medicinal treatment is not usually necessary.]
 - C [Start on carbimazole.]
[Wrong. This is probably HCG mediated and treatment is not usually necessary.]
 - D [Offer beta blockers.]
[Wrong. Beta blockers should not be taken during pregnancy due to the risk of intrauterine growth retardation.]
-

00001639887testbed

46

25-year-old woman with hyperthyreosis with diffuse goiter and mild ophthalmopathy diagnosed 3 years ago. Subsequently treated continuously with fairly high doses of carbimazole, plus 100 µg thyroxin daily after a while. An unsuccessful attempt to discontinue this treatment was followed by a rapid relapse. During the last 3 months she has suffered from increased hyperthyreosis, increased goiter and increased bilateral exophthalmos.

Now: FT4 23.3 pmol/L (ref 13.5-21.2), FT3 12.6 pmol/L (ref 3.5-6.5), TSH < 0.01 mIE/L. TRAS 16 IU/L (ref 0-3,3). She is taking 20 mg x 2 carbimazole plus 100 µg thyroxin daily. What type of treatment should she have?

A X [Thyroidectomy]

[Correct. She has had Graves' disease for several years, persistently high TRAS and endocrine ophthalmopathy and surgery should be the first choice here.]

B [Carbimazole - titration treatment]

[Wrong. Due to her pronounced eye symptoms she should have blocking treatment]

C [Radioactive iodine treatment]

[Wrong. Radioactive iodine treatment is contraindicated in moderate to severe ophthalmopathy.]

D [No changes in treatment]

[Wrong, medicinal treatment in this case has not been successful.]

00001630887head

47

[A 25-year-old woman attends the doctor's surgery suffering from dizziness. She has lost 5 kg in weight and her general state of health has declined. Her blood pressure is 90/60, pulse 100. Her p-sodium levels are low, 129 mmol/l (ref. 137-145). You suspect primary adrenocortical insufficiency and requisition additional tests in order to confirm your suspicions. How would you expect her cortisol, ACTH, aldosterone and renin levels to be affected in primary adrenocortical insufficiency?]

A (Cortisol (low), ACTH (low), aldosterone (high), renin (low))

[Wrong]

B (Cortisol (low), ACTH (high), aldosterone (high), renin (high))

[Wrong.]

C X (Cortisol (low), ACTH (high), aldosterone (low), renin (high))

[Correct.]

D (Cortisol (low), ACTH (high), aldosterone (low), renin (low))

[Wrong.]

00001630887head

48

[A 55-year-old man has had high blood pressure for a long time and it has been difficult to treat it. He has suffered from attack-like symptoms with palpitations, sweating and anxiety. He has been diagnosed with a heterogenous tumour in his left adrenal gland. Blood tests are taken with regard to diagnosis.

Which of these answers would you expect to find in the patient?]

A [Elevated aldosterone]

[These patients do not have attack-like symptoms, and tumours are not usually heterogenous]

B X [High catecholamine levels]

[Treatment-resistant hypertension and attack-like symptoms are typical of pheochromocytoma, as well a heterogenous tumour]

C [High cortisol and low ACTH]

[Cortisol-producing tumours in the adrenals can cause sweating, but attack-like symptoms are not common. Patients would have Cushing-like signs with central obesity, but this patient was slim. Tumours are not usually heterogenous.]

D [High cortisol and high ACTH]

[Could indicate an ACTH-producing pituitary tumour]

00001630887head

49

(A 36-year-old man visits you with questions about testosterone deficiency and request for substitution. He is tired and complains of having erectile problems. Gradual weight increase, now BMI 34.2 kg/m². He is not taking any regular medication. Blood pressure 158/88, p 74. You carry out the following fasting blood tests: LH 3.4 IE/l (0.9-8.4), FSH 4.9 IE/L (1.3-17.9), testosterone 7.6 nmol/l (6.73-3.,9) og SHBG 12 nmol/l (ref. 13-72). How would you interpret the tests?

- A [Primary hypogonadism]
- B [Hypogonadism with Klinefelter syndrome]
- C [Secondary hypogonadism]
- D X [Normal]

[Correct answer. Total s-testosterone is slightly low, but SHBG is also low, something which would therefore mean that free and bioavailable testosterone is normal. Such values are typically seen in overweight patients.]

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50

(A 59-year old man who had an NSTEMI heart attack 3 months ago, is overweight (BMI 31.6 kg/m²). He was recently admitted due to his poor general state of health and dehydration and was given a diagnosis of diabetes with HbA1c levels of 106 mmol/mol (diabetes ≥48) and p-glucose 32.2 mmol/l (4.2-6.2 mmol/L). He has been started on insulin, Humulin NPH 10 U x 2. After he returned home the answers to his autoantibody tests arrived and these were negative, C-peptide 1.0 nmol/l (0.3 - 2.4 nmol/L) with glucose 12.1 mmol/l, normal kidney function. He visits you, his GP, three weeks later. His blood glucose levels have been 10-16 mmol/l when he has measured them at home. No change in his weight, good general state of health. You inform him about the importance of losing weight and increasing his physical activity. What other changes in his treatment would you recommend?

- A X [His blood glucose levels are still too high. You start him on increasing doses of metformin tablets and plan to reduce Humulin doses after his next check-up.]
[Correct answer: He has type 2 diabetes. Insulin could initially be used for patients with severe and symptomatic hyperglycemia in order to achieve faster glucose control. However, lifestyle changes and metformin are still the basic treatment. He no longer has blood sugar levels high enough to cause symptoms. It is therefore not necessary to increase his insulin treatment which should instead be reduced and discontinued when he has started making changes to his life style and his metformin dose is adequate. For people with known heart disease, SGLT2 inhibitors or GLP1 analogues are recommended as a second drug if necessary, not insulin. Metformin is also the first choice in patients with heart disease, but if a second drug is necessary, an SGLT2 inhibitor or GLP1- analogue should be chosen.]
- B [His blood glucose levels are still too high. You increase his Humulin dose to 15 U x 2 and add an SGLT2 inhibitor due to his heart disease.]
- C [His blood glucose levels are still too high. You increase his Humulin dose to 15 U x 2 and instruct him to continue increasing the dose every 3-4 days.]
- D [His blood glucose levels are still too high. You start him on rapid-acting insulin, Novorapid, 5 U before meals.]

00001639887headboard

51

[A 26-year old man is admitted with suspected diabetic ketoacidosis. He weighs 62 kg and has lost 7-8 kg over the course of 2 months. There is a smell of ketones in the room and his urine dipstick test is positive for ketones. A capillary blood glucose measurement shows blood glucose level of 20. An arterial blood gas test is taken (see below). What condition is present and which initial treatment do you commence?]

	Verdi	Trend	Referanse
pH	6,946	↓↓	7,38-7,46
pCO2	1,09	↓	4,3-6 kPa
pO2	19	↑	11-14,4 kPa
HCO3-	1,8	↓↓	21-27 mmol/l
BE	-30,4	↓↓	-3 – 3 mmol/l
Anion Gap	25,2	↑	10-16 mmol/l
Na	137	(↓)	137-145 mmol/l
K	4,5	=	3,5-4,6 mmol/l
Glukose	23,1	↑↑	4-6,3 mmol/l
Laktat	1,2	=	0,5-2,1 mmol/l

- A [Hyperosmolar hyperglycaemic syndrome. Start rehydration with NaCl 0.9% prior to starting intravenous insulin.]
[Wrong, because we are dealing here with a case of severe metabolic acidosis, a young patient with ketone production]
- B [Moderate diabetic ketoacidosis. Start rehydration with NaCl 0.9% prior to starting intravenous insulin.]
[Partially correct, i.e. initial treatment of the correct diagnosis which is diabetic ketoacidosis, but his condition is categorised as being serious]
- C X [Severe diabetic ketoacidosis. Start rehydration with NaCl 0.9% prior to starting intravenous insulin.]
[Correct diagnosis and initial treatment]
- D [Other cause of acidosis than diabetes. Start rehydration with NaCl 0.9%]
[Wrong, recently occurring hyperglycaemia with metabolic acidosis with ketonuria. His history of illness over weeks to a few months, is probably diabetic ketoacidosis.]

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52

[Which statement about long-term diabetic complications is correct?]

- A [Patients with insulin-dependent diabetes and established cardiovascular disease should always aim to have HbA1c levels of around 53 mmol/mol]
[Stricter blood glucose regulation increases the risk of hypoglycaemia if a patient takes insulin or sulphonylurea derivatives. Studies such as the Accord study have shown excess mortality from cardiovascular disease caused by hypoglycaemia. It is therefore important to be able to achieve the treatment objective without causing patients too high a risk of glycaemia. This applies in particular to patients with established cardiovascular disease.]
- B [All long-term complications are avoided when HbA1c levels are 53 mmol/mol throughout one's life.]
[HbA1c is an indicator of average glucose regulation and HbA1c levels of 53 mmol/mol can be achieved with high or low blood glucose fluctuations. High blood glucose fluctuations will mean more time with hyperglycaemia, and more time with hypoglycaemia, which could in turn increase the risk of both micro and macrovascular complications.]
- C X [SGLT2-inhibitors and/or GLP-1 analogues can reduce the risk of cardiovascular disease in patients with type 2 diabetes]
[There are several studies of cardiovascular disease as an endpoint which clearly show reduced incidence when using some types of GLP-1 analogues and SGLT2-inhibitors in patients with diabetes]
- D [Poor glucose regulation in youth has no impact on the development of long-term complications provided good regulation in adulthood.]
[It is always a good idea to ensure good, stable blood glucose regulation at any stage in one's life. Due to hyperglycaemic memory, any damage caused by hyperglycaemia in one's youth will become manifest in adults, but in such cases one should continue to regulate blood sugar levels in order to reduce any new damage as a result of hyperglycaemia.]
-

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53

[A 42-year-old woman is admitted by her GP with recently diagnosed severe hypertension, blood pressure 215/120 mmHg. She has been lethargic and exhausted during the past year and her weight has increased to 93 kg (BMI 31.6 kg/m²). She is not taking any medication. You examine her to investigate the causes of her high blood pressure and hormone testing shows that she has Cushing's syndrome.

What is the most common cause of Cushing's syndrome (not including pharmacological treatment with steroids)?]

- A [Adrenal carcinoma]
[Incorrect. Adrenal carcinomas can produce cortisol, but they are rare tumours.]
- B [Adrenal adenoma]
[Incorrect. Adrenal adenomas are the cause of Cushing's syndrome in approx. 20% of cases.]
- C [Pulmonary tumour with ACTH production]
[Incorrect. Ectopic Cushing's syndrome occurs in approx. 10% of patients and in such cases it is often caused by pulmonary tumours.]
- D X [Pituitary adenoma]
[Correct. Pituitary adenoma is the cause in approx. 70% of cases of patients with endogenous Cushing's syndrome, and the condition is then termed Cushing's disease.]
-

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54

(A patient with known primary adrenal cortex insufficiency is admitted in a poor state with hypotension, hyponatremia (125 mmol/l) and elevated potassium levels of 5.5 mmol/l. You suspect an Addison's crisis. How do you treat this?)

