

2017 - IID - MD4043 - eksamen 1
Eksamensdato: 2017-05-16

1

A 25-year-old woman comes to see you, her general practitioner, on an emergency appointment due to a stomach ache which has lasted for two days. She describes a constant pain, initially situated around her navel, now in the right lower quadrant of the abdomen. She has had some loose stools in the last 24 hours, but no urinary symptoms. She is gravida 1, para 0, with one medical induced abortion. She has a stable partner and her periods have been regular, with her last menstrual period four weeks ago.

On examination, she is afebrile and has tenderness on direct palpation and rebound tenderness in the right lower quadrant of the abdomen. Urin dipstick: ery 1+. Urine HCG: negative.

Blood tests: CRP 8 (< 5), leukocytes 11.8 (4.2-8.0).

What is the best way to proceed?

- A Send her home with an agreement that she can take contact again if necessary, because of suspected menstrual pain
Her history is typical of acute appendicitis.
- B Refer her to a gynaecological ward for suspected ectopic pregnancy due to her previous abortion
Urine HCG can be "false negative", but she has had regular periods for the last four weeks. Her previous abortion is not relevant as her history is typical of acute appendicitis.
- C X Refer her to a surgical ward for suspected acute appendicitis
A classic history for acute appendicitis
- D Refer her to a gynaecological ward for suspected ovarian torsion
Typically gives colicky abdominal pain, but can cause elevated leukocytes. The shifting of the pain, initially central then lower right quadrant, is typical of acute appendicitis.

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You prescribe hormone replacement therapy (HRT) for a patient with menopausal complaints.

What is a common side effect of this treatment?

- A Accommodation problems
- B Weight loss
HRT can lead to weight gain.
- C X Headache
Correct. One of the most common side effects of HRT. It is important to know the side effects of HRT, as many are transient and many patients stop taking the medication if they do not know that the side effects can pass.
- D Recurrent urinary tract infections
HRT can prevent urinary tract infections

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What is the gold standard for treating stress incontinence in women?

- A Botox injections into the bladder
Used in treating therapy resistant detrusor overactivity/urge incontinence
- B X Tension-free vaginal tape (TVT) surgery
Gold standard
- C Anterior colporrhaphy
Primarily used for bladder prolapse
- D Sacral nerve stimulation
Primarily used in treating urge incontinence

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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** 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.
 - C** Electrostimulation
Preferably used as a supplement as it requires well motivated patients, is time consuming and has poor results over time.
 - D** Tension-free vaginal tape (TVT) surgery
The indication for TVT surgery is stress incontinence, not urgency alone.
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A 55-year-old woman comes to you as her general practitioner for a routine pelvic examination and cervical cytology screening. She has given birth to two children. Her last period was two years ago because she underwent endometrial ablation due to heavy vaginal bleeding. She has no pelvic complaints now.

On examination, the cervix is difficult to locate because of a cystocele that protrudes into the vaginal opening. You finally manage to perform a cervical cytology test.

What is the best treatment to offer her?

- A** Refer her to the hospital for a vaginal pessary fitting
If the patient does not have symptoms or complaints, she does not need a vaginal pessary.
 - B** Refer her to the hospital for an anterior colporrhaphy
Surgery is not indicated for benign conditions that do not cause symptoms. The prolapse will not necessarily become larger.
 - C** Refer her for electrostimulation
The patient does not have symptoms and is therefore not indicated.
 - D X** Local oestrogens and pelvic floor muscle exercise
Good and simple advice is the best in this case.
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What definition of heavy menstrual bleeding is most useful in treating women with this condition?

- A** Irregular bleeding that results in hemorrhagic anemia
This is not the correct definition
 - B X** Bleeding that reduces the woman's quality of life
According to NICE guidelines 44 (2007), the definition of heavy menstrual bleeding is: "Excessive menstrual blood loss which interferes with the woman's physical, emotional, social and material QoL, which can occur alone, or in combination with other symptoms"
 - C** Bleeding that results in iron deficiency anemia
This is not the correct definition.
 - D** Menstrual bleeding > 80 ml
This is not the correct definition
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A 34-year-old woman comes to see you as her general practitioner and tells you she has endometriosis and pain in her left ovary. She underwent diagnostic laparoscopy three years ago with findings of mild endometriosis which was removed during the same procedure. She has since used a hormonal intrauterine device (Mirena) and is amenorrhic. She sometimes has pain when defecating, but a bigger problem is frequent and loose stools 5-10 times a day. She has seen fresh blood in her stools once.

You perform a pelvic examination with normal findings. The uterus is mobile and nontender, and no pelvic masses can be palpated.

As a general practitioner, what is the most correct way to proceed?

- A X** Refer for a rectoscopy and colonoscopy because of symptoms from the gastrointestinal tract
The symptoms are mainly from the gastrointestinal tract, they are not cyclic and there are normal findings on the gynaecological/pelvic examination.
- B** Change her endometriosis treatment from hormonal intrauterine device to contraceptive injection
A contraceptive injection gives a stronger hormonal inhibition compared to a hormonal coil (Mirena gives amenorrhea in 30 %, whereas depoprovera gives amenorrhea in 100% of users). However, the goal of hormonal therapy for endometriosis is amenorrhea, which she already has. Hormonal therapy is effective in 80-90 %, and it is unlikely that the effect of the hormonal coil is too small.
- C** Refer to a gynaecologist because of exacerbation of symptoms relating to endometriosis
When amenorrhic on a hormonal intrauterine device, the patient is probably well treated for endometriosis. Therefore, other differential diagnoses must be considered.
- D** Recommend mild pain killers such as paracetamol and NSAIDs
Frequent and bloody stools is a finding that requires further investigation. A diagnosis of endometriosis may cause the condition to become the model of explanation for new symptoms, even if these are not linked to endometriosis. This may cause delay of further investigations and treatment for other conditions.

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A 24-year-old woman comes to see you as her general practitioner. She has a partner whom she lives with and has been trying to conceive for some months. She tested positive on a urine pregnancy test three weeks ago. She tells you she has started to bleed a little.

On examination, you find a small ongoing vaginal bleeding and tenderness in the lower abdomen. What is the most important next step?

- A X** Refer to a gynaecological ward for examination the next morning
Correct. A small bleeding in early pregnancy (if positive pregnancy test three weeks ago, she could be around seven weeks pregnant) and pain from adnexa is an ectopic pregnancy until the contrary is proven.
- B** Examine s-HCG two days apart
A doubling of the s-HCG in two days would indicate an intact pregnancy, but because of the tenderness in the lower abdomen, an ectopic pregnancy must be excluded.
- C** Perform a cervical cytology
With this history and findings you must suspect an ectopic pregnancy, and an emergency referral is indicated. It is important to inspect the cervix, but here the ongoing bleeding would spoil the test results.
- D** Refer for an abdominal ultrasound the next morning
This is an inferior examination compared with vaginal ultrasound, and is not indicated other than for patients who do not want to be examined vaginally.

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A 60-year-old healthy woman without symptoms asks whether a routine examination to detect ovarian cancer is indicated.

What is the most correct recommendation you can give her?

- A Serum CA-125 is recommended annually from 45 years of age, followed by a vaginal ultrasound if elevated
 - B X** Routine examination is not recommended because there is no documentation of benefits
Benefit is not documented
 - C Serum CA-125 is recommended annually from 45 years of age, followed by a vaginal ultrasound if elevated, in women who have a BRCA 1/2 or HNPCC gene mutation
 - D Vaginal ultrasound is recommended annually from 45 years of age
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A 70-year-old woman has been examined because of weight loss and increased abdominal girth. Imaging has shown a large ovarian tumour.

What type of ovarian tumour is most likely?

- A Germ cell
 - B X** Epithelial
 - C Trophoblast
 - D Stromal
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11

Which treatment is most effective in preventing postpartum bleeding?

- A Planned cesarean section
Cesarean section increases the risk of postpartum bleeding.
 - B X** Galaktokinetikum (Syntocinon®) when the child is born
This is an important part of the treatment in the third stage and administered routinely in all births to prevent postpartum bleeding.
 - C Early clamping of the umbilical cord when the child is born
Early clamping of the umbilical cord does not sufficiently prevent postpartum bleeding and is no longer a part of treatment in the third stage.
 - D Oksytocinantagonist (Tractocile®) when the child is born
Atosiban is an inhibitor of contractions and thus increases the risk of uterine atony and postpartum bleeding.
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12

A relatively common and potentially dangerous condition that can occur in any vaginal delivery, but is most common in large fetuses and after surgical delivery, is shoulder dystocia.

What is the most typical finding when examining a woman giving birth with this condition?

- A X** The head is delivered and the anterior fetal shoulder is stuck on the symphysis pubis
This is the most typical finding: The flexed head has been delivered (sometimes with difficulty), the fetus rotates 90 degrees and the anterior fetal shoulder is caught under the symphysis pubis.
 - B The head is delivered and the posterior fetal shoulder is stuck on the sacral promontory
 - C Twin collision where the shoulders of twin A and B are stuck
 - D The head is delivered and the posterior fetal shoulder is stuck on the spina ischiadica
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13

What is placenta accreta?

- A The placenta has grown through the uterine wall
This is called placenta increta.
 - B The pregnancy is located in scar tissue from a previous cesarean section
This is called a cesarean scar pregnancy.
 - C X The placenta has attached too deeply in the uterine wall
The trophoblasts have invaded the uterine wall such that the placenta has problems detaching from the uterus after birth.
 - D The placenta has grown through the uterine wall and into neighbouring organs
This is called placenta percreta.
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14

A woman is pregnant in week 32+2. She comes to the pregnancy outpatient clinic because for the past five days she has had a strong skin itch, especially in the palms of her hands and on the bottom of her feet.

What is the most correct way to proceed?

- A X Do the following blood tests: biliary acid test, ALAT
Intrahepatic cholestasis in pregnancy (ICP) is diagnosed by measuring serum biliary acid and ALAT. The condition is potentially dangerous.
 - B Do the following blood tests: allergen-specific IgE
 - C Explain that itching in pregnancy is harmless
 - D Do the following blood tests: platelets, haptoglobin, Hb, ASAT
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15

You are a general practitioner. A woman is pregnant for the second time in week 28 and comes to you for a routine examination. She has no symptoms.

The urine dipstick shows: albumin negative, glucose negative, leukocytes 2+, erythrocytes negative, nitrite positive.

What is the most correct way to proceed?

- A You start treatment immediately
 - B You interpret the result as contamination and take no further action
Positive nitrite is always a significant finding.
 - C Give her advice on drinking plenty of water and taking Hiprex
 - D X You do a urine culture test and wait for the results before you start treatment
Waiting for the results of the urine culture for bacteria and antibiotic resistance pattern in order to choose the correct antibiotic treatment. This is the correct way to proceed given that she has no symptoms. If she has symptoms, treatment should be started before the results of the urine culture, and antibiotic treatment can instead be adjusted if necessary.
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You are general practitioner for a 32-year-old woman. She is para 0. Her husband has two children from a previous relationship. She has mostly been healthy. She stopped taking birth control pills 6 months ago, when she wanted to become pregnant, and has had three menstrual bleedings since then.

She has a BMI of 27 kg/m². She has been diagnosed with PCOS three years ago by a gynaecologist. What is the most correct information you give her about her upcoming pregnancy?

- A X** She has a high probability for becoming pregnant, but she has an increased risk of developing gestational diabetes
Correct. Women with PCOS have a 4-fold increased risk of gestational diabetes, and it is therefore recommended that an oral glucose tolerance test (OGTT) is done as a screening for gestational diabetes.
- B** If the patient becomes pregnant she must be referred for an early ultrasound and granted sick leave due to increased risk of miscarriage
Women with PCOS have a somewhat increased risk for spontaneous abortions, mostly due to being overweight, but most do well. Sick leave has no preventative effect on spontaneous abortions.
- C** If the patient becomes pregnant she is referred to the pregnancy outpatient clinic due to an increased risk of pregnancy complications
- D** The patient must probably be referred for in vitro fertilisation in order to become pregnant
Most women with PCOS become pregnant spontaneously, after weight loss or ovulation induction
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You are the general practitioner of a 32-year-old woman. She is now pregnant for the third time, in her first trimester. She has previously given birth to two premature children, after spontaneous contractions and rupture of membranes. The first child in pregnancy week 34, the second in week 31.

