

2019 - IID - MD4043 - eksamen 1
Eksamensdato: 2019-05-29

1

Which cause of infertility is the most difficult to treat in a couple who apply for assisted reproduction at a Norwegian infertility clinic?

- A The woman's BMI >30 and she smokes 10 cigarettes a day
This can be difficult but not completely impossible to correct before treatment.
 - B The man has previously been sterilised and an attempted vasectomy reversal has not been successful
This couple can most probably be helped by aspiration of sperm from the epididymis or testis
 - C X The woman is 38 years old and has an s-AMH <1.1 pmol/L
Lack of adequate eggs, which is difficult to treat because egg donation is currently not permitted in Norway.
 - D The man is 55 years old and his ejaculate contains very few motile sperm
The couple can probably be helped using ICSI.
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2

A 35-year old woman has had amenorrhea for the last 8 months. She uses no form of hormonal contraception, or other medicines. The last three months she has noticed secretion from her breasts. She has had some problems with her vision over the last month. What is the most probable diagnosis?

- A Anorexia
There are no symptoms in the medical history other than for secondary amenorrhea that would indicate anorexia.
 - B Pregnancy
 - C X Prolactinoma
This is the most probable diagnosis with galactorrhea and problems with vision in addition to secondary amenorrhea.
 - D Primary ovarian failure
This often has symptoms of the menopause which are not mentioned.
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3

A 29-year old woman is pregnant in week 19. Routine ultrasound reveals a 6 cm tumour in one of her ovaries which most probably represents a fibroma. What is the most common complication she can get?

- A Degeneration
 - B Rupture
 - C Bleeding
 - D X Torsion
A fibroma is a solid tumour which may undergo torsion; clearly the most correct answer
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4

You are the GP for a 52-year old woman who was recently admitted to the Gynaecology Dept for acute abdominal pain. You have received the hospital discharge notes which state that due to a large, torsioned ovarian tumour the patient underwent bilateral laparoscopic salpingo-oophorectomy. The histology results reveal a serous cystadenoma with no atypia in the left ovary. Cytology of the peritoneal fluid reveals mesothelial cells. The patient contacts you for the results and for further treatment plan. She is in good health and has no problems after the intervention. You inform her about the test results.

What is the most correct next step for you to do now?

- A Write a prescription for combined oestrogen/progestin medication
 - B X Agree that she contacts you if she has increasing symptoms of hormone insufficiency
The patient has had both ovaries removed due to a benign ovarian tumour, cytology of the peritoneal fluid is also normal. Her treatment is finished. It is possible she may need hormone replacement, but currently has no symptoms.
 - C Refer her for surgery for staging at the Gynaecology Cancer Dept. and mark the referral "ovarian cancer pathway"
 - D Refer her for follow-up with the gynaecologist for transvaginal ultrasound in 3 months
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A 20-year old woman attends your GP surgery because she wants a contraceptive. She has had a legal medical abortion twice while she was on the contraceptive pill, and she most definitely does not want an intrauterine device.

What is the best option you can recommend her?

A Vaginal contraceptive ring

B X Contraceptive implant

Long-acting contraception is the best option for her (became pregnant when using the contraceptive pill) and is the safest option.

C Condom

D Postcoital contraception (emergency contraception)

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6

Histologic type is one of several prognostic factors in endometrial cancer.

Which of the histologic types mentioned has the best prognosis?

A Carcinosarcoma (mixed Müllerian tumour)

B Serous papillary adenocarcinoma

C Clear cell adenocarcinoma

D X Endometrioid adenocarcinoma

Type I endometrial cancer (endometrioid adenocarcinoma) which comprises >80% of endometrial cancers, has a better prognosis than Type II (clear cell, serous papillary) and carcinosarcomas.

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A 43-year old woman has an appointment with you as her GP. She has previously given birth to two children. She complains that over the last months she has had increasingly irregular and heavy menstrual bleedings which means that she has to change her underwear twice a day. The patient does not have hot flushes.

Which investigations should you do, i.e. which examinations and which samples should you take?

A Perform a gynaecological examination with cytology, and take blood samples for FSH and LH (gonadotropins, follicle stimulating hormone and luteinising hormone)

You can get some way with this, but the best option is to do a pipelle test/endometrial biopsy immediately. Then you will be able to determine whether hyperplasia, for example, is the cause of the bleeding irregularities.

FSH will be able to indicate something about the patient's hormonal status and closeness to the menopause, but the patient does not have hot flushes and we are therefore not particularly interested in whether she is close to the menopause or not.

B Take blood samples: Hb (haemoglobin), Ferritin and tumour marker CA125. Then send her to a specialist in gynaecology.

This is not correct since you should perform a gynaecology examination so that you can form an opinion of the patient's problem for instigating any treatment. You will delay the process by not looking for pathology, for example in the cervix/uterus that could be the cause of the patient's complaints.

C Take blood samples for oestradiol, progesterone, FSH and LH (gonadotropins, follicle stimulating hormone and luteinising hormone)

Can say something about the patient's hormonal status and how close she is to the menopause, but will not help determine the diagnosis of any pathology in the uterus or ovaries, for example, as a cause of the bleeding irregularities.

D X Perform a gynaecological examination with cytology and pipelle (endometrial biopsy); take blood samples: Hb.