- A [Intravenous hydrocortisone (Solu-Cortef) and an oral mineralcorticoid (Florinef)]
[Wrong. It is important to replace liquid loss with added liquids (in such cases isotonic sodium chloride is the first choice)]
- B [Oral cortisone acetate and intravenous isotonic sodium chloride solution]
[Wrong. It is important to administer parenteral hydrocortisone (Solu-Cortef) since the oral ingestion of tablets is often poor]
- C [Intravenous hydrocortisone (Solu-Cortef), intravenous isotonic sodium chloride solution and a mineralcorticoid (Florinef)]
[Wrong: it is not necessary to administer Florinef during the acute phase.]
- D X [Intravenous hydrocortisone (Solu-Cortef) and intravenous isotonic sodium chloride solution]
[It is important to administer parenteral hydrocortisone (Solu-Cortef), as well as intravenous liquids (isotonic sodium chloride due to hypovolemia and hyponatremia). A mineralcorticoid is not necessary during the acute phase, provided that a dose of >100 mg of hydrocortisone per day is administered.]
-

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55

[A 46-year-old woman is experiencing occasional secretions from her left breast. She describes the secretions as being yellow and slightly milky. This is worrying her and she wonders if it could be dangerous. Her grandmother had breast cancer in her 70s.

Is it necessary to investigate this?]

- A [Yes, this could be symptomatic of a lump in one of the milk ducts]
[Wrong answer. These are entirely normal secretions and an investigation is not necessary. Clear or bloody secretions should be investigated. They could be symptomatic of a tumour in one of the milk ducts, normally benign.]
- B [Yes, secretions from the breast such as this could be symptomatic of breast cancer.]
[Wrong answer. These are normal secretions and an investigation is not necessary]
- C [Yes, she should be investigated since there has been a case of breast cancer in the family]
[Wrong answer. These are entirely normal secretions and an investigation is not necessary. The case of breast cancer in the family is not relevant in this particular case.]
- D X [No, these are entirely normal secretions and an investigation is not necessary]
[Correct answer. Secretions like this are common and normal. Clear or bloodig liquid should be investigated.]
-

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56

[A 33-year-old woman has been diagnosed with breast cancer. The lump is approx. 3.5 cm in size. It is not very easy to feel it because she has fairly large breasts. Palpation and an ultrasound scan have not found anything wrong in the axillary tissue). The patient is otherwise fit and healthy and there are no other cases of breast cancer in her family. She will have a surgery before having any further treatment.

What procedure is most relevant for her?

- A [She should have a mastectomy and axillary dissection]
[Wrong answer: there are no medical grounds for removing the whole breast. She has large breasts and consequently there are no technical problems involved in removing a 3.5 cm lump. Breast conservation and radiation treatment of the breast have the same prognosis as a mastectomy. No metastases have been found in the axillary tissue and thus there are no grounds for doing a primary axillary dissection.]
- B [She should have a breast-conserving surgery and axillary dissection]
[Wrong answer: she has large breasts and consequently there are no technical problems involved in removing a 3.5 cm lump. Breast conservation and radiation treatment of the breast have the same prognosis as a mastectomy. No metastases have been found in the axillary tissue and thus there are no grounds for doing a primary axillary dissection.]
- C [She should have a mastectomy and a sentinel lymph node biopsy]
[Wrong answer: there are no medical reasons for removing the whole breast. She has large breasts and consequently there are no technical problems involved in removing a 3.5 cm lump. Breast conservation and radiation treatment of the breast have the same prognosis as a mastectomy. No metastases have been found in the axillary tissue and a sentinel lymph node biopsy should be carried out.]
- D X [She should have a breast-conserving surgery and a sentinel lymph node biopsy]
[Correct answer: She has large breasts and consequently there are no technical problems involved in removing a 3.5 cm lump. Breast conservation + radiation treatment of the breast has the same prognosis as a mastectomy. No metastases have been found in the axillary tissue and thus a sentinel lymph node biopsy should be carried out.]

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57

(A 49-year-old woman visits you, her GP, after she discovers a lump in one of her breasts. The lump is approx. 1.5 cm in size, slightly hard, slightly difficult to delineate and moves in relation to the surrounding tissue. There are no palpable supraclavicular lymph nodes.

How should this be dealt with?

- A X [There is clinical suspicion of breast cancer and the patient should be referred to a breast screening centre for an examination. The centre would carry out a mammography, ultrasound scan and biopsy.]
[Correct answer: Mammogram, ultrasound scan and sampling are necessary for clarification]
- B [Breast cancer is clinically suspected and the patient should be referred to a breast screening centre for an examination. The centre would carry out a CT scan, MRI scan or a PET scan in order to confirm the diagnosis.]
[Wrong answer: CT scans, MRI scans and PET scans should not be done as the first examinations. They could be relevant as supplementary examinations, but this would be decided by the breast screening centre after an ordinary examination has been carried out.]
- C [Breast cancer is clinically suspected, but she could wait to be invited to attend the mammogram screening programme. She will soon be 50 years old and it would not take long before she is called in.]
[Wrong answer: She should be referred for an immediate examination. Early screening is important for the prognosis in cases of breast cancer.]
- D [There is clinical suspicion of breast cancer and the patient should be referred for an MRI scan of her breast. If these suspicions are confirmed she should be referred on to a breast screening centre.]
[Wrong answer: An MRI scan should not be carried out as the first examination. An MRI could be done as a supplementary examination, but this would be decided by the breast screening centre after a normal examination has been carried out.]

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58

[A patient has discovered a lump in her throat. On palpation you feel a well-delineated, non-tender, fairly soft lump approx. 2 cm in size in her left thyroid lobe. The patient is not bothered by this, but was slightly worried when she discovered it.]

- A [Yes, this should be investigated. Her GP should refer her for thyroid scintigraphy in order to find out if this is a warm or a cold node. This would clarify whether or not it is cancer.]
[Thyroid scintigraphy is not relevant when examining the thyroid for cancer. It is only useful in cases of hyperthyreosis.]
- B [Yes, this should be investigated. Her GP takes blood samples in order to investigate her metabolism. The patient should also be referred for a CT scan of her throat in order to obtain clarification about whether or not this is cancer.]
[CT scans are of limited value when investigating throidal lesions. Clinical examination, ultrasound scan, cytology and metabolic tests are the most important tests when examining throidal lesions.]
- C [No, this does not require further investigation. Since she is not having any problems it is highly unlikely that this is a serious disease. The patient will be asked to contact you if she experiences any problems.]
[The patient has a recently occurring palpable tumour in her thyroid and this should be investigated.]
- D X [Yes, this should be investigated. Her GP takes a blood sample in order to investigate her metabolism. The patient should also be referred to the thyroid outpatient clinic for an assessment, including an ultrasound scan. It might also be necessary to perform a fine needle aspiration biopsy of the lump.]
[The patient has a recently occurring palpable tumour in her thyroid and this should be investigated. Clinical examination, ultrasound scan, cytology and metabolic testing are the most important tests when investigating thyroidal lesions.]
-

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59

[In your capacity as a registrar in the Children's Surgical Department you receive a transfer patient from Finnmark Hospital. The patient is a boy who is almost 6 weeks old and who has been having increasing "wet burps" during the last week. He has lost a bit of weight. You insert a nasogastric tube and a lot of air and milky aspirate is returned. You request an ultrasound scan of his abdomen. The radiologist writes: "No passage of stomach contents detected through a thickened pyloric muscle" (blue ring in the photo below). What condition is this?]



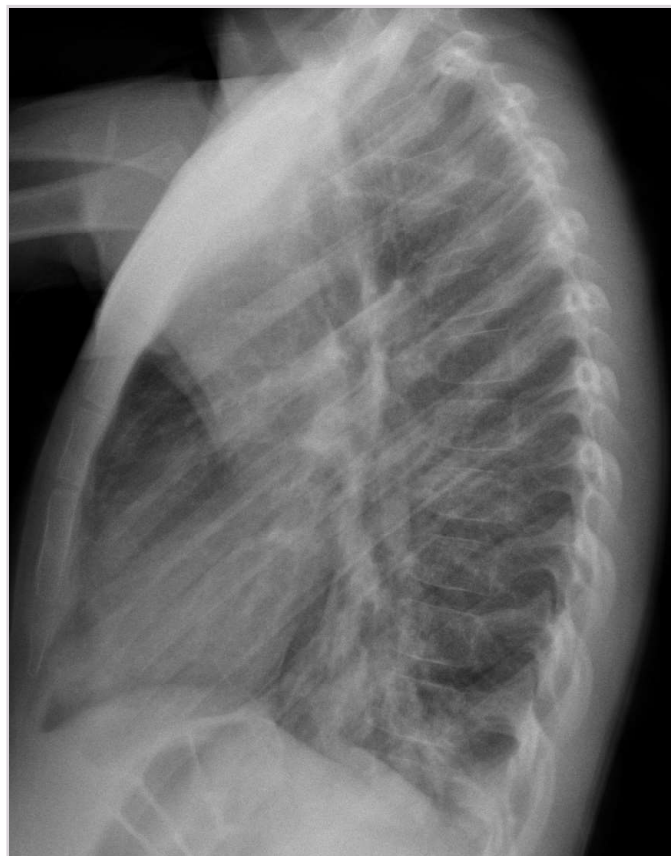
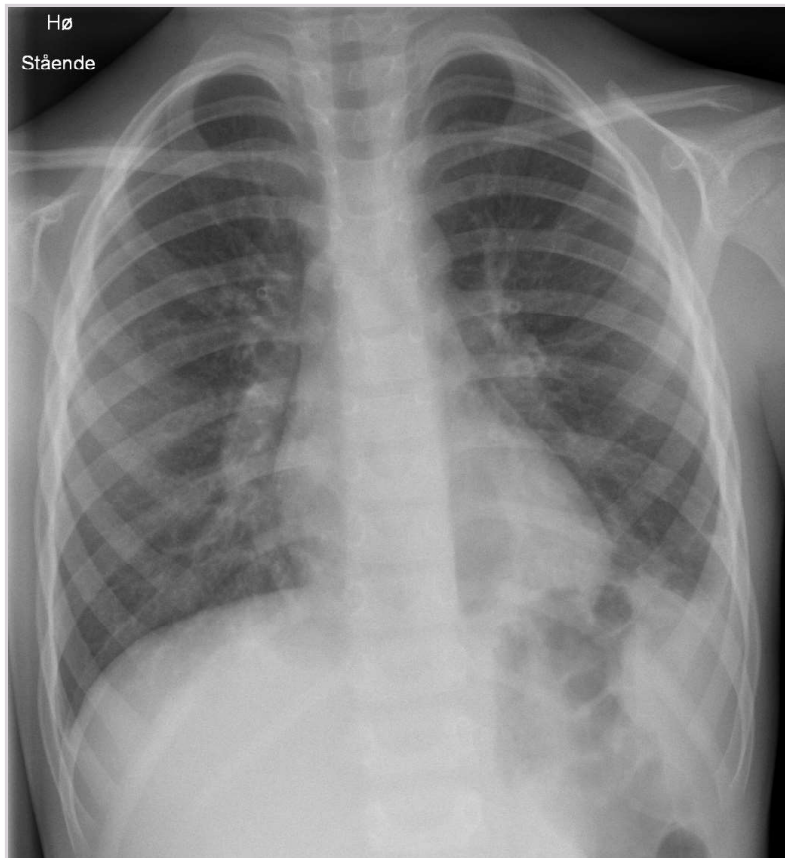
- A** [Intestinal malrotation]
[Central mesenteric vessel structures not fully shown (arteria et vena mesenterica superior ("changes place"). The duodenum will not pass behind the superior mesenteric artery over towards the left side. In many cases this is shown by X-ray translucency (X-ray imaging of the stomach with a low dose of radiation and continuous imaging after ingestion of oral contrast medium.)]
- B** [Gastroesophageal reflux (GER)]
[The gastroesophageal junction is in a deeper and more cranial location. The ultrasound scan shows repeated passage from the stomach towards the distal oesophagus.]
- C** (Invagination)
[Extremely unusual age. Most often ileocolic invagination, then ileo-ileal. Distal intestine section not shown.]
- D X** [Hypertrophic pyloric stenosis (HPS)]
[Or more correctly described as congenital hypertrophic pyloric stenosis (described as being rare, mild variants in adults). A sonographic assessment needs to be carried out on the basis of the following:
 1. Anatomical assessment: measure the thickness of the muscle walls (single wall diameter), total transverse diameter and total length.
 2. Dynamic assessment: passage of stomach contents past the pylorus towards the duodenal bulb. This can be delayed by pyloric spasms.]