What is the most correct follow-up during the third pregnancy?

- A** She should follow the general recommendations for routine antenatal care by her general practitioner/midwife
- B X** She should be referred to the pregnancy outpatient clinic for assessment by an obstetrician and possibly progesterone treatment
There are many reasons for premature birth. An assessment by an obstetrician during the first trimester is correct, possibly also progesterone treatment. Otherwise she should follow the regular routine antenatal care and be referred according to normal guidelines. Cervical cerclage is not relevant.
- C** She should be referred to the pregnancy outpatient clinic for assessment for a cervical cerclage (sutures into and around the cervix) and further follow-up
- D** She should be referred for a vaginal ultrasound to measure cervical length in pregnancy week 30
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18

You are the general practitioner of a 35-year-old woman. She is pregnant for the second time, and comes to you for her first pregnancy check-up in pregnancy week 10. In her first pregnancy, the child was delivered by cesarean section in week 32 due to serious preeclampsia. How should the patient best be followed-up during this pregnancy?

- A The patient should take Albyl-E and be referred to the pregnancy outpatient clinic if her blood pressure starts to rise
A fetometry and Doppler must also be done.
- B X** The patient should be referred to the pregnancy outpatient clinic in the first trimester for starting Albyl-E, as well as fetometry and Doppler in pregnancy week 24
She should be assessed during early pregnancy by a specialist. Albyl-E should be started during the first trimester. She should be referred for an ultrasound in week 24 (to assess fetal growth and risk for decreased placental circulation, delayed growth and development of preeclampsia). Otherwise, she can be followed by her general practitioner or midwife as long as everything is normal.
- C The patient should take Albyl-E and be referred to an ultrasound for fetometry in pregnancy week 36
- D The patient should take Albyl-E and be referred to the pregnancy outpatient clinic for further follow-up in the first trimester
As long as all is well, she can be followed by her general practitioner or midwife. However, she should take Albyl-E.

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19

Progesterone is one of the female sex hormones. The levels of this hormone change during pregnancy.

What is the most correct statement about progesterone and pregnancy?

- A Progesterone is the hormone analysed in pregnancy tests
No, HCG is tested in pregnancy tests.
- B A drop in progesterone concentration causes labour to start
No, in humans this has not been proven. It seems to be the balance between estrogen and progesterone that is important.
- C Progesterone can be used to induce labour
No, prostaglandins and oxytocin can be used to induce labour.
- D X** Progesterone can be used to prevent premature labour
Yes, randomised trials have shown that progesterone can prevent premature labour in women at risk.

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20

Non Invasive Prenatal Test (NIPT) can be used to examine the fetal rhesus D status.

In which situation would use of NIPT be the most correct method of testing the fetal rhesus D status?

- A Testing all rhesus D positive women. If the foetus is rhesus D negative, immunoglobins can be given during pregnancy to prevent the foetus from developing antibodies.
Immunoglobins are given to prevent development of rhesus antibodies in a rhesus D negative mother with a rhesus D positive foetus, not the other way around.
- B Testing all rhesus D negative women. If the foetus is rhesus D negative, immunoglobins can be given during pregnancy to prevent the mother from developing antibodies.
The mother will not develop antibodies if both she and the foetus are rhesus D negative.
- C Testing the rhesus D negative women where rhesus antibodies have been detected in previous pregnancies. Giving immunoglobins during the pregnancy can prevent the foetus from developing anemia.
Immunoglobins are given to prevent the mother from developing antibodies, which in this case has already happened. Immunoglobins can in this case have a small effect in preventing anemia in the next foetus.
- D X** Testing all rhesus D negative women. If the foetus is rhesus D positive, immunoglobins can be given during pregnancy to prevent the mother from developing antibodies.
If a rhesus D negative woman has a rhesus D positive foetus, she could develop antibodies (if blood from the foetus reaches the mother's circulation). These antibodies can pass to the foetus and cause anemia. Giving immunoglobins early in pregnancy to these women reduces the risk. This has been in systematic use in Norway since the autumn of 2016.

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21

During the last two months, boy (10) has acquired some strange habits. His shoulders twitch, his eyes blink and he shows signs of unrest to a greater extent than before. Which condition is the most probable?

- A Tourette's syndrome
- B X** Transient tic disorder
- C Compulsive actions
- D Chronic tic disorder

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22

A 10-year-old boy diagnosed with ADHD comes to see you for a routine appointment about his medication. He has been taking Ritalin (methylphenidat) SR (sustained release) 30 mg daily for the past six months. After talking to him, you conclude that his medication has had a good effect on the main symptoms.

What possible side effects are important to assess?

- A X** Reduced appetite, stomach aches or nausea, insomnia, dizziness, head aches, arrhythmias or hypertension, rash, changes in mood and tics.
Correct. All of the symptoms above are possible side effects of methylphenidat (Ritalin).
- B Increased appetite and weight gain, insomnia, dizziness, head aches, arrhythmias or hypertension, rash, changes in mood and tics.
Methylphenidat (Ritalin) reduces appetite and leads to weight loss in doses that are too high.
- C Reduced appetite, stomach aches or nausea, insomnia, dizziness, head aches, bradycardia or hypotension, rash, changes in mood and tics.
Methylphenidat (Ritalin) has effects on the sympathetic nervous system and leads to hypertension and tachycardia.
- D Constipation and stomach aches, insomnia, dizziness, head aches, arrhythmias or hypertension, rash, changes in mood and tics
The effects on the gastrointestinal system tend to give diarrhea rather than constipation. Reduced appetite is an important side effect to ask about.

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23

A 16-year-old girl who has previously been healthy comes to see you as her general practitioner. After having had mononucleosis four months ago, she has felt tired. She feels ill after physical exertion, and does not feel well rested after resting. She has not been to school for the past four weeks. She has problems with concentration and memory. When talking to her, you note that she makes good contact and explains herself adequately and coherently. She is in despair and afraid, but has a neutral emotional state. She wants to be able to go to school and meet friends, and can enjoy activities and hobbies like before, but does not feel up for it. If she does join in, she feels worn out for two days afterwards. There are normal findings on clinical examination.
From what you know so far, what is the most probable diagnosis?

- A** Fibromyalgia
Fibromyalgia and CFS/ME have many overlapping symptoms. However, with fibromyalgia, pain is often the main symptom, and it is not typical of the condition to be triggered by an infection. On clinical examination one would find tender points.
- B X** Chronic fatigue syndrome or CFS/ME
According to Jason's criteria (for children and adolescents) CSF/ME is a clinically assessed, unexplained, persistent or recurrent chronic fatigue during the last three months, which is not due to ongoing exertion, not relieved by rest and results in a significant reduction of activity level. To be diagnosed, the patient must have an exertion-induced feeling of illness and/or fatigue, disturbed sleep pattern and some defined symptoms, including pain and neurocognitive symptoms. CSF/ME is a clinical and descriptive diagnosis of exclusion. <https://helsedirektoratet.no/retningslinjer/nasjonale-veileder-pasienter-med-cfsme-utredning-diagnostikk-behandling-pleie-og-omsorg>
- C** Depression
Excluding severe depression is one of the criteria for diagnosing CSF/ME. Patients with depression also often suffer from tiredness, loss of energy, disturbed sleep pattern and impaired concentration. However, emotional state and mood is most commonly also lowered, including lack of interest and joy, a feeling of inferiority and impaired self-esteem.
- D** Chronic EBV-infection
There is no evidence for the existence of chronic EBV-infection, and it is unlikely that it can explain her symptoms. Normal findings on clinical examination does not point in the direction of an ongoing infection.
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24

Severe conduct disorder among children and adolescents is difficult to treat.
What is the prevalence of this condition?

- A** Less than 1 %
Wrong, the prevalence of conduct disorder is about 5 %.
- B X** About 5-7 %
Right
- C** About 18-20%
Wrong
- D** About 35-40 %
Wrong, the prevalence of conduct disorder is cirka 5 %.
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25

A 15-year-old girl fled alone from the Syrian civil war and came to Norway one year ago. She has been witness to many bombings. She now experiences strong and very unpleasant physical reactions. Every time she hears the sound of an ambulance she has nausea, palpitations, a fast heart and respiratory rate, numbness in her arms and legs, sweating and intense death anxiety. What is the best explanation for her symptoms?

- A** Her symptoms are an expression of inhibited cortical cognitive processes, which can often be seen in traumatised patients. Her current situation in Norway as a refugee, without her parents, creates insecurity and anxiety.
Inhibited cortical cognitive processes play an important role in traumatic stress. The life situations of refugees can also be perceived as unsafe which can create anxiety. However, it does not explain her typical alarm response triggered by the sound of the ambulance.
- B** Her symptoms are an expression of suppression of war traumas experienced in the past. The hippocampus plays a central role in the suppression of previous war experiences and maintaining a psychological balance.
The hippocampus and loss of memory does play an important role in traumatic stress. However, it does not explain her typical alarm response triggered by the sound of the ambulance.
- C X** Her symptoms are an expression of an alarm response (via the hypothalamus, pituitary gland and adrenal cortex) in a traumatised girl who has been exposed to a non-traumatising, but stress inducing factor (trigger).
The patient shows signs typical of alarm/hypervigilance reactions that are the result of a hypersensitised amygdala due to recurrent traumas in the past. The sound of the ambulance typically induces stress symptoms via the hypothalamus, pituitary gland and adrenal cortex, the so called HPA-axis.
- D** Her symptoms are an expression of a stress reaction, mediated through the parasympathetic nervous system. Due to her previous war experiences she can no longer handle loud noises. The ambulance siren is an example.
Her symptoms being an expression of an autonomous response is correct, but it is the sympathetic, rather than the parasympathetic nervous systems that dominates in stress reactions. In addition, her reaction are too specific (every time she hears an ambulance) to generally conclude that she is sensitive to loud noises.
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26

30 % of girls and 15 % of boys in adolescence (12-20 years of age) experience chronic head ache (monthly or more frequent). For what treatment is there the most evidence for?

- A** Paracetamol and relaxation techniques
There is a lot of evidence for relaxation techniques in treating chronic head ache in adolescents. However, there is little evidence for the effect of paracetamol on head aches in this age.
- B** Cognitive behavioural therapy (CBT) and paracetamol
There is a lot of evidence for CBT in treating chronic head ache in adolescents. However, there is little evidence for the effect of paracetamol on head aches in this age.
- C X** Relaxation techniques and cognitive behavioural therapy (CBT)
There is a lot of evidence for relaxation techniques and CBT in treating chronic headache in adolescents.
- D** Relaxation techniques and acupuncture
There is a lot of evidence for relaxation techniques in treating chronic head ache in adolescents. However, there is little evidence for the effect of acupuncture on head aches in this age.
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27

As a general practitioner you meet a mother who is concerned for her child aged 7 months. Recently, she has observed an unusual reaction: Every time she brings her child to a café, the child shows signs of anxiety when strangers are approaching it. Then, the child cries and turns towards her mother. Previously, the child has not reacted in this way. The mother has no knowledge of the child having traumatic experiences with strangers.

What advice do you give and what would you do?

- A** This is an unusual reaction in a child this young. The child must be referred for investigation of abuse.
Children who have been subject to abuse may respond with anxiety when meeting strangers. In this case, however, the child shows a normal developmental psychological phenomenon that can be seen in children from 6 months and beyond, which is an expression of attachment to the mother.
- B** Anxiety in children can persist into adult life, if not treated early. The child should be referred to a child and adolescent psychiatry outpatient clinic (BUP, in Norwegian) for assessment and treatment of anxiety.
It is correct that pathologic anxiety in children should be treated as soon as possible to avoid persistence into adulthood. In this case, however, the child shows a normal developmental psychological phenomenon that can be seen in children from 6 months and beyond, which is an expression of attachment to the mother.
- C X** You explain to the mother that such reactions are not uncommon in children of this age, and will pass by itself.
The child shows a normal developmental psychological phenomenon that can be seen in children from 6 months and beyond, which is an expression of attachment to the mother. It will pass by itself.
- D** The child has a rare anxiety disorder: Early onset social anxiety disorder (EOSAD). Referral to a specialist is necessary.
It is correct that pathologic anxiety in children of young age should be referred to a specialist. However, EOSAD is not a diagnosis that exists. In this case, the child shows a normal developmental psychological phenomenon that can be seen in children from 6 months and beyond, which is an expression of attachment to the mother.
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28

Some adolescents self-harm by cutting.