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60

[In your capacity as a resident in the children's reception centre you see a 4-year old boy who has a 10-day history of respiratory tract symptoms. Cough without mucus, a temperature and an impaired general state of health. Upon auscultation you can hear reduced respiration sounds on his right side midways and basally.

You request an X-ray of his thorax. What does this show?]



- A [Bilateral peripheral pulmonary thickening]
[No peripheral pulmonary thickening in the right hemithorax.]
- B [Basal atelectasis in the lower right lobe]
[No peripheral thickenings in the right hemithorax. No atelectasis in the left hemithorax (since no volume reduction)]
- C [Right-sided perihilar pulmonary thickening]
*[Slight bilateral perihilar, peribronchial thickenings (e.g. as seen in cases of bronchitis)
The right pulmonary artery is always more visibly infra hilar here.]*
- D X [Loosely saturated pulmonary thickening basally in the lower left lobe]
*[Dominant loosely saturated thickening basally, peripheral in the lower left lobe. Most visible with side projection.
NB! Auscultation findings do not need to be consistent with the findings in the images.]*

61

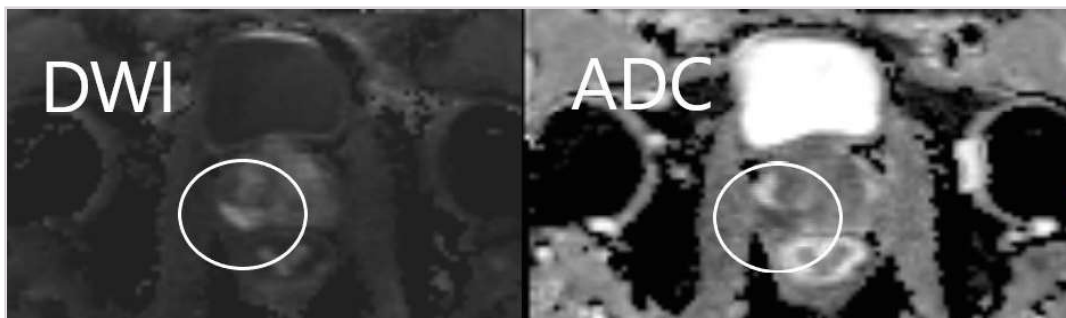
[Congenital anomalies of the kidney and urinary tract (CAKUT) represent 20-30% of all anomalies that are found in prenatal ultrasound scans.

Which of these conditions belongs to the "non-hydronephrotic kidney anomalies?)"

- A [Duplication of the renal collecting system]
(A high percentage of duplicated collecting systems have hydronephrosis in the upper section (with the possibility of ectopic ureterocele where the ureters run into the bladder), as well as vesicoureteral reflux to the lower section.
- B X [Horseshoe kidney]
[Most common renal fusion anomaly. Followed by unilateral agenesis.]
- C [Rear urethral flaps]
[Obstruction in the urethra in boys. In most cases this results in upstream bladder pathology (the thick wall and oblong configuration), as well as hydroureter and hydronephrosis (often bilateral)]
- D [Transitional stenosis]
[Characteristic is hydronephrosis with stenosis in the renal pelvis to the proximal ureter junction (PUJO - pelvoureteral junction obstruction.)]

62

[A 72-year-old man is examined for suspected prostate cancer. On the attached photos you will see a diffusion sequence (DWI) with a high diffusion gradient (b1500) on the left and an accompanying ADC map on the right. The white ring encircles an area in the prostate with a clear increase in the signal at b1500 and a correspondingly clear low signal on the ADC map. What does the diffusion series indicate in this case?]



- A [Increased diffusion, in this case suspected prostate cancer]
- B X [Diffusion restriction, in this case suspicion of prostate cancer]
[High signal on DWI and corresponding low signal on ADC means diffusion restriction. When investigating prostate cancer diffusion is often used as a revealing sequence in order to assess whether or not lesions are suspected as being malignant.]
- C [Diffusion restriction, but does not contribute to the assessment of malignancy]
- D [Increased diffusion, but does not contribute to the assessment of malignancy]

63

[As requested by her GP, a 59-year-old woman has had a CT scan carried out of her abdomen/pelvis for non-specific stomach pain in her right hyperchondrium. You take a look at the images and find the lesion on the image below in her left kidney. The lesion is well-delineated and homogenous with a density of 6 HU. No septation and no calcification or noduli along the edge. The largest measure is 2.9 cm. A medical student who is accompanying you while you are on call asks if this should be investigated further, checked and/or treated. What is your answer?]

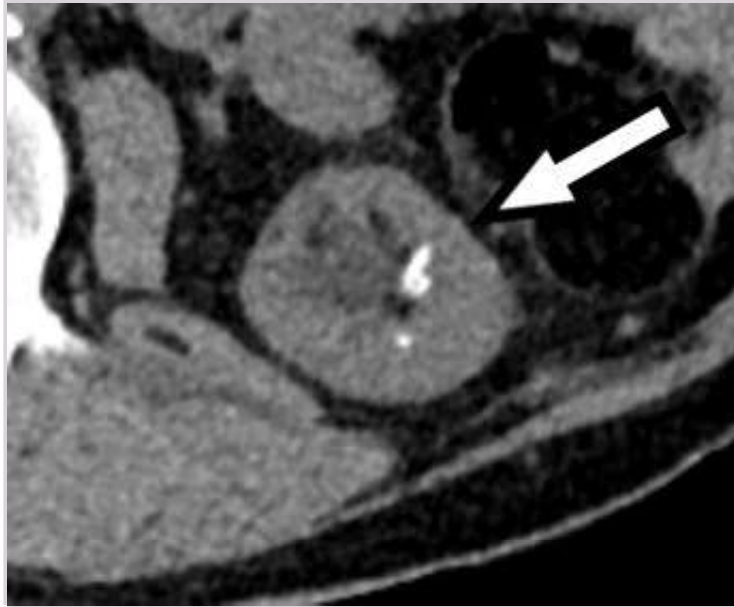


- A [To be investigated further with a CT scan of the urinary tract within a few weeks in order to exclude malignancy.]
- B X** [No indications for further investigation, check-up or treatment.]
[Correct. The description and photo accord with a simple renal which does not require further investigation, check-up or treatment.]
- C [Refer for an ultrasound guided biopsy]
- D [Check-up with a CT scan of the urinary tract in 1 year's time]

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64

[A 73-year-old man who has previously had several urinary tract concretion formations arrives in the Urology Outpatient Clinic with recurring back pain which is similar to previous kidney stone attacks, as well as recurring urinary tract infections. A CT scan without contrast medium is taken of his urinary tract which shows a 9 mm concretion in the lower calyx group on his left kidney which measures approx. 950 HU, as shown on the photo below. What treatment of the concretion do you refer the patient for?]



- A [Cystoscopy or ureterorenoscopy (URS) with a JJ stent]
[Wrong. No reason to use a stent when the obstruction in the calyx is non-obstructive.]
- B [Ureterorenoscopy (URS) using a laser]
[Wrong. Technically possible, but a difficult location and not the first choice.]
- C X [Breaking up the kidney stones by using ultrasound (extracorporeal shock wave lithotripsy = ESWL).]
[Correct. Good localisation for ESWL, which is also the least invasive method. The concretion is not obstructing the drainage of urine to the bladder.]
- D [Percutaneous nephrolithotripsy (PCNL)]
[Wrong. Available for PCNL, but this is the most invasive method and ESWL is tried first in such cases.]

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65

[In children MRI images change quite a lot during the first two years of life due to normal myelination. What is correct?

- A [The T1 signal in the white matter becomes lower and the T2 signal higher]
- B [Both the T1 and T2 signals in the white matter become lower]
- C X [The T1 signal in white matter is higher and the T2 signal is lower].
[The signal in the brains of newborn babies is the opposite of that for adults (i.e. T1: the cortex has a higher signal than the white matter, 2: the cortex has a lower signal than the white matter), but it normally takes on a normal "adult appearance" at the age of 2.]
- D [Both the T1 and T2 signals in the white matter become higher]

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66

[A 3-year-old boy is admitted as an acute emergency under dramatic circumstances due to acute loss of consciousness. He is still unconscious on arrival at the hospital. You take a CT scan of his head as quickly as possible and this shows a fresh hematoma in the cerebellum. What is the most likely cause?]

- A [Spontaneous primary brain haemorrhage]
- B [Hypertensive haemorrhage]
- C X [Underlying tumour or vascular malformation]
[Most frequent cause of brain haemorrhage in children]
- D [Coagulation disorder / haematological cause]

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67

You have sent a 15-year-old girl to an MRI of the head due to prolonged migraine. The result of the investigation says that the pituitary is slightly enlarged with some protrusion/bulging of the upper pituitary contour, height 9 millimeters.

What is the most likely explanation for this finding?

- A Lymphocytic hypophysitis
 - B "Rathke's Cleft" cyst
 - C X Physiological enlargement in puberty
Not an uncommon finding, and here this is more likely than an adenoma or lymphocytic hypophysitis. Rathke's cleft cyst would not give a protrusion superiorly of the pituitary, but would be a cyst in the middle parts of the pituitary.
 - D Pituitary adenoma
-

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68

[What constitutes the greatest risk for monochorionic diamniotic twins (MCDA) in utero?]

- A [The navel cords of the twins become intertwined]
[The twins each have their own amniotic sac so that there is normally no risk of the navel cords becoming intertwined.]
 - B [Not enough space for both twins]
 - C X [Twin-twin transfusion syndrome]
[In the case of a pregnancy with monochorionic diamniotic twins, there will be a risk of twin-twin transfusion syndrome (TTTS), which occurs as the result of connections between the blood circulatory systems of the two twins. TTTS can cause one of the twins to become anaemic and small and the other to become large and have too much blood. This condition can be fatal for one or both of the twins.]
 - D [Infection in one twin, which can spread to the other one]
-

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69

[Benign prostatic hyperplasia can cause urinary tract symptoms and occurs frequently in elderly men. What are common microscopic changes for this condition?]

- A X [Hyperplasia of glands, smooth musculature and fibrous tissue]
[Correct. In benign hyperplasia there is hyperplasia of both the glands and the stroma.]
 - B [Hyperplasia of stroma which displaces small atypical groups of gland tissue]
[Wrong. In benign prostatic hyperplasia there is hyperplasia of both the glands and stroma, and this is not atypical.]
 - C [Untidy arrangement of glands and small groups of epithelial cells]
[Wrong. This sounds more like an adenocarcinoma.]
 - D [Hyperplasia of glands surrounded by sparse stromal tissue]
[Wrong. In cases of benign prostatic hyperplasia there is hyperplasia of both the glands and the stroma.]
-

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70

[A 24-year-old man has a 5 cm tumour in the right half of his thyroid gland. It is removed surgically and molecular pathological examination of the tissue shows that he has a BRAF V600E gene mutation. What is the most likely diagnosis?]

A X [Papillary carcinoma]

[Correct answer. BRAF V600E gene mutations are associated with papillary carcinoma in the thyroid and occur in approx. 50% of cases. They are associated with a more aggressive progression of the disease.]

B [Subacute granulomatous thyroiditis]

[Wrong answer. Granulomatous thyroiditis is not associated with BRAF V600E gene mutations, but is often associated with a virus, especially upper respiratory tract viruses. It can be painful and the thyroid is slightly enlarged and tender during the acute phase.]

C [Hyperplasia (Graves' disease)]

[Wrong answer. With hyperplasia it is more common for the whole thyroid to be enlarged. BRAF V600E gene mutations are not seen in cases of hyperplasia.]

D [Lymphatic thyroiditis]

[Wrong answer. In lymphatic thyroiditis it is more common to have diffuse thyroid enlargement. BRAF V600E gene mutations are not seen in lymphatic thyroiditis.]

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71

[Seminomas are the most frequently occurring type of testicular cancer. At what age is this type of tumour most common?]

A [50-70 years]

B X [30-50 years]

[This is the age range in which seminomas are most common.]

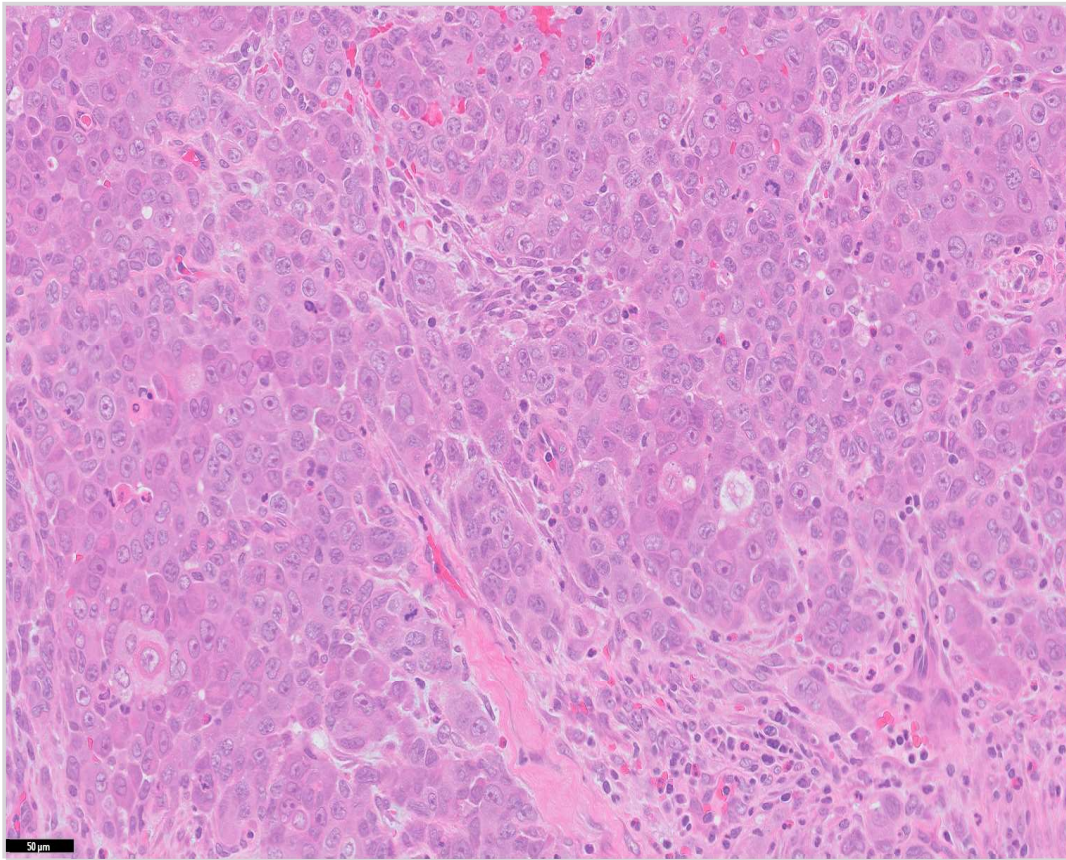
C [10-30 years]

D [Over 70 years]

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72

[A 55-year-old woman is examined due to microscopic hematuria. A cystoscopy shows changes in the mucus membrane and a transurethral bladder resection is performed. Below is a photo of the bladder wall (hematoxylin-eosin stained section).]



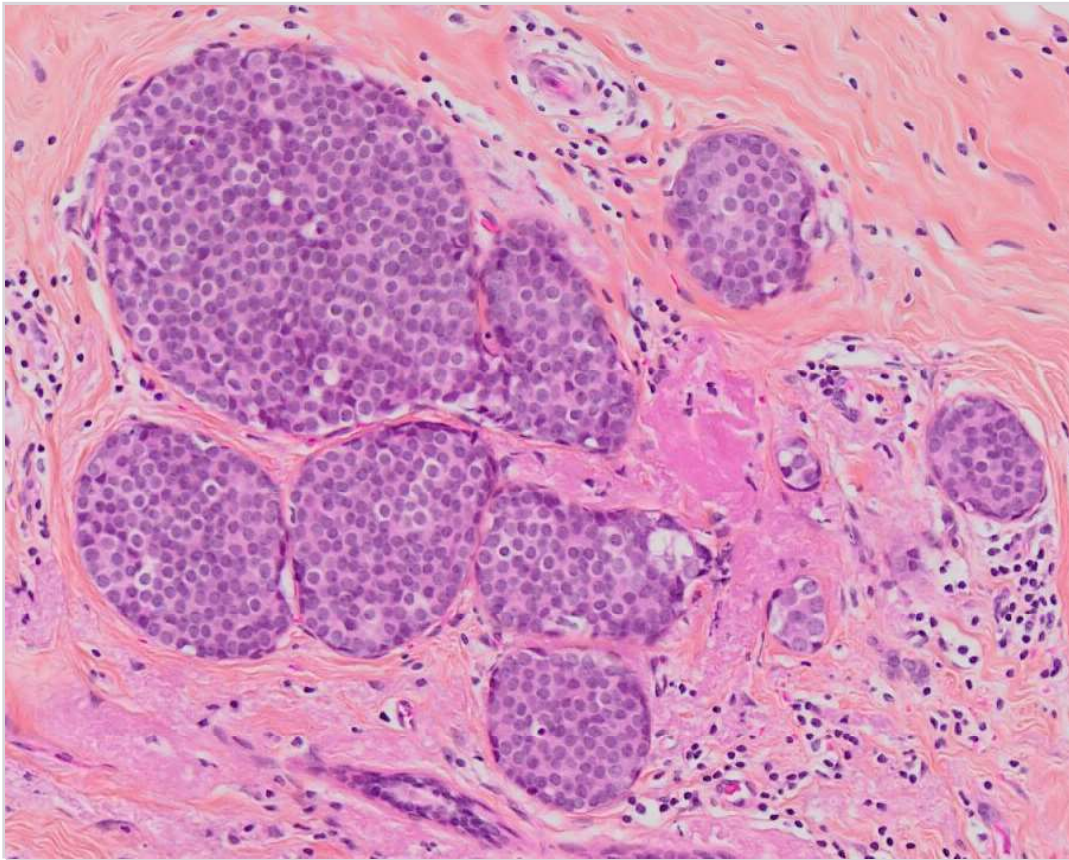
[What is the diagnosis?]

- A [Carcinoma in situ in the mucous membrane]
[Wrong. Here there is dense, clear infiltrative growth of atypical (urothelial) cells.]
- B [Reactive changes due to cystitis]
[Wrong. Here there is dense, clear infiltrative growth of atypical (urothelial) cells.]
- C [Granulomatous inflammation]
[Wrong. Here there is dense, clear infiltrative growth of atypical (urothelial) cells, no granulomatous inflammation.]
- D X [High-grade urothelial carcinoma]
[Correct. Here there is an absence of a normal mucus membrane and there is dense, clear infiltrative growth of groups and flakes of coarse atypical cells in the photo (which are specified as coming from the bladder wall). There are several mitoses in the photo.]