What is the most common explanation for why adolescents do this?

- A** They self-harm by cutting because they wish to die.
Incorrect. The most common explanation given by adolescents that self-harm is not a wish of death, attention or hallucinations that instruct them to, although it does occur in some cases. The most common explanation for self-harm is to cope with an inner restlessness, to overcome overwhelming and unpleasant emotions.
- B** They self-harm by cutting to receive attention.
Incorrect. The most common explanation given by adolescents that self-harm is not a wish of death, attention or hallucinations that instruct them to, although it does occur in some cases. The most common explanation for self-harm is to cope with an inner restlessness, to overcome overwhelming and unpleasant emotions.
- C X** They self-harm by cutting to cope with an inner restlessness.
Correct. The most common reason for self-harm is to cope with an inner restlessness, to overcome overwhelming and unpleasant emotions.
- D** They self-harm by cutting because they have auditory hallucinations that instruct them to.
Incorrect. The most common explanation given by adolescents that self-harm is not a wish of death, attention or hallucinations that instruct them to, although it does occur in some cases. The most common explanation for self-harm is to cope with an inner restlessness, to overcome overwhelming and unpleasant emotions.
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A mother consults the doctor on call with her daughter, 15 years old. The mother found her crying, with a razor and several scratches on her left wrist. She confirmed that she has had suicidal thoughts. She was treated at the child and adolescent psychiatric outpatient clinic (BUP) a year ago for depression and drug overdose with suicidal intention. After six months she was getting better. For the last month, she has felt sad again. Recently, she was drinking heavily at a party and some days ago she had a big quarrel with her best friend.

She sits facing away from you, and does not want to talk to you. She has several visible scars on her forearm and new cuts that are bleeding, but do not need sutures.

You base your assessment on the Health Directorate's national guidelines for preventing suicide, where seven risk factors for suicide are described. How do you assess the risk of suicide in this patient?

- A The risk of suicide is high due to risk factors: psychiatric disorder, self-harm and possible relational loss
Psychiatric disorder and possible relational loss are risk factors. Self-harm is related to psychiatric disorders, but is not in itself a risk factor for suicide.
- B X** The risk of suicide is high due to risk factors: psychiatric disorder, previously attempted suicide and possible relational loss
Previously attempted suicide and psychiatric disorder are the strongest risk factors. Possible relational loss is also an important risk factor.
- C The risk of suicide is high due to risk factors: psychiatric disorder, self-harm and substance abuse
Psychiatric disorder is a risk factor, but self-harm is not in itself a risk factor for suicide. There is little evidence for substance abuse from what we know (heavy drinking on one occasion is not enough).
- D Her suicidal risk cannot be assessed before speaking to the patient and a description of her suicidal thoughts
The risk of suicide can be assessed even if you cannot talk to the patient herself, because we have information about several risk factors and can make our assessment from these.

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A child's attachment pattern to its parents can be said to express the child's internal working model of its parents.

What is such a model?

- A An inner working model is the child's genetic, innate need for being close to and care from its parent
Incorrect. An inner working model is a representation that includes both emotional and cognitive information about experiences with care from and relation to its parent.
- B An inner working model are expectations to a parent based on experiences with the other parent.
Incorrect. An inner working model is a representation that includes both emotional and cognitive information about experiences with care from and relation to its parent.
- C An inner working model is a memory script based on experiences of limits set by the parent.
Incorrect. An inner working model is a representation that includes both emotional and cognitive information about experiences with care from and relation to its parent.
- D X** An inner working model is a cognitive and emotional representation of the child's experiences of care with its parent.
Correct. An inner working model is a representation that includes both emotional and cognitive information about experiences with care from and relation to its parent.

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31

What is the most likely cause of jaundice in a newborn the first 24 hours after birth?

- A Physiological hyperbilirubinaemia
It is uncommon for physiological jaundice to be visible so soon after birth.
- B X** Hemolysis due to blood group antibodies
Visible jaundice during the first 24 hours after birth can be a sign of immunisation with hemolysis, and is important to diagnose.
- C Bile duct atresia
The jaundice will appear later
- D Breast milk induced hyperbilirubinaemia
Not of relevance so soon after birth.

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32

As a doctor at a mother and child health clinic, you examine a child in a six-week check-up. You find a clear murmur from the heart and suspect a heart defect. Later an ultrasound examination reveals that it is a ventricular septal defect (VSD). The parents wonder why this was not detected during the newborn examination at the hospital.

Which of the following explanations is the most likely?

- A There was no murmur because the ductus arteriosus was still open
- B There was no murmur because the heart defect was so small at birth
- C The murmur was too difficult to recognise for an inexperienced doctor.
- D There was no murmur because of low pulmonary pressure immediately after birth.
- E X** There was no murmur because of high pulmonary pressure immediately after birth
High pulmonary pressure after birth causes reduced blood flow through the defect in the ventricular septum. When the lung pressure drops, the murmur becomes more clear.

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33

An 8-month old girl has been vomiting for the last 24 hours. In the Admission and Emergency department at the hospital she appears listless and pale. Her weight is now 8 kg, but she weighed 9 kg at the last health centre check up. The doctor on call at the Admission department thinks she appears dehydrated, and wants to start rehydration immediately.

How much fluids should the doctor give intravenously in the first 30-60 minutes?

- A 40-80 mL
- B X** 90-180 mL
about 10-20 mL/kg is the correct answer.
- C 240-320 mL
- D 360-450 mL

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34

Mari is 1 ½ years old. She is previously healthy, apart from being admitted to hospital 4 weeks ago. The discharge summary describes that rhinovirus was detected, the diagnosis being bronchiolitis, she had airway obstruction and was given inhalations with NaCl (physiological saline).

Mari and her mother come to your GP office. Mari has had a cough since being discharged, initially a productive cough with mucus, but now more of a dry cough. She has been afebrile. She coughs a lot during the night and in cold air. The mother wants help to make the cough better. On auscultation, you can hear scattered wheezing sounds.

What is the best way to handle this patient?

- A Start asthma medication with inhaled corticosteroids (daily) and beta 2-agonist (when needed)
The admittance to hospital was her first episode of wheezing and she has been coughing for four weeks. Inhaled corticosteroids are not first-line treatment on the "treatment ladder" for suspected asthma.
- B X** Start beta 2-agonist (when needed).
Beta 2-agonists are first-line treatment on the "treatment ladder" for suspected asthma. It can be tried, and taken when necessary, since she has signs of obstructed airways (wheezing) on examination and has had long lasting symptoms.
- C Perform a nasal swab for several respiratory viruses, to clarify whether she has a new viral infection.
A new viral infection is a possibility since small children often have viral infections. However, detecting a new virus will not help her cough.
- D Start penicillin based on suspected secondary bacterial infection.
She has been afebrile, making a bacterial infection unlikely.

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35

Anne, 2 years old, has a reduced general condition, a high fever and elevated CRP. You suspect a urinary tract infection. She has had many UTIs previously, and you think it is very important to get a urine sample of high quality. How do you perform Anne's urine sample?

- A Sample from bag put on after washing
Incorrect. Risk of contamination and only has value when there are no findings.
 - B X** Sample from a urinary catheter
Correct. This will be a sample of high quality.
 - C Ultrasound guided sample from the renal pelvis.
Incorrect. This procedure is too invasive compared to its intention, and will often not be able to sample urine. A suprapubic sample from the bladder can be used and is as good as a sample from a urinary catheter.
 - D Sample from urine in the diaper
Incorrect. High probability of contamination and should not be used.
-

36

Per is 7 years old and wets the bed every night. He has no urinary leakage during daytime. What treatment would be most effective?

- A An anticholinergic agent
Incorrect, can be used in some cases of overactive bladder and diurnal enuresis (daytime accidental wetting).
 - B No drink after dinner
Incorrect. This measure can have some effect, but is not as effective as antidiuretic hormone and can be uncomfortable for the child.
 - C Plenty to drink during daytime
Incorrect. This measure will have no effect.
 - D X** Antidiuretic hormone
Correct. A dose of antidiuretic hormone before bed time is often effective in treating nocturnal enuresis.
-

37

Jenny is 15 years old and has had celiac disease for five years, and should be on a gluten-free diet. However, for the last year she has been sloppy with her diet, and blood tests have shown elevated anti-transglutaminase antibodies. You explain to her that she has an increased risk of developing complications from her celiac disease. What complications does Jenny have an increased risk of?

- A Pancreatitis
Incorrect. Celiac disease does not give increased risk for pancreatitis.
 - B X** Lymphoma
Correct. Undertreated celiac disease gives increased risk of lymphoma in the small intestine.
 - C Gastroesophageal reflux disease (GERD)
Incorrect. Celiac disease does not give increased risk for GERD.
 - D Leukemia
Incorrect. Celiac disease does not give increased risk for leukemia.
-

38

Cerebral palsy is caused by an injury to the immature brain. When is the most common time of injury?

- A X** Prenatal
(30)-80%
 - B Postnatal
5-10 %
 - C Unknown
The time of injury can often be determined.
 - D Perinatal
10-(40)%
-

39

Hanna is 8 years old and previously healthy. She comes to the hospital in an ambulance. Her parents found her in bed, unable to make contact and with generalised clonic seizures which lasted two minutes after they found her. She is a little drowsy when she is admitted, but she has no fever, no neck stiffness and no focal neurological findings. Her mother tells you that Hanna came to her parents early in the morning a few weeks ago and could not speak for a short while (< 1 minute) but was completely conscious.

The EEG a couple of days later shows: Centrotemporal spikes (Rolandic spikes).
Which epileptic syndrome is the most probable diagnosis?



- A Childhood absence epilepsy
Not a typical EEG pattern. No focal components.
- B Landau-Kleffner syndrome
Not a typical age or EEG pattern. Also serious symptoms in the form of loss of speech function.
- C X** Benign epilepsy of childhood (BECTS)
Typical age, EEG pattern and seizure type.
- D Juvenile myoclonic epilepsy
Not a typical age or EEG pattern. No focal components.

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40

Maren was born 24 hours ago and the nurse takes a blood sample for the newborn screening. Which of the following conditions are included in the newborn screening?

- A Hypoglycaemia
Blood glucose levels are often assessed in new borns, but has nothing to do with the newborn screening.
 - B Hypocortisolism
Hypocortisolism is not part of the newborn screening.
 - C Hypopituitarism
Hypopituitarism (lack of one or more of the hormones from the pituitary gland) is not part of the newborn screening.
 - D X Hypothyroidism
Correct. About 1/2000 newborns have congenital hypothyroidism and it is important to start treatment as soon as possible after birth to ensure normal psychomotor development
-

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41

Espen is 7 years old and was admitted to hospital yesterday with debut of diabetes mellitus. He had diabetic ketoacidosis on admittance, but you have no other test results yet. What type of diabetes does Espen most probably have?

- A Type 2 diabetes mellitus
Type 2 diabetes is rare in children (< 1 %) and does not give ketoacidosis.
 - B Monogenetic diabetes
Monogenetic diabetes is a rare type of diabetes (< 1 %) and seldom gives ketoacidosis on debut.
 - C MODY (maturity onset diabetes of the young)
MODY is a rare type of diabetes (< 1 %) and seldom gives ketoacidosis on debut.
 - D X Type 1 diabetes mellitus
This is the most common type of diabetes in children (ca. 98 %) and often gives ketoacidosis on debut.
-

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42

Mathilde is 2 years and 3 months old and visits her general practitioner (GP). She is in kindergarten, and both her parents and the staff are concerned about her development during the autumn and winter. They think she often is inattentive, lacks interest in what is happening around her and seems to be in "her own world". Language development has been slow, but motor development is normal for her age. She often has a cold and needs to be kept at home. In these periods, she eats less and loses weight quickly.

Six months later, Mathilde returns to her GP. She now has normal development, no issues with making contact and her speech and language development is normal.

What steps were taken by her GP six months ago?