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73

[The photo shows a lobular carcinoma in situ (LCIS) in a histopathological section of a tumour in the breast of a 48-year-old woman (haematoxylin, eosin and saffron (HES); x 200]

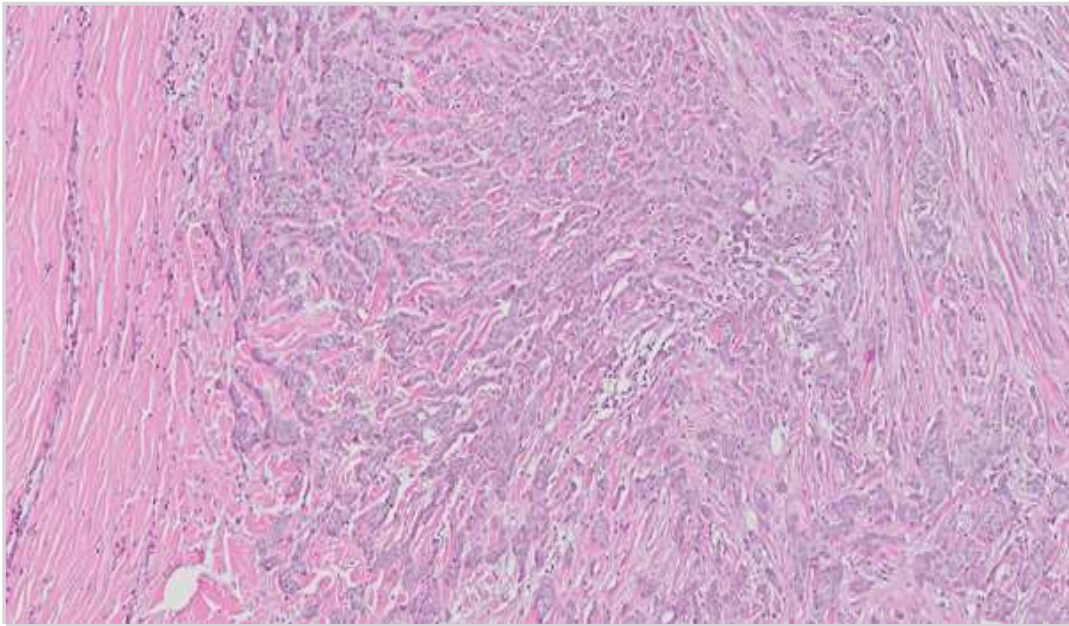


[What characteristics distinguish LCIS from an infiltrative lobular carcinoma?]

- A [LCIS has large areas of necrotic tumour cells.]
[Wrong answer. Large areas of necrosis are extremely rare in both LCIS and infiltrative lobular carcinoma.]
- B [In LCIS the ductal epithelium is hyperplastic, but shows no signs of malignancy.]
[Wrong answer. LCIS occurs in the ends of the glands. Lobular hyperplasia may occur, but in this case it is LCIS.]
- C [Unlike infiltrative lobular carcinoma, LCIS has cohesive sheets of epithelial cells that are expressly atypical and have extensive mitosis.]
[Wrong answer. We can find cohesive sheets of epithelial cells in an LCIS, but the atypical nature is usually not expressed and there is not much mitosis. With invasive lobular carcinoma we usually see rows of tumour cells rather than cohesive flakes.]
- D X [There is no penetration of the basal membrane in LCIS.]
[Correct answer. In situ means in its original place. In other words, even if the cells are atypical and are proliferating, they have not yet broken through the basal membrane and infiltrated the surrounding tissue.]

74

[A 55-year-old woman is being examined for a lesion which was detected during a mammography. A biopsy is taken before surgery. Below is a photo of the lesion (hematoxylin-eosin stained section)]



[What is the diagnosis?]

- A [Ductal carcinoma in situ (DCIS)]
[Wrong. The photo does not show an infiltrative epithelial tumour (carcinoma). DCIS is an in situ lesion, i.e. without any infiltration.]
- B [Lobular carcinoma in situ (LCIS)]
[Wrong. The photo shows an infiltrative epithelial tumour (carcinoma). LCIS is an in situ lesion, i.e. without any infiltration.]
- C [Fibroadenoma]
[Wrong. Fibroadenomas are benign biphasic tumours, with proliferation of both stromal and epithelial cells. The photo shows an infiltrative epithelial tumour (carcinoma).]
- D X [Invasive carcinoma NOS (no special type)]
[Correct answer The photo shows an infiltrative epithelial tumour (carcinoma).]

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75

[You are a GP and a woman visits you due to genital itching. In her medical records you read that she has been treated for fungal infections on several occasions with no improvement. Upon clinical examination you see white plaques on the skin of her vulva and as part of the examination a biopsy is taken from one of these lesions. Here is an extract from the microscopic description.

There is hyperkeratosis and basal degeneration of the epidermis, no atypia. There is lymphocyte infiltration in the superficial dermis and areas with oedema and hyalinised connective tissue.

What is the most likely diagnosis?

- A X [Lichen sclerosus]
[Typical histological photo of lichen sclerosus. Lymphocyte infiltration could be band-like.]
- B [Low-grade squamous intraepithelial lesion]
[Based degeneration is not a sign of intraepithelial lesions in flat epithelium cells.]
- C [Virus infection]
[Wrong. No typical virus changes in the epithelium have been described.]
- D [Bacterial infection]
[Wrong. No findings of bacterial colonies have been described.]

00001639887headbad

76

[You perform a microscopic examination of an ovary with several cysts.

How can you distinguish between endometriosal cysts and cystadenomas?]

- A X [In endometriosal cysts there is endometrial stroma around the cysts]
[Endometriosis is characterised by glands surrounded by endometrial stroma, while cystadenomas are not surrounded by a border of endometrial stroma.]
- B [Cystadenomas have a mucinous lining and show atypia in the epithelium]
[Wrong. Cystadenomas do not necessarily have a mucinous epithelium. Atypical cystadenomas are called borderline adenomas.]
- C [Cystadenomas have concentric smooth musculature around the epithelium]
[Wrong. There is no smooth muscular component in cystadenomas]
- D [In endometriosal cysts there is more proliferative epithelium than in cystadenomas]
[Wrong. Endometriosal foci can go through cyclic changes and do not need to be proliferative.]

00001639887test1bad

77

[A 68-year-old woman is diagnosed with an enterococcus faecium infection of the urinary tract.

Resistance testing shows that the bacterium is resistant to 3rd generation cephalosporins.]

[What resistance mechanism is this most consistent with?]

- A X [Changes in antibiotic binding sites]
[Enterococci are naturally resistant to 3rd generation cephalosporins because their penicillin-binding proteins (PBPs) have a low affinity for cephalosporins. The resistance mechanism which best accords with this is "changed binding site for antibiotics".]
- B [Enzymatic inactivation or modification of antibiotics]
- C [Changes in metabolic processes which are inhibited by antibiotics]
- D [Reduced uptake of antibiotics]

00001639887test1bad

78

[A 43-year-old man who has recently returned home from Kenya visits A&E with a high temperature. He suspects that he has malaria. You requisition thick and thin blood smears for a malaria microscopy examination.]

[What are the advantages and disadvantages of examining thick drop smears compared to thin drop smears.]

- A [Lower sensitivity, but more suitable for assessing parasitemia density]
- B [Higher specificity, but less suitable for identifying plasmodium malariae]
- C [Lower specificity, but more suitable for identifying plasmodium falciparum]
- D X [Higher sensitivity, but less suitable for assessing parasite morphology]
[Thick drop smears are prepared because this gives several erythrocytes per area (even if there is lysis of the erythrocytes, and cannot therefore be seen), in order to increase the sensitivity for identifying malaria parasites. What is lost is the fact that it is hard to assess the parasites' morphology. Consequently one loses much of the opportunity to classify which species of falciparum is present. Thin drop smears are much more suitable for quantification of paracitemia (percentage of entthrocytes that are infected)]

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79

A bagged urine specimen is taken from a 5-month old girl with fever, but no obvious infection sites. This shows the growth of *Escherichia coli* $>10^5$ CFU/ml.
[How should this finding be interpreted?]

A X [Uncertain clinical significance because bagged specimens usually only have value in negative findings]

[Bagged specimens often result in contamination of urine samples with the skin flora from the perineum, which means that it is hard to interpret the bacterial findings. If there is growth of just one or two types of bacteria, i.e. high concentrations of primary or secondary urinary tract pathogens, this will be reported to the clinician, but always with the following comment: "The bacterial findings in the bagged specimen need to be interpreted with caution. This method normally only has value in negative findings".]

B [Clinically significant bacteriuria because this is a primary urinary tract pathogen]

C [Clinically significant bacteriuria because the concentration of bacteria is $>10^5$ CFU/ml]

D [Possible contamination when sampling because it is from a bagged specimen]

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80

[You requisition a urine culture for a 67-year old woman who visits the doctor's surgery because you believe that she has a lower urinary infection. You commence empirical treatment while you wait for the results of the urine culture.]

[What antimicrobial prescription should you select?]

A [Gentamicin]

B [Cefotaxime]

C [Ciprofloxacin]

D X [Nitrofurantoin]

*[Nitrofurantoin is effective for uncomplicated lower urinary tract infections and when there is a low incidence of resistance against this drug. However, it is only recommended for UTIs caused by *E. coli*, but it is obviously a dominating cause of UTIs. Cefotaxime (3rd generation cephalosporin) and gentamicin (an aminoglycoside) are only available as injections and are therefore not suitable for use outside health institutions. Ciprofloxacin is not recommended as a first-time drug for lower urinary tract infections since it can produce strong resistance.]*

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81

What parameters are the best for the clinical evaluation of the severity of illness in a sepsis patient in the accident and emergency department (A&E)?

A Positive blood culture, heart rate, blood pressure

B CRP, urine production, coagulation status

C Temperature, heart rate, respiratory rate, leukocytosis (SIRS criteria)

D X Respiratory rate, changes in mental status and blood pressure (quick SOFA)

[A quick SOFA score is the best way of assessing the severity of sepsis. A SIRS examination detects patients with sepsis, but these criteria are not good for predicting the development of serious illnesses.]

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82

An 80-year-old man is admitted to hospital with blood pressure 85/50, pulse 120 and a temperature (39 degrees celcius). A urine dipstick test shows leukocytes 3+. He has previously had urinary tract stones on several occasions and you therefore carry out an ultrasound scan of his urinary tract. This shows considerable hydronephrosis in his right renal pelvis. You are the on-duty-physician at the hospital.

What is the most correct thing to do for this patient?

- A Give the patient intravenous mecillinam and refer him for the insertion of a nephrostomy tube
 - B X Give the patient intravenous ampicillin and gentamicin and refer him for the insertion of a nephrostomy tube
(This patient has urosepsis which should be empirically treated with intravenous ampicillin and gentamicin. A nephrostomy tube should be inserted as quickly as possible in order to relieve the hydronephrosis.)
 - C Give the patient intravenous mecillinam and refer him for an Extracorporeal Shock Wave Lithotripsy (ESWL)
 - D Give the patient intravenous ampicillin and gentamicin and refer him for Extracorporeal Shock Wave Lithotripsy (ESWL)
-

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83

A woman in the first trimester of her pregnancy visits your doctor's surgery with mild signs of a urinary tract infection. A urine culture shows considerable growth of E. coli. You decide to start treating her with antibiotics.

What treatment regime is most correct?

- A Ciprofloxacin (Ciproxin) for 3 days
Wrong, since this is contraindicated for pregnant women. Also, pregnant women should be treated for 5-10 days.
- B Cefuroxime (Zinacef) for 3 days
Wrong, because a treatment time of 3 days is too short. This drug could have been used.
- C Trimethoprim (Trimethoprim) for 5-10 days
Wrong, because this drug should not be used during the first trimester.
- D X Pivmecillinam (Selexid) for 5-10 days

[Correct, because Selexid provides good coverage and is safe for pregnant women. The time specified is also correct.]

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84

On duty in the Medical Department, you see a young man who has been a backpacker in rural India. He now has a situation with high fever, headache and his general state of health is poor. He has taken malaria prophylactic medication. He has been drinking tap water in several primitive places offering accommodation for tourists. He has not noticed any insect bites.

Which investigation and treatment regimens are the most correct for you to commence on the same day?

- A X Take blood samples for culturing and start treatment with antibiotics for suspected typhoid fever
Blood cultures are used for diagnosing typhoid fever. Typhoid fever is a fatal disease and, if suspected, the patient must be started on antibiotics (ciprofloxacin or ceftriaxone) before you get the results from culture.
 - B Take fecal samples for culturing of pathogenic intestinal bacteria and wait for the results before administering antibiotics because you suspect gastroenteritis
 - C Take a rapid malaria test and start treatment with i.v. artesunate if positive
 - D Take bone marrow aspirate samples for culturing and wait for the results before starting antibiotics for suspected rickettsial infection.
-

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85

A young man has been traveling abroad and has had unprotected sex with a prostitute four weeks ago. He wants an HIV test and also wants to know that if he is infected, how long would it take for the test to turn out positive.

What information do you rather give the patient about the HIV test (Combo test)?

- A X Positive test results are usually obtained within 3-4 weeks and almost always within 6 weeks
The combo test combines the detection of the HIV p24-antigen and HIV antibodies; positive results are usually obtained within 3-4 weeks and are only positive after 6 weeks in exceptional cases
 - B Positive test results are obtained within 1 week and almost always within 3 weeks
 - C Positive test results are only obtained after 3 months
 - D Positive test results are always obtained during the first 2 weeks
-

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86

Patients with lymphoma and chronic inflammatory disease often take rituximab (anti-CD20 antibodies). Which immune system defect in particular do we see in these patients?

- A X Low plasma levels of immunoglobulins (particularly IgG)
Rituximab removes CD20-positive B-cells and could result in low IgG levels
 - B Reduced number of CD4 lymphocytes
 - C Decreased complement functionality with low plasma levels of C3 and C4
 - D Neutropenia
-

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87

Many sepsis patients have reduced renal perfusion and reduced urine output (oliguria). What is the lower limit set for urine output before we refer to it as oliguria?

- A 5 ml/kg/h
 - B 100 ml/h
 - C 200 ml/h
 - D X 0.5 ml/kg/h
[We set the limit for oliguria at 0.5 ml/kg/h, even though we would try to achieve over 1 ml/kg/h with a liquid infusion]
-

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88

[Non-steroidal anti-inflammatory drugs increase the risk of both nephrotoxic and cardiotoxic effects. What characterises the increased risk of such effects that are created by NSAIDs?]

- A X [The risk of both nephrotoxic and cardiotoxic effects occurs quickly. The increased risk is fully reversible upon discontinuation.]
[The risk of nephrotoxic effects is caused by reduced renal blood flow and filtration pressure as a result of reduced prostaglandin-mediated dilation of the afferent arterioles. These are rapidly occurring, fully reversible effects.]
The risk of cardiotoxic effects consists of increased blood pressure, an increased tendency for heart failure and and thrombosis (the latter varies somewhat between the various NSAIDs, with the most COX-2 selective ones creating the highest risks). Hypertension and heart failure are linked to vasoconstriction and liquid/salt retention, which in turn is a consequence of reduced prostaglandin synthesis with reduced GFR and activation of the RAAS system. Prothrombotic effects are caused by the reduced production of prostacyclin which has vasodilation properties and contributes towards maintaining normal endothelial function. All these effects occur rapidly and are fully reversible.
The question applies to the increased risk and the extent to which this occurs rapidly/is reversible, or occurs over time and is more permanent. If a rapid increase results in a cardiovascular event and triggers an episode of acute renal failure, then there would obviously be irreversible consequences. But this is not actually the question.]
- B [The risk of nephrotoxic effects occurs quickly and is fully reversible upon discontinuation. The risk of cardiotoxic effects only first starts to increase after long-term treatment and is not fully reversible upon discontinuation.]
- C [The risk of both nephrotoxic and cardiotoxic effects only first starts to increase after long-term treatment. The increased risks are not fully reversible upon discontinuation.]
- D [The risk of cardiotoxic effects occurs quickly and is fully reversible upon discontinuation. The risk of nephrotoxic effects only first starts to increase after long-term treatment and is not fully reversible upon discontinuation.]
-

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89

[Some drugs can damage or inhibit the kidneys when used. Which group of antibiotics is particularly associated with this?]

- A [Macrolides]
- B X [Aminoglycosides]
[Aminoglycosides are a group of antibiotics that most often causes acute tubular necrosis. Kidney damage is observed in 10-20% of users and this applies in particular to neomycin and gentamicin.]
- C [Carbapenems]
- D [Penicillins]
-

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90

[Metoprolol is a beta blocker with a significant first-pass effect. What consequences does this have when switching from peroral to parenteral treatment?]

- A [The drug must be administered as a continuous infusion]
- B X [The dose must be reduced]
[The bioavailability of metoprolol is approx. 50% due to its high first-pass metabolism. The dose must therefore be cut by around 50% when switching to intravenous treatment (since the bioavailability is then 100%).]
- C [The dose must be increased]
- D [The drug must be administered in a central venous catheter]
-

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91

[A patient with high blood pressure and slightly reduced renal function is treated with an ACE inhibitor. What effects would you expect to see on the patient's serum creatinine levels and glomerular filtration rate (GFR)?]

- A [Serum creatinine levels unchanged or slightly elevated, GFR unchanged or slightly elevated]
- B [Serum creatinine levels unchanged or slightly reduced, GFR unchanged or slightly reduced]
- C [Serum creatinine levels unchanged or slightly reduced, GFR unchanged or slightly elevated]
- D X [Serum creatinine levels unchanged or slightly elevated, GFR unchanged or slightly reduced]
[Treatment with ACE inhibitors would cause dilation in the efferent arterioles. This would reduce the glomerular filtration pressure. This is counteracted by prostaglandin-mediated dilation of the afferent arterioles and the net effect would be an unchanged or slightly reduced GFR.]

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92

[Angiotensin receptor antagonists are often used for treating hypertension and heart failure. Which of the following comorbidities warrants extra careful follow-up of the patient after starting an angiotensin receptor antagonist?]

- A X [Chronic kidney disease]
[Patients with chronic kidney disease often have a tendency to get hyperkalemia. Angiotensin receptor antagonists have potassium-sparing effects of their own and care should therefore be taken in order to ensure that these patients do not develop manifest hyperkalemia.]
- B [Previous syncope upon treatment with glycerol trinitrate (nitroglycerine)]
- C [Aortic valve insufficiency]
- D [Intermittent claudication]

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93

[A 60-year-old man is taking the following medication: atorvastatin (a statin), enalapril (an ACE inhibitor), acetylsalicylic acid (a platelet inhibitor) and omeprazole (a proton pump inhibitor). The patient develops muscle aches. Which of the patient's drugs typically produces this side effect?]

- A X [Atorvastatin]
L8.15.1 Statins | Legemiddelhandboka (legemiddelhandboka.no)
- B [Acetylsalicylic acid]
- C [Enalapril]
- D [Omeprazole]

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94

[What is the most important mechanism of action of alendronate (a bisphosphonate drug)?]

- A [Increase in the absorption of calcium from the gut]
- B [Reduction in the absorption of magnesium and phosphate from the gut]
- C [Stimulation of osteoblast activity]
- D X [Inhibition of osteoclast activity]
L17.7 Bisphosphonates | Legemiddelhandboka (legemiddelhandboka.no) 1 (legemiddelsok.no)

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95

[Why should pregnant women avoid ibuprofen (Ibux) during the last trimester of pregnancy?]

- A [Because of the increased risk of withdrawal symptoms and irritability in the newborn]
- B [Because of the increased risk of heart failure and a cleft palate in the fetus]
- C X [Because of the increased risk of early closure of the ductus arteriosus and reduced kidney function in the fetus]
<https://janusinfo.se/beslutsstod/janusmedfosterpaverkan/databas/ibuprofensystemiskt.4.4bc1be9b166e94c89705fd3d.html>
- D [Because of the increased risk of hypotonia and nutritional problems in the newborn]

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96

You are the GP for a man in his 60s who 2 weeks ago made an appointment and wanted a "health check". He had noticed that he got tired more quickly and had pain in his legs when out walking, otherwise he felt healthy. He takes no medicines and has no known allergies. He smokes 15 cigarettes a day, as he has done for the last 35 years.

Standard physical clinical examination revealed no pathological findings. Blood pressure was measured at 168/107, and ankle-arm index at 0.7. ECG revealed left ventricular hypertrophy, evaluated using the Sokolow-Lyon criteria. Urine dipstick showed proteinuria 2+. You gave the patient detailed lifestyle advice.

Blood pressure was re-measured 3 days later at 166/108. At today's consultation you measure his blood pressure again and find 172/109. You also have the results of the blood tests you ordered. You decide that the patient's blood pressure should be treated.

Analysis	Value	Reference range
Na	142 mmol/L	137 – 145 mmol/L
K	3.4 mmol/L	3.3 – 4.4 mmol/L
Hb	15.2 g/dl	13.2 – 17.3 g/dl
pro-BNP	5 pmol/L	<15 pmol/L
Fasting p-glucose	6.4	4.2 – 6.3 mmol/L
HbA1c	46 mmol/mol (6.4%)	28 – 40 mmol/mol (4.7 – 5.8%)
Uric acid	510 micromol/L	230 – 480 micromol/L
Triglycerides	2.50 mmol/L	0.45 - 2.60 mmol/L
LDL	6.2 mmol/L	2.0 – 5.3 mmol/L
HDL	0.7 mmol/L	0.8 – 2.1 mmol/L
Total cholesterol	6.9 mmol/L	3.9 – 7.8 mmol/L
eGFR	85 ml/min	>90 ml/min

Which antihypertensive drugs are the most appropriate for this patient?

A Calcium antagonist and thiazide

Thiazides are often beneficial in older people, because they often have a salt-sensitive hypertension. However, this patient has high levels of uric acid, and uric acid excretion will drop when using thiazides. This will confer a risk of painful gout which constitutes unnecessary suffering for him, and will increase the chances of future non-compliance in regard to his medication. Other factors that can be taken into account are a low potassium level, HbA1c just on the limit for diabetes and an unfavourable lipid profile. Overall, thiazides should therefore be avoided in this patient.

<http://legemiddelhandboka.no/Generelle/60904>

B ACE inhibitor and beta-blocker

Beta-blockers will probably exacerbate the patient's claudication as these drugs cause peripheral vasoconstriction. Moreover, our patient will be exposed to other side effects of beta-blockers including erectile dysfunction and the unfavourable metabolic effects on glucose and lipid metabolism. If the patient had had heart failure, the situation would have been different, but with such low proBNP values together with his clinical status, cardiac failure is highly improbable.