- A Assessment for immunodeficiency and treatment with immunoglobins
 - B Training program for children with autism
 - C Assessment by a special educator and follow-up by a speech therapist
 - D X Hearing tests and insertion of grommets (ventilation tubes)
The medical history fits best with serous otitis and impaired hearing, with delayed development of speech and language secondary to this.
-

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43

As a paediatrician, you were asked to come to the orthopaedic ward to assess a 6 week old boy with second degree burns on both feet. His feet were symmetrically affected up to the ankles with a clear border between healthy and damaged skin. The parents explain that the boy was washed under running water some hours ago, but did not think the water was very warm. What should you do?

- A Referr to dermatologist for assessment of general skin condition that makes him prone to such skin damage
 - B X** Further investigations regarding child abuse including skeletal X-ray, cerebral CT and ophthalmoscopy. In addition, contact child welfare services and the police.
This is the most correct alternative.
 - C Further investigations regarding child abuse including skeletal X-ray, cerebral CT and ophthalmoscopy
Partly correct, but not the best answer.
 - D Ask the ward to contact the children's health center for information about the situation at home and the parents.
-

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44

Which agents are the most common causes of lower respiratory tract infections in Norwegian children?

- A *Streptococcus pyogenes, Respiratory syncytial virus (RSV), Mycoplasma pneumoniae*
 - B X** *Streptococcus pneumoniae, Respiratory syncytial virus (RSV), Mycoplasma pneumoniae*
 - C *Staphylococcus aureus, influenza virus, Mycoplasma pneumoniae*
 - D *Streptococcus pneumoniae, Respiratory syncytial virus (RSV), Chlamydia pneumoniae*
-

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45

You are summoned to the maternity ward to examine a child born at term. She was born six hours ago, has a respiratory rate of about 75/min and has moderate chest retractions. Oxygen saturation levels are normal.

What information is the most important to retrieve?

- A X** Risk of infection
The possibility of infection should be investigated early in children born at term with tachypnea
 - B Congenital heart disease in the family
With normal oxygen saturation levels, this is not the most urgent.
 - C Arterial blood gas: pH, pCO₂, BE
With normal oxygen saturation levels, an arterial blood gas is not urgent.
 - D Blood glucose level
Low blood glucose levels can manifest in different ways, but severe tachypnea is not typical.
-

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46

Acute lymphoblastic leukemia is rare in children. When it does occur, why is it important to diagnose the leukemia as soon as possible?

- A To find out whether the disease has spread to the central nervous system
 - B To find a potential bone marrow donor
 - C To find out whether the disease has spread to the lymphatic system
 - D X** To prevent serious complications and start treatment with chemotherapy
Acute lymphoblastic leukemia (ALL) in children is always to some degree spread to the lymphatic and central nervous systems at the point of diagnosis. The primary objective with suspected ALL is to prevent severe infections and in the case of a fever give antibiotics because all patients are (in various degrees) immunocompromised. If there is severe thrombocytopenia and anemia, transfusions can be necessary to prevent bleeding and elevate hemoglobin levels. Fluids can be necessary to prevent effects of tumor lysis. After the initial treatment, bone marrow tests and chemotherapy after the diagnosis is secured, should be done quickly. Investigations for bone marrow transplantation is important for children with AML and high-risk ALL, and with relapse of leukemia, but can wait a few weeks after the diagnosis is made.
-

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47

The parents of an 18 month old girl are concerned because they do not feel she is developing as children her same age. She sits by herself, but cannot come up into the sitting position by herself. She cannot crawl. When held in the upright position, she supports herself on her toes with crossed legs. She picks small things up with a stiff pincer grip. She makes a lot of different sounds and says "mummy" to her mother. Her tendon reflexes are lively, and there is clonus on testing the achilles reflex. With fast movement in the ankle joint, resistance can be felt. What is the most probable diagnosis?

- A Intellectual developmental disorder
She has motor development symptoms that indicate a central cause: hyperreflexia, increased muscle tone and spasticity. The somewhat delayed general development is common in cerebral palsy (CP).
- B Autism
She has motor development symptoms that indicate a central cause: hyperreflexia, increased muscle tone and spasticity.
- C X Cerebral palsy (CP)
She has typical symptoms of CP such as hyperreflexia, increased muscle tone and spasticity
- D Neuromuscular disease
She has motor development symptoms that indicate a central cause (hyperreflexia, increased muscle tone and spasticity), not a peripheral cause.

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48

Karl (8 years old) has always wet the bed at night. He also has a tendency to wet himself during the daytime. His mother is very concerned and takes him to the local doctor. At clinical examination, the doctor finds normal conditions apart from suspected constipation. What is the most correct way to handle this situation by the doctor?

- A Recommend that he drinks little in the evening, and start alarm mat treatment administered by the public health nurse.
- B X Motivate the boy to take a laxative for a period of time and to go to the toilet regularly every day.
- C Referral of the boy to ultrasonography of the urinary tract and to the Paediatric Dept. for further investigations and treatment.
- D Reassure the parents by saying that this will disappear with time and that they can await the situation.

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49

As a junior doctor at a hospital, you receive a young man referred because of a palpatory hard and enlarged testical, suspect of testicular cancer. An ultrasound describes a tumour. Where would you first expect metastases and where would you first clinically examine the patient in order to detect this?

- A I would first examine the groins where you find the first lymph nodes that drain from the testicles. If lymph nodes are palpated to be normal, metastases is unlikely.
The first lymph nodes to be affected are the intraabdominal, retroperitoneal lymph nodes.
- B X I would first palpate the abdomen for masses.
With metastases, the retroperitoneal lymph nodes are the first to be affected and can in some cases be palpated as abdominal masses if they are large. Normal abdominal clinical findings does not exclude metastases because retroperitoneal masses can be hard to palpate.
- C I would first palpate the left supraclavicular lymph node (Virchow's gland). If it is palpated to be normal, metastases is unlikely.
Enlarged supraclavicular nodes would only be palpatory enlarged in relatively advanced stages of metastases. However, the lymph node is at least accessible given no large intraabdominal masses that can be palpated.
- D I would examine whether the patient has gynecomastia, since the lymph nodes surrounding the breasts are often enlarges in metastatic disease.
Gynecomastia is an enlargement of a man's breasts due to an endocrine effect of the tumour marker HCG, which is produced by some types of testicular cancers.

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50

You are a general practitioner and your patient has been diagnosed with multiple sclerosis (MS), and suffers from urine incontinence. Examinations at a urologic outpatient clinic has shown uninhibited contractions in the detrusor muscle (detrusor instability). She takes an anticholinergic agent, but still has urine leakage. She also suffers from a dry mouth, constipation and fatigue. You consider referring her for botox injections. What information would you give your patient about the treatment?

- A Botulinum toxin injections (Botox) results in a permanent paralysis of the bladder muscle with the need of urinary catheterisation.
- B Botulinum toxin injections (Botox) are contraindicated in neurogenic bladder dysfunction.
- C X** The botulinum toxin is a potent neurotoxin that paralyses the bladder muscle from 3 to 12 months. *Botulinum toxin injections (Botox) should be considered in this patient with lack of effect of anticholinergic agents and side effects of the treatment.*
- D Botulinum toxin injections (Botox) into the detrusor muscle will result in reduced storage capacity of the bladder.

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51

The patient is a 67-year-old man who uses warfarin (Marevan, anticoagulation therapy) and has previously had a kidney stone. He contacts you as his general practitioner because he has had several episodes of blood in his urine during the past weeks. He has no pain. You refer him for a "stone-CT", a one-phase CT of the urinary tract without radiocontrast. The CT shows no signs of a stone. How do you best handle this patient?

- A X** You refer the patient to a three-phase CT of the urinary tract and cystoscopy at a urologic outpatient clinic. *Macrohematuria should always be investigated further for possible cancer in the urinary tract, even if the patient is taking oral anticoagulation.*
- B You do a urine dipstick test twice, and if both are normal there is no need for further investigations. *Macrohematuria should always be investigated further for possible cancer in the urinary tract.*
- C Blood tests reveal that the patient is slightly overdosed on Marevan. You adjust his dose and control the blood tests in a couple of days. *Macrohematuria should always be investigated further for possible cancer in the urinary tract, even if the patient is taking oral anticoagulation.*
- D A small kidney stone has most probably passed spontaneously and no further investigations are needed. *Macrohematuria should always be investigated further for possible cancer in the urinary tract.*

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52

Your patient is an essentially healthy 62 year-old man who had an episode of visible blood in his urine 14 days ago. He had no pain. Which of the following options is most correct for this patient?

- A You check the patient with a urine test strip. If the test strip is negative for blood, no further check-ups are necessary. If the test strip is positive for blood, and if he previously has experienced kidney stones, he ought to be referred for a kidney stone CT scan without contrast.
- B You ought to check the patient with urine test strips 1-2 times before he is referred for cystoscopy. If both of these tests with the strips are negative for blood, he does not need any further examination.
- C X** You refer Your patient to a three-phase CT scan of the urinary tract, and to urologic outpatient clinic for cystoscopy of urethra and bladder. *Patients with blood in the urine and older than 50 years have a 10-20% risk of cancer and should be referred to a three-phase CT scan to rule out stone, kidney- and kidney-pelvis-, and uretertumours, and cystoscopy to check for bladder cancer.*
- D Because of earlier kidney-stone anamnesis your patient has an increased cancer-risk, in this case a 4% probability of cancer.

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53

The patient is a 35-year-old woman, pregnant for the first time and in her second trimester. She contacts the local urgent care centre where you work, because she has intense pains located in her right flank and is restless, unable to lie flat. She has normal vital signs, urine dipstick shows 2+ for blood and leukocytes, her CRP is normal. What do you do?

- A Order a CT of the urinary tract. This is the gold standard for investigating kidney stones. A foetus in the second and third trimester can withstand radiation better than a foetus in the first trimester.
 - B X** You refer the patient to a gynaecologist for examination first. If everything is normal, she should be referred to an ultrasound of the urinary tract.
Never order imaging with radiation of the foetus, unless the condition is life threatening. Gynaecologists should always examine a pregnant patient first, to rule out fetal pathology. Symptoms of kidney stones are "the great pretender" and can mimic many other conditions.
 - C Send the patient home with painkillers. Hydronephrosis and muscular pain is common in pregnancy.
 - D You refer the patient to a urologic ward for admittance because her restlessness makes kidney stones a probable diagnosis.
-

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54

A 58-year-old man contacts you as his general practitioner. For a couple of days, he has had vomiting and intense pains in his left flank that radiate to the left iliac fossa and groin. On examination, he has reduced general condition, costovertebral angle tenderness (pain on percussion of the area overlying the kidney) on the left side and has tenderness on palpating the left fossa.

Temperature: 39 degrees celcius, BT: 100/70, pulse: 110, CRP:150 (norm: < 5).

He has only had small amount of urine today, and the urine dipstick is positive for blood. He has recently had diverticulitis, and a kidney stone many years ago.

How do you proceed?

- A This is diverticulitis. He should be sent home with antibiotics, and instructed to contact the urgent care centre if his condition deteriorates during the evening.
 - B This could be pyelonephritis. He should be sent home with antibiotics and should contact the urgent care centre if his condition deteriorates.
 - C X** He should be referred to the hospital for admittance on suspected early sepsis possibly from an obstructing kidney stone.
Kidney stones result in 19000 deaths per year worldwide. It is important to recognise the symptoms of early sepsis and understand that obstructing stones must be treated promptly to avoid damage to the kidney.
 - D Order a CT of the urinary tract within a week and send him home with antibiotics and instruct him to contact you again if his condition deteriorates.
-

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55

When is there an absolute indication for radical therapy of bladder cancer (cystectomy or radiation therapy)?

- A Tumor invasion of the mucosa
No further treatment, but regular check-up with cystoscopy
 - B Tumor invasion of the lamina propria
The patient should be treated with BCG.
 - C X** Tumor invasion of muscularis propria
One should consider either radical cystectomy or radiation therapy because of high risk of spread
 - D Tumor invasion of the basal membrane
Indication for BCG treatment
-

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56

A 68-year old man has had increasing problems urinating over the last few years. In addition he has a history of superficial bladder cancer and is on the waiting list for transurethral bladder resection (TUR-b). He is admitted as an emergency with urine retention at 22:00. The doctor at the local emergency centre and the junior doctor at the hospital have attempted to insert a catheter without success. The patient is in great pain and there is no urine flow. Status: Temp. 38.5, pulse 90, Blood pressure 180/95. Ultrasound of the abdomen reveals 2000 ml in the bladder and bilateral hydronephrosis. What treatment does this patient need?