<http://legemiddelhandboka.no/Legemidler/61515/?ids=61516#i61516>

C X ACE inhibitor and calcium antagonist

ACE inhibitors are beneficial in reducing the patient's proteinuria, and would therefore have a renal protective effect. ACE inhibitors are also beneficial in reducing pathologic remodelling of the myocardium, a process which according to the ECG is already underway. The calcium antagonist will be beneficial in reducing the symptoms of the patient's Intermittent claudication. This will increase his quality of life and make it easier to continue with an active, healthy lifestyle.

<http://legemiddelhandboka.no/Legemidler/63166/?ids=63169#i63169>

<http://legemiddelhandboka.no/Legemidler/62503/?ids=62504#i62504>

D ACE inhibitor and thiazide

Thiazide is incorrect, see previous answer.

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97

[In the American "Women's Health Initiative" study of post-menopausal oestrogen therapy, the women were treated with CEE (conjugated equine oestrogen; the dominant oestrogen drug on the American market at the time) and with medroxyprogesterone acetate. The progestogen component in such "balanced oestrogen therapy" is important to prevent the treatment from increasing the frequency of uterine cancer.

However, balanced therapy increases the risk of another type of cancer. Which one?]

- A [Ovarian cancer]
 - B [Colon cancer]
 - C [Vaginal cancer]
 - D X [Breast cancer]
- [Correct answer]*

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98

[You are called to an 85-year old woman who lives at home alone, but receives help from the municipal home care service. She has type 2 diabetes, hypertension and hypercholesterolaemia and is being treated with the following drugs:

Metformin (a biguanide derivative, for diabetes)

Empagliflozin (a sodium/glucose co-transporter 2 inhibitor (SGLT2 inhibitor), for diabetes)

Valsartan (an angiotensin II receptor antagonist, for high blood pressure)

Atorvastatin (a statin, for elevated cholesterol levels)

She has gradually become weaker, is not eating or drinking much and also has diarrhoea. You find the patient to be very dehydrated.

Which of the patient's drugs should be discontinued?]

- A [Metformin and valsartan]
- B [Empagliflozin and metformin]
- C [Empagliflozin and valsartan]
- D X [Empagliflozin, metformin and valsartan]

[The patient is dehydrated and it is likely that she has considerably reduced kidney function as a result of this. Empagliflozin is a diuretic and can reinforce dehydration. Metformin is contraindicated for considerably reduced kidney function due to the risk of lactic acidosis. Valsartan should be discontinued when the patient is dehydrated since this drug would further worsen her kidney function and result in a manifest kidney failure.]

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99

[What is the main reason why combining phosphodiesterase 5 inhibitors, e.g. sildenafil (viagra), with organic nitrates, e.g. glycerol trinitrate, is a bad idea?]

- A [Glycerol trinitrate inhibits the metabolism of sildenafil and gives elevated levels of sildenafil with the risk of priapism and a drop in blood pressure]
 - B X [This combination increases the blood pressure lowering effect and increases the risk of a drop in blood pressure]
- In accordance with the known effects of nitrogen oxide/(cGMP response (see item 5.1), sildenafil reinforces the hypotensive effects of nitrates, and simultaneous treatment with nitrogen oxide donors or any form of nitrates is therefore contraindicated (see item 4.3). <https://www.felleskatalogen.no/medisin/viagra-pfizer-565179>*
- C [This combination reduces the blood pressure lowering effect and increases the risk of angina pectoris]
 - D [Sildenafil induces the metabolism of glycerol trinitrates and gives low serum concentrations of glycerol trinitrates with a risk of therapy failure]

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100

A 67-year old woman contacts you because she has been suffering from long-term itching and stinging sensations in her vulvar area. Upon examination it looks like the one on the photo below.

What is the most correct action to take next?



- A Prescribe local treatment with steroids for lichen sclerosus
- B Recommend Klotrimazol (e.g., Canesten) as a topical treatment for candida
- C Prescribe Imikvimod (e.g. Aldara) for condyloma
- D X Refer her to a gynecologist for a biopsy
This finding could be lichen sclerosus, but dysplasia or a transition to cancer of the vulva cannot be excluded. A biopsy needs to be taken.

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101

The program CervicalScreen Norway involves screening the cervix in order to prevent cervical cancer. What are the current recommendations from the Cancer Registry of Norway?

- A Cervical cytology every third year for the age group 25 to 69 years
- B Cervical cytology every third year for the age group 25 to 69 years, and additional HPV test if abnormal cytology
- C X Cervical cytology every third year for the age group 25 to 33 years, and primary HPV test every fifth year for the age group 34 to 69 years
Current guidelines freestablished in 2018
- D Primary HPV test every fifth year for the age group 25 to 69 years

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102

A 35-year old woman who has a family history of breast and ovarian cancer comes to your GP surgery.

- her mother had breast cancer at 48 years of age
- her maternal grandmother had ovarian cancer at 55 years of age
- a cousin (daughter of her mother's sister) had breast cancer at 37 years of age

What advice do you give the woman?

- A Annual check by the GP with cervical cytology.
 - B Prophylactic surgery (salpingo-oophorectomy + mastectomy) as soon as possible.
This is generally not recommended until gene testing has been performed.
 - C X Refer the woman for genetic counselling and gene testing.
If she tests negative for BRCA1+2, prophylactic surgery is most probably not necessary.
 - D Annual mammography and gynaecological examination by a gynaecologist.
Screening has not been shown to be useful in early detection of ovarian cancer.
-

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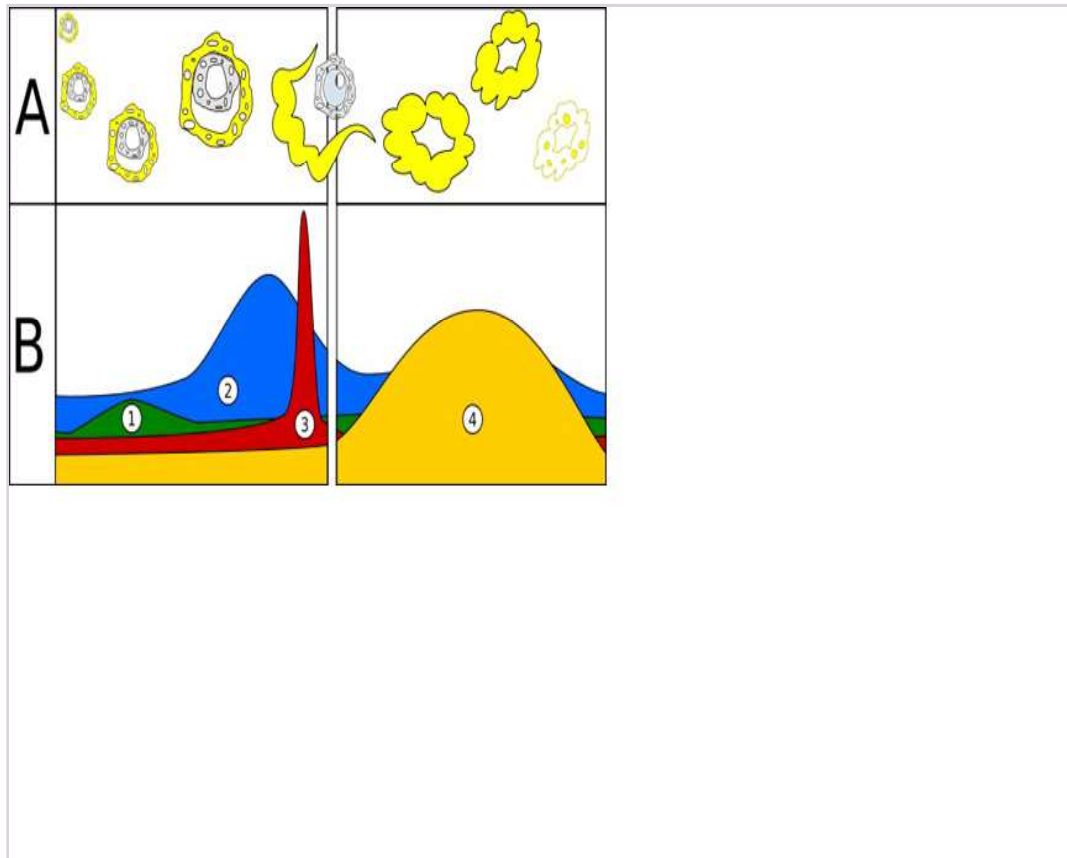
103

What is the most correct approach towards unpleasant-smelling discharge in general practice?

- A If the patient complains of unpleasant-smelling discharge, a vaginal culture test should be ordered with queries about sexually transmitted infection and treatment should be delayed until the results have been received
(Cultures are not used for diagnosing bacterial vaginosis)
 - B If the patient complains of unpleasant-smelling discharge, and low-pH vaginal secretions are measured, and the whiff test is positive, she should be given a prescription for metronidazole or clindamycin
(The pH must be high in order to make a diagnosis of bacterial vaginosis)
 - C X If the patient complains of unpleasant-smelling discharge, which cannot be confirmed using a whiff test, the patient should be told that everything appears to be normal during today's examination
(The Amsel criteria, including a KOH test, must be used.)
 - D If the patient complains of a fishy-smelling discharge that is worse after menstruation or intercourse, a prescription should be written for metronidazole or clindamycin
(The Amsel criteria must be used for diagnosing bacterial vaginosis)
-

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104



The picture above shows the menstrual cycle in women.

Which hormone represents the curve that is 1 (green), 2 (blue), 3 (red) and 4 (yellow) ?

- A** 1 (green) is FSH, 2 (blue) is oestradiol, 3 (red) is hCG (human chorionic gonadotropin) and 4 (yellow) is progesterone.
Incorrect answer. hCG is the pregnancy hormone and is produced in a persistent corpus luteum in pregnant women. But it is correct that hCG given to women mid-cycle, for example during IVF can also ovulate (similarly to LH)
- B X** 1 (green) is FSH, 2 (blue) is oestradiol, 3 (red) is LH and 4 (yellow) is progesterone.
FSH increase early in the follicular phase selects and ripens the egg; at the same time oestradiol increases. Mid-cycle an LH peak will cause ovulation. In the luteal phase the corpus luteum produces progesterone.
- C** 1 (green) is AMH, 2 (blue) is oestradiol, 3 (red) is LH and 4 (yellow) is progesterone.
Incorret answer. AMH (anti-Mullerian hormone) is formed in the granulosa cells of the preantral and antral follicles, i.e. before these enter the menstruation cycle. As far as we know today, there is no known cyclic variation in AMH.
- D** 1 (green) is FSH, 2 (blue) is progesterone, 3 (red) is LH and 4 (yellow) is oestradiol.
Incorrect answer. Progesterone increases only during the luteal phase, i.e. after ovulation and formation of the yellow body (corpus luteum)

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105

A 22-year-old woman visits you at the General Practitioner's (GP's) office on an island which is a 3-hour drive from the hospital. She claims to have amenorrhoea for 8 weeks and a vaginal bleeding for two days. She is not suffering from any particular pain. You take a urine HCG test and the result is positive.

What should you rather do as a GP?

- A You start infusion of 1 litre of intravenous Ringer's solution, after having taken her blood pressure and pulse and called in the air ambulance in order to send the patient directly to hospital because you cannot exclude an ectopic pregnancy.
[Because she has no pain it is not impossible, but highly unlikely, that she has an EXU. It is wrong to waste resources by calling an air ambulance in this situation.]
- B X You perform an inspection of the vagina and cervix. If you do not find any signs of pathology, you ask the patient to contact you again in a few days' time if she is still bleeding, or if she starts to feel any pain.
[It is important to exclude local changes in the vagina or cervix - they are not very frequent, but could be serious, e.g. cervical cancer. If the bleeding stops after a few days, it is safe to wait until the routine ultrasound scan is carried out, provided that the patient is well informed about the potential signs of danger such as increased abdominal pain.]
- C You send a referral to the Gynecology Department for a vaginal ultrasound scan in order to determine the location and vitality of the pregnancy. The gynecologist will then perform an inspection of the cervix.
[Bleeding during the early stages of pregnancy is very common and it is also wrong to waste resources on having a patient at this stage assessed by the specialist health services. The GP can perform an examination of the cervix.]
-

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106

A 29-year-old woman delivered her 3rd child a few days ago. After lifting her 3-year-old son, she suddenly felt a big lump coming out of her vagina, and she immediately contacted her doctor. The doctor examines her and finds a large uterine prolapse, and replaces the prolapsed uterus.

What is the main further treatment option?

- A Surgical correction of the prolapse as an emergency procedure.
Incorrect answer. The prolapse can spontaneously improve greatly during the first months after child birth and may not necessarily need surgical correction.
- B Intensified pelvic floor muscle exercise after instruction from a physiotherapist.
Partially correct, but hardly adequate for a large prolapse which protrudes through the vaginal opening.
- C X Treatment with a vaginal ring pessary and local oestrogens.
Correct answer. She should get conservative treatment with a vaginal ring pessary for as long as possible, at least until she has finished breastfeeding and has regained menstruation. She can use local oestrogens while breastfeeding.
- D Bed rest for a minimum of 4 weeks and Klexane (Enoksaparin) to prevent thrombosis.
Incorrect answer. It is unfavourable both physically (risk of thrombosis, muscle atrophy) and psychologically with prolonged bed rest right after child birth.
-

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107

A 25-year-old woman comes to see you as her general practitioner due to very frequent urination, urgency. U-stix is negative.

What is the most appropriate first-line treatment?

- A X Bladder training
This is the best option for first-line treatment because it often has sufficient effect alone and has no side effects.
- B Electrostimulation
Preferably used as a supplement as it requires well motivated patients, is time consuming and has poor results over time.
- C Tension-free vaginal tape (TVT) surgery
The indication for TVT surgery is stress incontinence, not urgency alone.
- D Anticholinergic agent
The patient does not have incontinence, and an anticholinergic agent is therefore not indicated. It will not be refunded and has potential side effects.
-

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108

What is the most common histological type of endometrial cancer?

- A Clear-cell
 - B Serous
 - C X Endometrioid
Definitely the most common type
 - D Mucinous
-

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109

You are working as a GP. A 22-year-old woman visits you. She is troubled by bleeding which lasts for 4-7 days at 14-35 day intervals. She is active, her BMI is 23, she uses ventolin for asthma when required and suffers from migraines with an aura. She lives with her partner and they want to have children in 2-3 years' time. She has been taking the mini pill up until now. What is the most appropriate recommendation for her?

- A Contraceptive implant
[It would probably not improve her bleeding problems. The most common problem with contraceptive implants is frequent bleeding.]
 - B X Hormone coil
[This is the best choice. Either the smaller one which is easier to insert, but does not control bleeding as well. Or the "ordinary" one which is indicated when there are bleeding problems, but which is slightly more painful to insert. Both work for 3-5 years, but can be removed at any time.]
 - C Combined oral contraceptives
[This is contraindicated due her migraines with aura]
 - D Contraceptive injection (Medroxyprogesterone / Depo-Provera)
[It is often effective for treating bleeding, but it can remain in the body for a long time and could cause problems in connection with planning a child.]
-

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110

Amenorrhoea which occurs naturally in connection with the menopause can be best classified as

- A Hypogonadotropic hypergonadism
[Such an amenorrhoeic condition can be seen in PCOS where there are high levels of oestrogen (hypergonadism), which gives negative feedback to the pituitary and reduced levels of FSH (hypogonadotropism)]
 - B Hypergonadotropic hypergonadism
 - C X Hypergonadotropic hypogonadism
[Yes, FSH levels rise (hypergonadotropic condition) and oestrogen levels fall as a result of a lack of follicle development in the ovaries (hypogonadism), i.e. lack of negative feedback.]
 - D Hypogonadotropic hypogonadism
[In such cases stress or other mental processes, e.g. being underweight, can affect the hypothalamus/pituitary, causing a drop in FSH levels (hypogonadotropic) and in response to such a reduced response from the ovaries (hypogonadism)]
-

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111

Which result on urine dipstick is most likely a normal finding during routine pregnancy check-ups?

- A Blood
 - B Protein
 - C X Leukocytes
Urinary leukocytes are a common finding. Often comes from contamination from the vagina.
 - D Glucose
-

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112

Twins can either be monozygotic or dizygotic. Which statement regarding zygosity and the number of placentas is the correct?

- A All monozygotic twins have their own placenta
 - B All dizygotic twins have a common placenta
 - C X All dizygotic twins have their own placenta
[All dizygotic twins have their own placenta. One third of all monozygotic twins, those which divide earliest, have their own placenta and the remainder (two thirds) have a common placenta. It is not possible for dizygotic twins to have a common placenta.]
 - D All monozygotic twins have a common placenta
-

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113

Correct dating in pregnancy is important for determining the correct due date. Which measurement of the fetus is used during the second trimester for dating a pregnancy?

- A Crown rump length (CRL)
 - B Humerus length (HL)
 - C X Biparietal diameter (BPD)
During the second trimester BPD is used for dating the pregnancy and thus determining the due date. CRL is used during the first trimester. MAD is used for measuring the weight at the end of the second and third trimesters. Humerus length is measured in cases of suspicion about any skeletal system abnormalities and is not used for dating purposes.
 - D Mean abdominal diameter (MAD)
-

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114

Which statement regarding caesarian section is the most correct?

- A X Foetal distress and prolonged labour are the most common causes of caesareans in Norway.
These are the most common causes of caesarean in Norway, more common than on maternal request
 - B Cesarean section on maternal request is the most common cause of caesareans in Norway.
 - C Due to the low number of deliveries per women in Norway, a caesarean is both more cost effective and involve less risk to the mother and child compared to a vaginal birth.
 - D Repeat caesarean section are the most common cause of caesareans in Norway.
-

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115

A 26-year-old woman who is pregnant for the first time has come to the hospital during week 39+5 of her pregnancy with contractions every 3rd to 5th minutes. Her BP is 120/70, pulse 80 and the fetus's heart beat is 145. There is a head presentation and there is no rupture of the membranes. Upon admittance her cervix was 4 cm dilated and after 2 hours at the hospital her cervix is 7 cm dilated. What is the next step?

- A Start her on oxytocin in order to increase the strength and frequency of her contractions.
 - B Perform an amniotomy in order to increase the strength and frequency of her contractions.
 - C X Continue with active observation of a normal birth.
The question describes an apparently normal birth with the expected progression
 - D Perform an amniotomy in order to be able to monitor the fetus by using STAN (ST-ANalysis of the CTG).
-

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116

What is the pCO₂ in the arterial blood of a pregnant woman when compared to that of a non-pregnant woman?

- A The same
- B Much higher
- C X Lower

The pCO₂ is lower because the woman is hyperventilating so that the gas exchange in the placenta becomes easier (CO₂ is more easily transported from the blood of the fetus to the mother's blood)

- D Higher

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117

What are the recommended postpartum follow-up measures for a woman who has had gestational diabetes?

- A No follow-up measures are required unless she becomes pregnant again and then a glucose tolerance test should be carried out during the first trimester
- B During her next pregnancy she would nevertheless develop gestational diabetes so that treatment for this should be started as soon as she becomes pregnant
- C No follow-up measures are necessary
- D X The woman should measure her HbA_{1c} levels approx. 4 months postpartum and then approx. once a year

Women who have had gestational diabetes are seven times more likely to subsequently develop type 2 diabetes than women who have been pregnant without having gestational diabetes. They are also at greater risk of having gestational diabetes during their next pregnancy.

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118

A 35-year old woman who is pregnant for the first time visits you for a pregnancy check-up. Her weight is normal and she is fit and healthy. The length of her pregnancy is 26 weeks and 3 days. She is experiencing daily movement from the fetus. She feels that her general state of health is good and she has no pain.

When you examine her you discover that the fetal heart beat is 140-150. You find that the symphysis-fundus measurement is consistent with the length of her pregnancy. A urine dipstick test is negative. You measure her blood pressure at 160/100. When you look at her antenatal health card you find that when the midwife measured her blood pressure one week ago it was 155/95. What is the most correct thing to do?

- A Refer the patient for emergency assistance at the hospital
There is no need to make an appointment for emergency assistance with the specialist health service.
- B Start treatment with a low-dose of an ACE inhibitor and refer the patient to the pregnancy outpatient clinic.
ACE inhibitors should not be used during pregnancy
- C Ask the patient to contact you again if she experiences any headaches
She should have a follow-up, even without any symptoms.
- D X Undertake a 24-hour BP monitoring and assess it the following day
[24-hour blood pressure monitoring is best for charting the patient's blood pressure and any requirements for anti-hypertensive treatment.]

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119

It is usual for pregnant mothers to have a check-up around week 24 of their pregnancy. What tests should be considered at this gestation age?

- A No tests, this check-up is all about information
- B Height, weight and glucose tolerance test
- C X SF measurement, BP, weight and urine sample, listening to the fetal heart beat, and possibly glucose tolerance test
[In accordance with the national guidelines]
- D BP, urine sample

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120

A healthy woman, Para 3, all normal pregnancies; 2 normal vaginal deliveries and 1 Caesarian section. She is now pregnant again. Routine ultrasound in week 18 revealed placenta on the anterior wall and placenta previa which was later confirmed by ultrasound follow up in week 32. Which risk should you be most aware of with this woman?

- A Hypertension
Placenta previa is not associated with hypertension in pregnant women.
- B Intrauterine growth restriction of the fetus
Placenta previa is not associated with growth retardation of the fetus.
- C Vasa previa
The uterine cervical os is covered by placenta; it is therefore not possible to have free membranes with vessels (vasa previa) above the internal uterine os.
- D X Placenta accreta
Correct answer. A woman who has had a previous Caesarian section has an increased risk of placenta accreta. The risk of abnormal, invasive placenta increases 7 times after one previous Caesarian section and 56 times after 3 or more Caesarian sections.

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Testen har 120 oppgaver. På utskriftstidspunktet var 0 oppgaver blitt trukket og det var gjort fasitendringer på 0 oppgaver.