- A Intravenous antibiotics and bilateral nephrostomies
- B Oral antibiotics and suprapubic catheter
- C Intravenous antibiotics and immediate bilateral insertion of JJ stents
- D X** Oral antibiotics and immediate cystoscopy with insertion of bladder catheter

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57

Anemia is common in patients with kidney disease and GFR < 60 ml/min. Which of the following statements is the most correct regarding the cause of anemia?

- A Erythropoietin deficiency
- B Erythropoietin and iron deficiency
- C X** Erythropoietin and iron deficiency, as well as reduced erythrocyte life span
All of these factors are important. These patients do not have folic acid deficiency.
- D Erythropoietin, iron and folic acid deficiency, as well as reduced erythrocyte life span

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58

Generally, reaching the blood pressure target is more important than what antihypertensive agent is used. However, in some clinical situations, some antihypertensive agents are preferable over others. Which of the following statements is most correct?

- A ACE-inhibitors should be used in congestive heart failure, chronic renal failure (eGFR < 15 ml/min/1.73m²) or diabetes mellitus.
- B Calcium channel blockers should be used in patients with peripheral artery disease (PAD), kidney disease with proteinuria or persons from Africa.
- C X** Beta blockers should be used in patients with angina pectoris, aorta aneurysms or in pregnant women.
ACE-inhibitors are not preferable in patients with end stage renal disease (ESDR) because it can further reduce GFR. Calcium channel blockers are not preferable in patients with proteinuria, because they dilate the afferent arteriole and increases intraglomerular pressure and protein filtration. A diuretic should not be used in pregnant women. The choices for the beta blocker are all correct.
- D A diuretic should be used in elderly patients with isolated systolic hypertension, pregnant women or congestive heart failure.

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59

A 70-year old woman is being treated for severe pneumonia and has acute kidney injury. S-creatinine has risen to 370 umol/l (normal: < 90), she has been given 3 litres of intravenous fluids (Ringer Acetat) and her blood pressure is 130/80 mmHg. Her urinary output has decreased during the last 24 hours (450 ml). ACE-inhibitors have been discontinued and the only medication she now receives is penicillin iv.

What further steps could be taken to treat her kidney injury?

- A High dose furosemide infusion to increase tubular flow and thereby prevent precipitations here
- B Small dose dopamine infusion to increase perfusion pressure and thereby increase GFR
- C Start Aliskiren (medication that inhibits renin's enzyme function) to improve heart function and therefore also renal perfusion
- D X** No further steps are possible
Dopamine never works. Furosemide is only used for adjusting fluid balance. Renin-inhibitor has the same effect as an ACE-inhibitor and would only make the situation worse. One will have to wait for the kidney injury to heal spontaneously.

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60

A patient is admitted with nephrotic syndrome. Blood pressure is 120/76 mmHg. Kidney biopsies appear normal in light microscopy, but electron microscopy reveals flattened podocytes (foot processes). The diagnosis is minimal change disease.

How should this glomerular disease be treated when diagnosed for the first time?

- A ACE-inhibitor to reduce blood pressure
- B Cyclophosphamide (alkylating agent)
- C Loop-diuretics to reduce oedemas
- D X** High dose corticosteroids

Primarily the treatment is high dose corticosteroids. ACE-inhibitors would lower the blood pressure, but does affect the disease itself. Loop-diuretics would reduce oedemas, but does not affect the disease itself. Cyclophosphamide is only started when corticosteroids do not have the desired effect, or in the case of a relapse.

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61

A 56-year-old woman is treated with metformin for diabetes type 2. She is overweight with BMI of 32. She uses no other medication. She comes for a routine check-up and you find: s-creatinine 99 µmol/l (45-90), eGFR 55 ml/min, urine albumin/creatinine ratio 34 mg/mmol (< 3,5) and blood pressure 150/79 mmHg.

What steps could be taken to prevent further loss of kidney function?

- A Start a statin to lower cholesterol
- B X** Start an ACE-inhibitor or AT2-blocker to lower blood pressure
- C Start an ACE-inhibitor combined with an AT2-blocker to lower blood pressure
- D Discontinue metformin

Since the patient has high blood pressure and albuminuria, an ACE-inhibitor or ATII-blocker should be started. In this patient, there are no indications to combine the two. The need for a statin is uncertain because we do not know her lipid profile. Metformin can be continued, she is overweight and has a satisfactory eGFR.

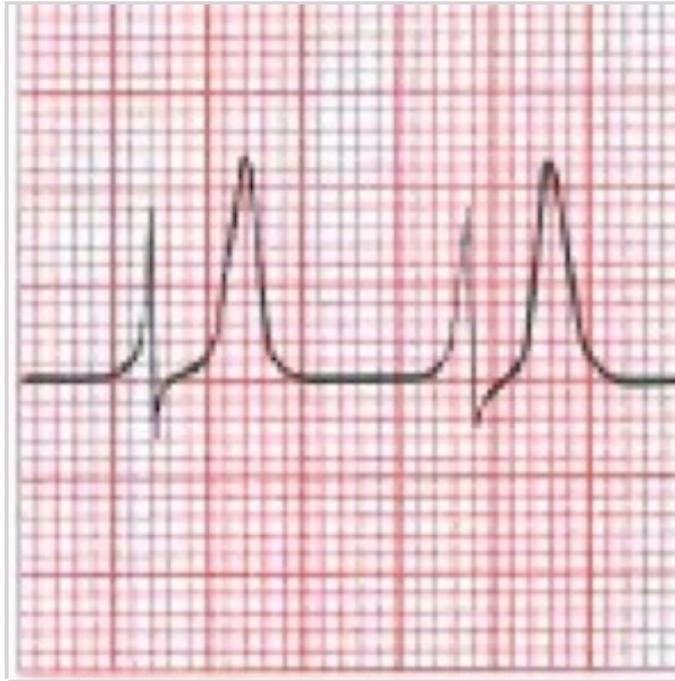
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62

A 55-year-old man with chronic kidney disease stage 3, is admitted to hospital due to fatigue, nausea and itchiness. He has noticed decreased urine output for the past days. He has recently had gastroenteritis with diarrhea and vomiting. He has hypertension and uses Lisinopril (ACE-inhibitor) and furosemide (loop-diuretic).

On examination you find dry mucous membranes, pulse 115/min, BP 105/66 mmHg and the ECG shows sinus tachycardia, pulse 115/min. Blood tests show: Hgb 11.0 (13,4 – 17,0) leucocytes 5,3 (4,1 – 9,8) creatinine 560 µmol/l (60 – 105), s-K⁺ 7,6 mmol/l (3,6 – 4,6), s- Na⁺ 134 mmol/l (137 – 145.)

How do you best manage this patient?



- A Continue ACE-inhibitor and start fluid therapy with 0,9% NaCl iv
- B Discontinue ACE-inhibitor and diuretic, and start fluid therapy with 0,9% NaCl iv
- C You contact the dialysis physician and agree to start dialysis tomorrow
- D X** Discontinue ACE-inhibitor and diuretic, and start fluid therapy with 0,9% NaCl iv and glucose with insulin iv

The patient most probably has acute pre-renal kidney failure, on top of a chronic kidney disease. Vomiting and diarrhea give hypovolemia, which is aggravated by the diuretic. He uses an ACE-inhibitor which reduces the kidneys' ability to maintain GFR. He needs fluid therapy, and the ACE-inhibitor and diuretic must be discontinued. The hyperkalemia is life threatening (ECG) and the safest method of reducing s-K is glucose with insulin. Even though dialysis would treat hyperkalemia, you should not wait until the next morning in such a severe case.

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63

A 71-year-old Caucasian man with history of diabetes mellitus, coronary artery disease, hypertension, and proteinuria is treated by a primary care physician with an angiotensin-converting enzyme inhibitor (ACEI) along with other medications that are appropriate for his medical conditions. The patient is referred to you and brings an Internet printout that refers to the risks and benefits of combining the ACEI with an angiotensin receptor blocker (ARB).

Which ONE of the following is correct for describing the effects of the combination of ACEI and ARB compared with ACEI treatment alone?

- A There will be an increase in risk for allergic reactions
- B The rate of renal disease progression will be slowed
- C X** There is increased risk for hypotension and acute renal failure
- D The risk for cardiovascular death will be reduced

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64

NB Fasit ble endret på dette spørsmålet! Opprinnelig fasit er markert med X, poengiving til eksamen er gitt i 2. kolonne

Anton (60) has been treated for hypertension for 4 years by his GP. Blood pressure (BP) is still 155/95 mmHg. He uses Atacand 8 mg (angiotensin receptor blocker), Selozoc 100 mg (beta-blocker) and Carduran 4 mg (alpha-blocker). Urine stix is negative. He does not smoke and has a s-cholesterol of 4.6 mmol/L (Reference: 3.9 - 7.8 mmol/L).

Which of the following statements is most correct?

- A X 0** The patient has treatment-resistant hypertension, and he should switch from Carduran to the calcium channel blocker Adalat Oros 30 mg x1
The patient does not have a satisfactory BP in spite of three medications. The reason may be that Carduran is a poor choice, should switch to CCB, with perhaps supplement of a diuretic as the next step.
- B 0** The patient has treatment-resistant hypertension, and must be referred to a nephrologist for further work-up and treatment
- C 0** The patient is satisfactorily regulated as long as he does not have other risk factors for cardiovascular disease
- D 0** The patient is satisfactorily regulated due to the absence of other risk factors, but he should increase Carduran to the full dose (8 mg) and discontinue Selozoc due to suspected side effects
-

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65

A 70-year-old man is treated with hemodialysis with the dialysis catheter in the v. jugularis interna. He comes to the emergency room due to a moderate fever, fatigue and dyspnoea. On examination you note a crust and moderate rubor by the dialysis catheter and blood pressure is 90/65. What is the most probable diagnosis?

- A** CMV-infection
Rarely causes clinical infections in dialysis patients
- B** Overhydration
Unlikely, does not give a fever and hypotension
- C** Bronchitis
Unlikely, no cough and would not explain the hypotension
- D X** Septicaemia
Most probable diagnosis. Must consider septicaemia with S. aureus.
-

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66

The patient is a 50-year-old woman who had a kidney transplant 5 years ago. She has over the past few weeks become more fatigued, has moderate heavy breathing and a light cough. She has been afebrile and has not noticed any swelling/oedema.

Blood tests show: CRP 35 (< 5), unchanged creatinine, normal leucocytes (4,1-9,8 x 10⁹/l). Arterial blood shows: pO₂ 8.2 kPa (11.0-14.4 kPa).

What is the most probable diagnosis?

- A X** Pneumocystis jiroveci
Most likely diagnosis, quite frequent in patients with moderate symptoms and low oxygen saturation who have previously had a kidney transplant.
- B** Bacterial pneumonia
Unlikely as there is no fever, moderate symptoms and low CRP.
- C** Influenza
Unlikely as there has been no fever.
- D** Overhydration
Unlikely as creatinine is unchanged and there are no oedemas.
-

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67

What is the most common cause of primary adrenal insufficiency in the West?

A X Autoimmunity

In the West, autoimmunity causes > 90 % of cases of primary adrenal insufficiency. In developing countries, infections (especially tuberculosis) are the most common causes.

B Sarcoidosis

C Cancer

D Tuberculosis

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68

A 56-year-old man with type 2 diabetes has HbA1c 9 %. He has a normal hemoglobin, normal kidney function and there are no signs of hemolysis or abnormal hemoglobin variants. What does his HbA1c level say about his average plasma glucose level lately?

A HbA1c 9% reflects an average blood glucose of 9.0-9.4 mmol/l the last 4-6 weeks.

Incorrect. HbA1c 0% reflects an average blood glucose level around 11.6-12.0 mmol/l the last 2-3 months (Diabetes Care 2015; suppl 1; Jan 2015, S35).

B HbA1c 9% reflects an average blood glucose of 11.6-12.0 mmol/l the last 4-6 weeks.

Incorrect. HbA1c 0% reflects an average blood glucose level around 11.6-12.0 mmol/l the last 2-3 months (Diabetes Care 2015; suppl 1; Jan 2015, S35).

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Incorrect. HbA1c 0% reflects an average blood glucose level around 11.6-12.0 mmol/l the last 2-3 months (Diabetes Care 2015; suppl 1; Jan 2015, S35).

D X HbA1c 9% reflects an average blood glucose of 11.6-12.0 mmol/l the last 2-3 months.

Correct. HbA1c is the ratio between glycated Hb and total Hb. An erythrocyte's life span is ca 120 days, and in healthy individuals, HbA1c reflects the average blood glucose during the past 2-3 months (Diabetes Care 2015; suppl 1; Jan 2015, S35).

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69

A 37-year-old woman has had type 2 diabetes the past year. BMI 22 kg/m². She has had recurrent urinary tract infections, but is otherwise healthy. eGFR >90 ml/min/1.73m². She is on the maximum dose of metformin. HbA1c 8.4 %. She has never experienced hypoglycaemia. She has two children, uses birth control and has no plans of more children.

Which of the named antidiabetic drug is most suitable to add for this woman?

A GLP-1 agonist

This is not the best alternative for this patient. GLP-1 agonists must be injected (daily or weekly), and gives nausea in many patients. GLP-1 agonists often result in moderate weight reduction, for which there is no need in this patient. GLP-1 agonists are considerably more expensive than peroral antidiabetic medications as well as insulin.

B SGLT2 inhibitor

This is not the best alternative for this patient. SGLT2 inhibitor works by inhibiting reabsorption in the proximal tubular cells, and thereby increases glucose loss through urine. Glycosuria increases the risk of urinary tract infections, with which this patient already has problems.

C Long-acting insulin x 1 daily

This is not the best alternative for this patient. She should first try peroral medications, f.ex sulphonylurea, without the need for injections. Insulin therapy in type 2 diabetes causes greater risk of hypoglycaemia compared with sulphonylurea, and insulin will lead to weight gain in most patients.

D X Sulphonylurea

This is a good alternative in this patient. She has had diabetes for a short time and therefore probably still has satisfactory endogenous insulin production and a small risk of hypoglycaemia. Sulphonylurea drugs are easy to use (one daily dose), give robust reduction in HbA1c, are cheap and we have long-term clinical experience with the drug. The patient has a normal weight, and there is no need for weight loss.

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70

A 42-year-old woman has had type 1 diabetes for the past 17 years. BMI 31 kg/m², eGFR > 90 ml/min/1.73m² (> 90). She has no cardiovascular disease. She is on multiple-injection therapy (long acting and rapid acting insulin analogues) and has HbA1c 8.7 %. She has recently had a severe hypoglycemic episode. She knows that SGLT2 inhibitors are not used in type 1 diabetes, but asks you as her general practitioner if you can prescribe it anyway (she will pay for it) because she knows it can give weight loss and better blood glucose control.

What is your main reason for denying her request?

- A X** SGLT2 inhibitors can give increased risk of diabetic ketoacidosis
Correct. SGLT2 inhibitors can give increased risk for diabetic ketoacidosis in patients with type 1 diabetes, as well as in some cases of long-term type 2 diabetes. Ketoacidosis that occurs with the use of SGLT2 inhibitors can happen with only slightly elevated blood glucose levels, and diagnostics can be challenging.
- B** SGLT2 inhibitors can give increased risk of cardiovascular disease
Incorrect. SGLT2 inhibitors do not increase risk of cardiovascular disease. A study on one SGLT2 inhibitor (empagliflozin) has shown reduced cardiovascular morbidity and mortality in patients with high cardiovascular risk (N Engl J Med 2015; 373:2178-9).
- C** SGLT2 inhibitors can give increased risk of hypoglycaemia
Incorrect. SGLT2 inhibitors do not give increased risk of hypoglycaemia (when used alone).

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71

NB Fasit ble endret på dette spørsmålet! Opprinnelig fasit er markert med X, poengiving til eksamen er gitt i 2. kolonne

Woman, 65 years old, recently fractured her forearm when she slipped on the ice and fell. Her general practitioner referred her for a dual energy X-ray absorptiometry (DXA) to measure bone mineral density, which has shown osteoporosis in her lumbar spine and hip. Blood tests show moderately elevated calcium, low phosphate, normal albumin and normal 25-OH-vitamin D. There was increased urine excretion of calcium. The patient has felt well.

What is the most probable cause of hypercalcemia in this patient?

- A 0** Familial hypocalciuric hypercalcemia
Differential diagnosis to primary hyperparathyroidism, and often presents with slight hypercalcaemia and slightly elevated PTH, as well as low urine calcium excretion, and no symptoms.
- B 0** Sarcoidosis
Rare cause of hypercalcaemia.
- C X 0** Primary hyperparathyroidism
This is the most common cause of hypercalcaemia, and typically presents with elevated calcium, low or normal phosphate, elevated PTH and increased urine calcium excretion. Often without symptoms, osteoporosis is a complication.
- D 0** Multiple myeloma
Often gives severe hypercalcemia, low/normal PTH and the patient often has multiple fractures.

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72

A 72-year-old woman with new onset atrial fibrillation comes to you as her general practitioner. She is otherwise healthy, and her mental age seems younger than her biological age. She lives alone, without any need for help.

Blood tests: Free thyroxine (FT4) 24 pmol/l (12,0 - 22,0 pmol/L) og thyroid-stimulating hormone (TSH) < 0.01 mIU/L (0,27 - 4,20 mIU/L). Negative thyroid antibodies (ie normal). Thyroid scintigraphy shows a toxic thyroid adenoma.

Which treatment would normalize thyroid status in this patient?

- A** Beta blocker
Incorrect. Beta blockers can reduce symptoms of hyperthyroidism, but would not give a normal thyroid status.
- B X** Radioiodine therapy
Correct. Radioiodine is the most common form of treatment for patients with toxic thyroid adenoma or toxic multinodular goitre. The isotope reaches high concentrations in the gland and leads to tissue damage and destruction of the adenoma/nodules in 6-18 weeks. Radioiodine accumulates in the autonom nodule/nodules in gl.thyreoidea and therefore gives euthyroidism in most patients after treatment.
- C** Thyrostatic drugs (thionamides)
Incorrect. Thyrostatic drugs reduce the production of thyroid hormones, but do not give remission of hyperthyroidism (hyperthyroidism usually relapses when discontinuing the drug). Thyrostatic drugs are often given prior to radioiodine in patients with severe hyperthyroidism, but this patient only has slightly elevated FT4 and does not need thyrostatic pre-treatment. In patients who cannot be treated with radioiodine, long-term treatment with thyrostatic drugs could be possible.
-

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73

A 30-year-old mother with type 1 diabetes mellitus is concerned that her daughter will also have the disease.

Approximately how large is the daughter's life time risk for the disease?

- A** 75 %
Incorrect. Even though there is a genetic component in type 1 diabetes, the inheritance is polygenetic and environmental factors are important, which results in a lower risk for disease compared with monogenetic diseases.
- B** 50 %
Incorrect. Even though there is a genetic component in type 1 diabetes, the inheritance is polygenetic and environmental factors are important, which results in a lower risk for disease compared with monogenetic diseases.
- C X** 3 %
Correct. Even though there is a genetic component in type 1 diabetes, the inheritance is polygenetic and environmental factors are important, which results in a lower risk for disease compared with monogenetic diseases.
- D** 30 %
Incorrect. Even though there is a genetic component in type 1 diabetes, the inheritance is polygenetic and environmental factors are important, which results in a lower risk for disease compared with monogenetic diseases.
-

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74

A 51-year-old man is concerned about having diabetes. Fasting plasma glucose is 7.1 mmol (127.8 mg/dl) and HbA1c 6.3 %. After a month, fasting plasma glucose is 7.3 mmol (131.4 mg/dl) and HbA1c 6.4 %. You are his general practitioner.

What information do you give the patient?

- A** He does not have diabetes, but has impaired glucose tolerance
Incorrect. Fasting plasma glucose $\geq 7,0$ mmol/L (126 mg/dl) is diagnostic for diabetes. Impaired glucose tolerance is defined by plasma glucose $\leq 7,0$ mmol/l (126 mg/dl) og 2 hour plasma glucose after oral glucose tolerance test $\geq 7,8$ mmol/L but $< 11,1$ mmol/l (200 mg/dl).
- B X** He has diabetes
Correct. Fasting plasma glucose $\geq 7,0$ mmol/L (126 mg/dl) is diagnostic for diabetes. The diagnosis can be made when: HbA1c $\geq 6,5$ %, or fasting plasma glucose $\geq 7,0$ mmol/L, or plasma glucose $\geq 11,1$ mmol/L 2 hours after oral glucose tolerance test, or any plasma glucose $\geq 11,1$ mmol/L in a patient with symptoms of diabetes (must be confirmed in a new test before the diagnosis is made).
- C** He does not have diabetes or impaired glucose tolerance
Incorrect. Fasting plasma glucose $\geq 7,0$ mmol/L (126 mg/dl) is diagnostic for diabetes.
-
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75

A 40 year old woman has felt tired and lost some weight lately, and she thinks she is more tanned than usual. On examination, she has low blood pressure and blood tests show low sodium (Na⁺) and elevated potassium (K⁺).

What is the cause of her hypotension and electrolyte disturbances?

- A** Lack of cortisol
- B X** Lack of aldosterone
Aldosterone has effects on the mineralcorticoid receptors in the kidneys, which results in Na⁺ being withheld and K⁺ being excreted. Lack of alosterone therefore results in hyponatremia, hyperkalemia and hypotension.
- C** Lack of renin
- D** Lack of ACTH
-
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76

The patient is a 33-year-old woman from a healthy family. She comes to you as her general practitioner because she has noticed a lump on the front and somewhat downward on her neck. The lump moves on swallowing, and it is not tender. On examination there are slightly enlarged lymph nodes laterally. From talking to her, there seems to be no changes to her metabolism.

What is the best way to proceed?

- A** Thyroid status tests
Thyroid status tests are not relevant and would not give you information on her condition.
- B** Ultrasound in the office by yourself
Ultrasound of the thyroid is difficult and should not be performed by a general practitioner.
- C X** Refer to a surgical ward for ultrasound
Ultrasound by an endocrine surgeon or trained radiologist could clarify the situation/condition.
- D** Thyroid scintigraphy
Thyroid scintigraphy is unspecific and is no longer in use.
-
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77

Anne, 4-years old, has had a high fever and proven urinary tract infection that has responded well to antibiotics. The doctor plans further investigation with imaging diagnostics. She has not been investigated previously.

Which imaging investigations should the doctor refer her for first?

- A Urography
 - B X** Ultrasound of the urinary tract
Ultrasound is the natural first choice. This gives information on many of the malformations that occur in the urinary tract, and we can see whether the probable pyelonephritis she had has resulted in scarring of the renal parenchyma. Ultrasound of the urinary tracts has no known harmful effects and is easy to perform.
 - C X-ray overview of the urinary tract
 - D MRI of the urinary tract
-

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78

Petter, 1-year old, has a fever and symptoms of an airways infection. He is debilitated and is admitted to the Paediatric Clinic. X-ray of the thorax reveals atelectasis of the right mid-lobe, small areas of atelectasis also in the other lung sections and areas with hyperinflated lung tissue bilaterally.

What is the most probable diagnosis?

- A Lobar pneumonia
 - B X** Bronchiolitis
Correct. A virus gives a generalised lung disease while the others are localised. They also give a completely different picture at X-ray of the thorax.
 - C Pulmonary sequestration
 - D Lobar emphysema
-

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79

In what situation is MRI the best imaging modality for diagnostic imaging in children?

- A X** Investigations for epilepsy
 - B Investigations for craniosynostosis
 - C Acute head trauma
 - D Cerebral assessment of newborns
-

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80

Which of the following conditions is the most difficult to detect with cranial ultrasound of the newborn?

- A X** Ischaemia
The other three conditions are usually much easier to detect on an ultrasound.
 - B Hydrocephalus
 - C Cysts
 - D Germinal matrix haemorrhage
-

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81

A 3-month-old baby is admitted to hospital with reduced general condition of unknown cause. A chest X-ray shows multiple posterior rib fractured.

Which non-radiological examination is the most important to perform?

- A Genetic testing
 - B X** Ophthalmoscopy
Posterior rib fractures raise suspicion of shaken baby syndrome and should be investigated as such. Retinal haemorrhages support this diagnosis.
 - C Skeletal scintigraphy
 - D Spirometry
-

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82

A 59-year-old man presents with acute back pain which radiated to his left flank, before moving to his left fossa. The pain comes and goes. Urine dipstick shows 3+ for blood. You refer him for a CT scan to detect the underlying cause of the pain.

Is a CT scan with or without intravenous contrast the most appropriate, and why?

- A X** Without intravenous contrast because there is a high probability of detecting urinary tract stones without contrast
Typical history of a urinary tract stone, and if imaging is needed a low-dose "stone CT" without intravenous contrast should be performed. Low-dose to prevent too much radiation, and without contrast because stones are easily detected without contrast. With a less typical history, one could have chosen to do a CT of the abdomen and pelvis with intravenous contrast, but not in such a typical history.
- B** With intravenous contrast because there is a high probability of urinary tract stone and contrast makes it easier to assess hydronephrosis
- C** Without intravenous contrast because there is a high probability that the urinary tract stone does not take up contrast
- D** With intravenous contrast because even though there is a high probability of a urinary tract stone, contrast makes excluding other differential diagnoses easier

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83

You have detected unilateral hydronephrosis in a foetus by ultrasound.

What is the most appropriate imaging modality to start with once the child is born?

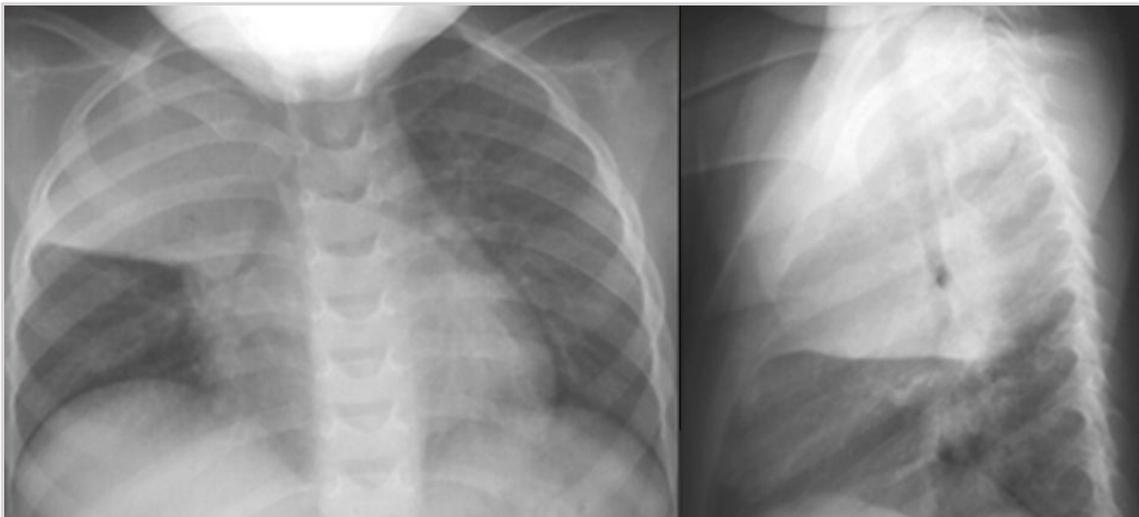
- A** MRI of the urinary tract
- B** Intravenous urogram
- C X** Ultrasound of the urinary tract
This is the easiest and least invasive modality without radiation, and is always the first to be used in such cases. Other imaging modalities or procedures might be indicated afterwards.
- D** Micturating cystourethrogram

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84

A 2-year-old child is admitted to hospital with a fever (39 degrees celcius) and a cough. The following X-ray is taken.

What is the most probably diagnosis?



- A Bronchiolitis
- B Empyema
- C X Lobar pneumonia

The chest X-ray shows a consolidation in the right upper lobe, which is, along with the history, most indicative of a lobar pneumonia. An empyema would not be limited to one lobe and would be visible alongside the pleural cavity. RDS occurs in premature children and bronchiolitis would not give a lobar consolidation.

- D Respiratory Distress Syndrome (RDS)
-

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85

A 32-year-old man contacts his general practitioner (GP) because of swelling in one testicle that has developed during the last 6 months. It is not painful, but tender. On examination, there is clear swelling of the testicle. The GP refers him to diagnostic imaging.

How urgent is diagnostic imaging in this patient?

- A Immediate admittance to hospital

Not relevant in swelling that has developed over 6 months

- B Within 3 weeks

- C X Within 3 days

The history raises suspicion of testicular cancer that need to be investigated.

- D Within 3 months
-

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86

Developmental deviations are denoted differently depending on the cause.

What is a cascade of pathological findings that are caused by one primary focal defect called?

- A Association

An association is the occurrence of multiple defects that occur together but with unknown cause.

- B Malformation

A malformation is a defect that occurs early in the organisation of an area.

- C Syndrome

A syndrome is defects in several areas but with one common cause.

- D X Sequence

Correct. A sequence is a cascade of pathological findings caused by one primary focal defect.

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87

Congenital tumours are rare but can have serious complications if not detected early.

What is the most common congenital tumour?

- A X Sacrococcygeal teratoma

Sacrococcygeal teratomas are the most frequent congenital tumours.

- B Nephroblastoma

- C Neuroblastoma

- D Rhabdomyosarcoma
-

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88

Granulosa cell tumours in the ovaries of women are semi-malignant tumours that can recur after a long time.

In which subgroup of ovarian tumours are such tumours classified?

- A Germinal cell tumours

Originate from the germinal cell itself.

- B X Sex-cord stromal tumours

The tumour cells originate from the follicular cells surrounding the germinal cell itself.

- C Sarcomas

Originate from the mesenchymal cells.

- D Epithelial tumours

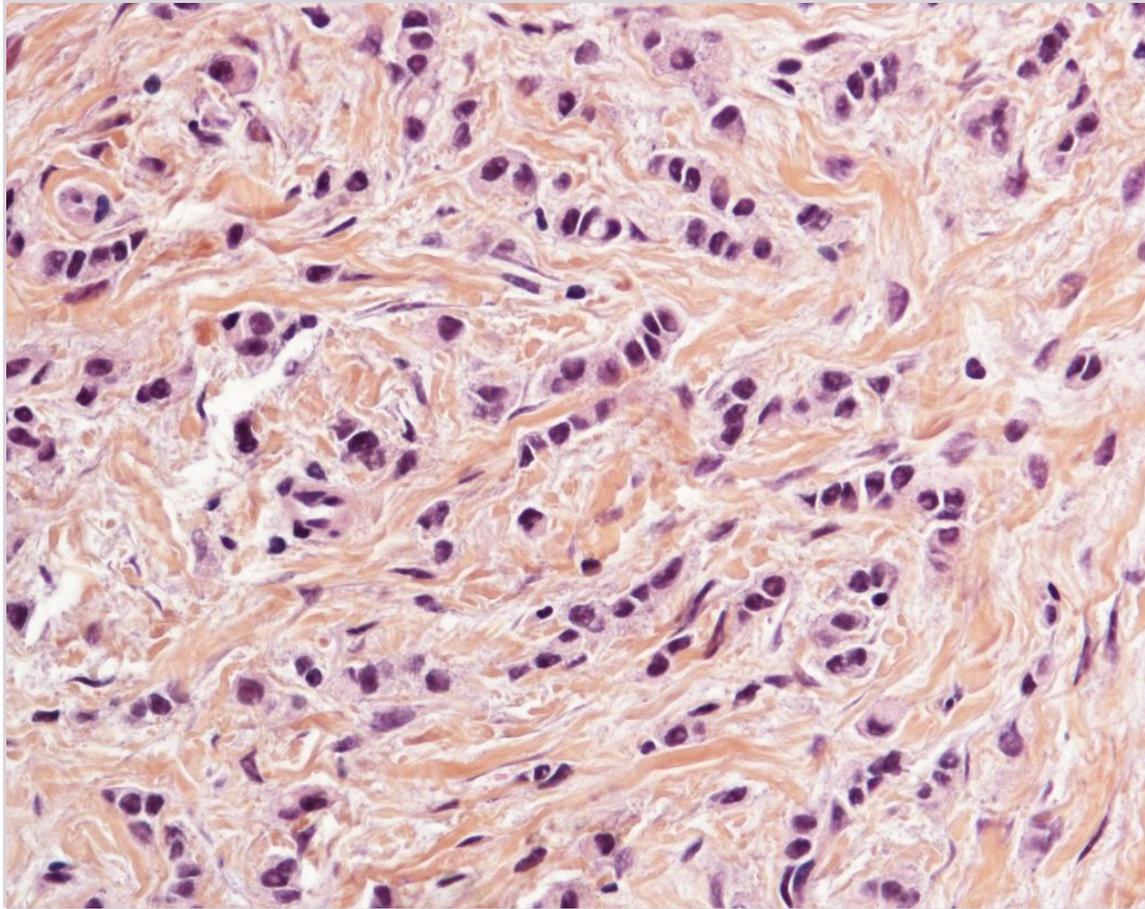
Originate from the surface epithelium of the ovary or tubes.

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89

A 60-year-old woman has noticed a change in her left breast. She undergoes surgery, and below is a histology slide from the removed tissue (HES, magnified 400x).

What is the diagnosis?



A Fibroadenoma

B X Lobular carcinoma

There are epithelial cells (individual and in rows) that clearly invade the stroma, indicative of lobular carcinoma.

C Lobular carcinoma in situ

D Ductal carcinoma in situ

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90

Both prognostic and predictive markers are used in breast cancer diagnostics.

What does a prognostic marker tell us?

A X A prognostic marker can say something about life expectancy in the absence of treatment

Correct. Estrogen receptor (ER) is an example of a marker that is both prognostic (ER-positive tumours have better prognosis) and predictive (ER-positive tumours can be treated with antiestrogen therapy).

B A prognostic marker can say something about prognosis after targeted treatment

Incorrect. A predictive marker can say something about prognosis after targeted treatment.

C A prognostic marker tells us that targeted therapy is available

D A prognostic marker identifies patients in whom radiation therapy is effective

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91

A 10-year-old boy had a cold about two weeks ago, and has since felt tired and gained 3 kilos. He is swollen around the eyes and ankles. Urine dipstick shows 3+ for protein. Blood tests reveal hypoalbuminaemia. He is referred to the paediatric ward, and a kidney biopsy is done. There are no major changes on light microscopy, but electron microscopy shows flattened foot processes which have merged together. Apart from this, there are normal findings.

What is the most likely diagnosis?

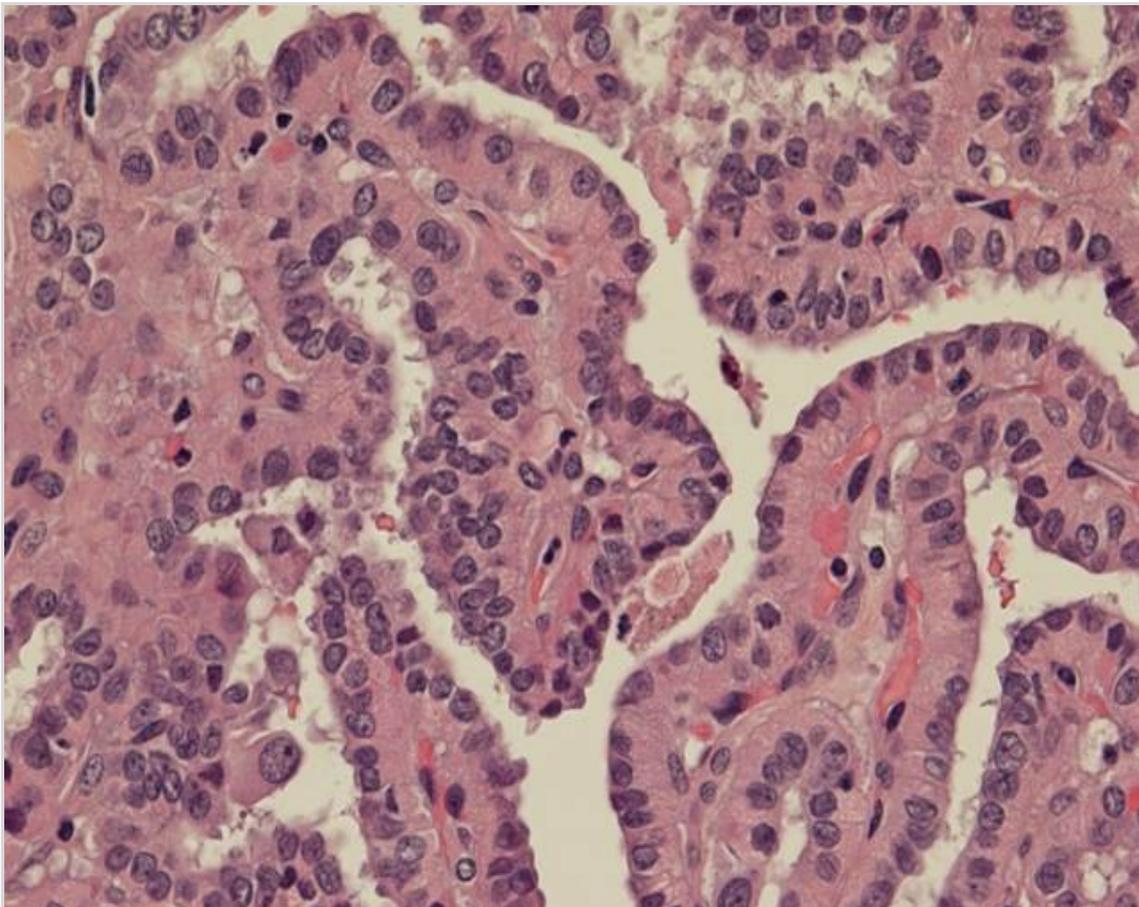
- A Membranous glomerulonephritis
Membranous glomerulonephritis is more common in adults and gives obvious changes on light and electron microscopy.
- B IgA nephropathy
IgA nephropathy usually gives hematuria, while nephrotic syndrome is rare.
- C X Minimal change disease
The most common cause of nephrotic syndrome is children. Light microscopy is usually without clear findings, while electron microscopy shows flattened and merged foot processes.
- D Focal segmental glomerulosclerosis (FSGS)
Focal segmental glomerulosclerosis (FSGS) is an important differential diagnosis to minimal change disease. FSGS can be misinterpreted as minimal change disease if the focal changes are missed on the biopsy. Electron microscopy shows flattened and merged foot processes. Corticosteroids are not as effective as in minimal change disease.

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92

A 24-year old man has a 5 cm tumour in the thyroid gland. It is removed surgically. The image shows a histopathologic section from the tumour (HES, X400). Genotyping of the tumour tissue reveals that he has a BRAF gene mutation.

What is the diagnosis?



- A Lymphocytic thyroiditis
 - B Anaplastic carcinoma
 - C Hyperplasia (Graves' disease)
 - D X** Papillary carcinoma
In accordance with the histopathological image. BRAF gene mutation is also associated with certain subgroups of papillary carcinoma.
-

93

To assess the risk of complications in a pregnant woman with twins, it is important to know the type of twin placenta and fetal membranes.

In which type of twin placenta is the risk of twin-to-twin transfusion syndrome (TTTS) largest?

- A Dichorionic diamniotic placenta
The fetuses have their own placentas, and there is no communication between them.
 - B Dichorionic monoamniotic placenta
This type of placenta is impossible.
 - C X** Monochorionic diamniotic placenta
In this type of placenta, anastomoses can develop between the two placental parts with uneven distribution of blood volume between the fetuses. This is much more uncommon in monochorionic monoamniotic placentas. In dichorionic placentas, the fetuses have their own placenta and anastomoses are therefore not possible.
 - D Monochorionic monoamniotic placenta
-

94

A 28-year-old previously healthy woman comes to you as her general practitioner because of symptoms of an acute cystitis. The symptoms started two days ago, and she has never experienced similar symptoms. The history raises no suspicion of sexually transmitted disease.

What is the best way to proceed?

- A Perform a urine culture, wait for bacteria to be identified before starting antibiotic therapy
 - B Perform a urine culture and start empiric antibiotic therapy
 - C X** Give empiric antibiotic therapy for uncomplicated cystitis without urine culture
Urine cultures are not necessary in first-time uncomplicated urinary tract infections in otherwise healthy women. Empiric antibiotic therapy can be started.
-

95

Apron and gloves are personal protective equipment to be used in defined situations. Correct use is essential for infection control and prevention.

Which statement on infection control and prevention is the most correct?

- A X** Aprons and gloves belong to one room (usually the patient room) and should not be used outside that room
Correct.
 - B Aprons and gloves do not need to be changed regularly due to costs
 - C Aprons and gloves should always be used together
 - D Aprons and gloves can be used for multiple patients as long as they are in the same room
-

96

A 43-year-old man recently attended a conference where he and several other people contracted diarrhea and vomiting only 3-4 hours after eating a warm lunch.

Which microorganism is the most likely cause?

- A Salmonella enteritidis
 - B X** Staphylococcus aureus
Correct.
 - C Enterotoxigenic E. coli
 - D Campylobacter jejuni
 - E Norovirus
-

97

A 77-year-old man with benign prostate hyperplasia and urine retention is admitted to hospital with the following clinical signs: Fever (39,5 degrees celcius), BP 80/50, pulse 125, respiratory rate 37. The physician suspects the patient has an infection. Which antibiotic treatment should be started?

- A X Ampicillin+gentamicin i.v.
Correct.
- B Mecillinam i.v.
- C Ciprofloxacin i.v.
- D Cloxacillin+gentamicin i.v.

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98

Sepsis is a serious condition where an infection can develop a systemic, self-sustaining, malignant inflammatory response. This inflammation is characterised by pro- and antiinflammatory components. What is the current definition of sepsis, which was determined in a consensus meeting in 1991?

- A Sepsis is defined by low blood pressure and high heart rate as a result of bacteria in the blood
- B Sepsis is defined as a condition where bacteria are detected in the blood
- C Sepsis is defined by elevated inflammatory markers in serum
- D X Sepsis is defined as clinical and haematological variables that indicate a systemic response to infection

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99

A 25-year-old Norwegian man has been on holiday in Thailand and had unprotected sex. Two months after coming home, his skin turns yellow and he is admitted to hospital for suspected hepatitis. On arrival, he is almost in a comatose state. Blood tests show hepatitis B virus infection (HBsAg positive) and elevated liver tests (ASAT, ALAT and bilirubin). In addition, INR is significantly elevated with values above 3.0.

How do you explain his condition?

- A The patient has a chronic hepatitis B infection and needs a liver biopsy to determine the extent of liver injury and need for further treatment
- B The patient has a chronic hepatitis B infection and needs antiviral treatment with pegylated interferon- α
- C X The patient has a fulminant hepatitis B and should be discussed with a transplant unit for a transfer
- D The patient has fulminant hepatitis B and needs antiviral treatment with pegylated interferon- α

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100

There is an epidemic with *Mycoplasma pneumoniae* and you have a patient with symptoms consistent with an atypical pneumonia. You have performed a nasopharyngeal culture/PCR, but you wish to start antibiotic treatment pending the answer.

Which antibiotic treatment should be chosen?

- A Ciprofloxacin
- B Vancomycin
- C Penicillin
- D X Erythromycin
Erythromycin or doxycylin would be appropriate choices to treat a suspected atypical pneumonia.

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101

Women who are being treated with antiepileptic drugs should use effective birth control because of possible teratogenic effects. However, this is complicated by interactions between many antiepileptic drugs and oral contraceptives.

Which mechanism is commonly responsible for a clinically relevant interaction between these two groups of drugs?

- A Antiepileptic drugs can reduce the metabolism of oral contraceptives by enzyme inhibition
- B X** Antiepileptic drugs can increase the metabolism of oral contraceptives by enzyme induction
Several antiepileptic drugs (carbamazepin, oxcarbazepin, fenytoin og fenobarbital) induce cytochrome P450-enzymes that metabolise several estrogen analogues that are used in contraceptives. This results in impaired effect and increased risk of pregnancy.
- C Oral contraceptives can increase the free fraction of antiepileptic drugs
- D Oral contraceptives can reduce the metabolism of antiepileptic drugs

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102

Combining ACE-inhibitors and nonsteroidal anti-inflammatory drugs (NSAIDs) increases the risk of acute kidney injury.

What is the mechanism for this interaction?

- A Reduced glomerular filtration pressure due to dilation of afferent arteriole and constriction of efferent arteriole
- B Reduced glomerular filtration pressure due to constriction of both afferent and efferent arterioles
- C X** Reduced glomerular filtration pressure due to dilation of the efferent arteriole and constriction of the afferent arteriole
Angiotensin 2 is a powerful vasoconstrictor, especially on the efferent arteriole and is important for regulating glomerular filtration pressure. This vasoconstriction disappears with the use of ACE-inhibitors and the efferent arteriole will constantly be dilated. In this situation, local prostaglandins (which dilate the afferent arteriole) will maintain glomerular filtration pressure. If the patient uses an NSAID in addition, production of prostaglandins are reduced, so that the afferent arteriole does not dilate. This results in a reduction of glomerular filtration pressure and risk of acute kidney injury.
- D Reduced glomerular filtration pressure due to dilation of both afferent and efferent arterioles

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103

Morphine can be a problematic drug in patients with impaired kidney function. The problem is primarily retention of an active and water soluble metabolite, which results in a more pronounced and prolonged morphine effect.

What is the name of this water soluble and pharmacologically active metabolite?

- A Morphine-3-glucuronide
- B X** Morphine-6-glucuronide
Morphine-6-glucuronide is water soluble and accumulates when kidney function is impaired. It is also active and passes the blood brain barrier. With impaired kidney function this leads to increased and prolonged morphine effect.
- C 6-Monoacetylmorphine
- D 3,6-Diacetylmorphine

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104

The opioid-sparing effect of paracetamol is controversial, yet it is common for patients with chronic pain to take paracetamol in addition to opioids.

Some patients with chronic pain also have impaired kidney function.

Which consequences will this have for the dosing of paracetamol?

- A Paracetamol is in itself nephrotoxic and should not be used in patients with impaired kidney function
- B Paracetamol has active metabolites that are critically dependent on renal excretion, and paracetamol should therefore not be used in patients with impaired kidney function
- C X** Paracetamol is eliminated almost exclusively by metabolism in the liver and there is no need for a dose reduction unless the kidney function impairment is very severe
Correct
- D Paracetamol is partially metabolised in the liver and partially excreted unmetabolised, and the dose should therefore be reduced, often to half the standard dose in moderately impaired kidney function

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105

ACE-inhibitors and angiotensin II receptor antagonists have similar side effect profiles.

What is *not* a common side effect to these two drug groups?

- A Hypokalaemia
This is related to reduction of angiotensin II, which is common to both drugs.
- B Increased serum-creatinine
This is related to reduction of angiotensin II, which is common to both drugs.
- C X** Dry cough
ACE-inhibitors block the enzyme angiotensin convertase, which results in accumulation of bradykinin. It is believed that accumulation of bradykinin is what causes a dry cough which is a characteristic side effect of ACE inhibitors and affects 5-20 %. Angiotensin receptor blockers do not have this side effect.
- D Hypotension
This is related to reduction of angiotensin II, which is common to both drugs.

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106

Thyrostatic drugs are an important part of the treatment of hyperthyroidism.

What is a common denomination of the most important drug group?

- A Thioridazines
- B Tirasethamides
- C Tiothepiates
- D X** Thioamides
Correct.

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107

When using angiotensin receptor blockers, it is important to monitor the patient with blood tests.

Which two blood tests are particularly important to measure?

- A Sodium and potassium
- B X** Creatinine and potassium
- C Uric acid and creatinine
- D Uric acid and potassium

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Testen har 107 oppgaver. Av disse ble 2 oppgaver trukket. Totalt ble det gjort fasitendringer på 2 oppgaver.