This is the correct answer as you will now be able to find any pathology in the cervix/uterus that could be the cause of the patient's complaints. By taking a sample for Hb, you will also be able to get a more objective measure of the actual severity of the bleeding.

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A 28-year old woman attends your GP practice because of bleeding during her pregnancy. She has taken two positive pregnancy tests at home. She says that she has a definite date for her last period, and using the "Snurra" you determine that she is pregnant in week 7+2. She is G2 P0. One previous miscarriage after 8 weeks' of amenorrhoea. The bleeding that occurred the previous evening was fresh and comparable to that on the first day of a period. Now it is only a brownish discharge. The bleeding was accompanied by menstruation-like pain. Now, as the bleeding has stopped she has a stinging pain in the right iliac fossa. She has never had a cytology test (PAP smear) taken from her cervix. How would you investigate/treat this patient?

- A X** Perform a gynaecological examination to assess the cervix, uterus and adnexae. Take a cytology sample from the uterine cervix. Refer the patient to a gynaecologist for ultrasound querying an ectopic pregnancy.
One-sided low abdominal pain during early pregnancy can be a sign of an ectopic pregnancy. The patient should be referred to a gynaecologist.
- B** Do not perform a gynaecological examination because she has just had a bleeding, and there is anyway no point in taking a cervical smear because the blood will interfere with the sample. Taking a sample will also provoke a new bleeding. Refer her directly to the Gynaecology department for ultrasound and assessment of the cervix since she is 28 years old and has never had a cervical cytology test (PAP smear).
You should always examine the patient. She is not bleeding anymore; a cervical smear test can be performed.
- C** Measure the blood concentration of HCG twice at a 3-7 day interval to determine whether the pregnancy is developing normally or not. Give her an appointment for a cervical cytology test (PAP smear) when the last HCG result is available.
You should always examine the patient.
- D** Perform a gynaecological examination and listen for fetal heart beat (using a fetal doppler monitor for regular pregnancy check ups). If you can hear fetal heart beats to one of the sides, this could indicate an ectopic pregnancy and the patient should be referred to the Gynaecology department as an emergency.
You should not listen for fetal heart beat at this time point - you cannot "hear" an extrauterine pregnancy.

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9

A 35-year old woman gave birth to her second child 8 months ago. She is still somewhat breastfeeding. She has started back at work as a nurse and complains of large amounts of urinary incontinence. You find that she has a body mass index (BMI) of 36. Which treatment is the most correct for this patient now?

- A** Ask her to stop breastfeeding
This is an alternative, because oestrogenization can be improved particularly if she is breastfeeding for all feeds. However, this woman is not and she would most probably not benefit greatly from this measure by itself.
- B** Ask her to lose about 5 kg in weight
This is a good answer, but is not generally enough by itself. However, it should be recommended together with pelvic floor exercises, for example, as many people improve when there is less abdominal pressure from above. It can be difficult to put into practice, particularly as she is breastfeeding.
- C X** Recommend pelvic floor exercise with a physiotherapist
This would always be the first choice for this type of condition. Conservative, non-invasive treatment which is effective for many people.
- D** Recommend surgery for urinary incontinence (TVT, Tension-free Vaginal Tape procedure) in the Gynaecology Department
This is an invasive procedure and is not recommended initially, but only after conservative treatment has been tried.

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10

The patient is pregnant for the first time and has recently been for the routine ultrasound scan in week 19. The results revealed a placenta previa marginalis in which the lower edge of the placenta lay 3 mm from the internal cervical orifice. She has an appointment for a new placental examination in gestational week 32. You are her GP; at check-up with you she is anxious because she now has to have an elective Caesarian at term due to the position of the placenta. What can you tell her about the probability that the placental edge will have moved upwards away from the internal cervical orifice at the next ultrasound scan and a vaginal birth can be planned?

- A 10%
- B 70%
- C X 90%
- D 30%

90% of pregnant women who have a placenta previa totalis or marginalis at routine ultrasound determination will have a normal placental position in gestation week 32.

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11

What are the recommended procedures for treatment of genital herpes simplex virus (HSV) infection during pregnancy?

- A An antiviral drug (aciclovir) is only suitable for pregnant women who are definitely known not to have had a previous genital HSV infection
- B If a pregnant woman gets a genital HSV infection during pregnancy, the fetus should be delivered by Caesarian section around the due date because of the increased risk of infection with a vaginal birth
- C Reactivation of genital HSV infection must always be treated with an antiviral drug (aciclovir)
- D X Reactivation of genital HSV infection with frequent episodes towards the end of the pregnancy must be treated with an antiviral drug (aciclovir) 10 days before the due date
Pregnant women with previously diagnosed genital herpes and frequent outbreaks (recurrent) towards the end of the pregnancy are recommended to plan for a vaginal delivery and undergo prophylactic treatment with Aciclovir 10 days before the due date, with treatment continuing until delivery.
Source: www.infpreg.se

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12

What is the most correct statement regarding listeria infection in pregnancy?

- A X Can result in serious complications in the fetus such as fetal death and neurological sequelae
Normally asymptomatic or influenza-like symptoms, but in the fetus and neonate Listeria can cause serious illness. The mother can infect her child without being ill herself. Intrauterine infection can result in fetal death and neurological sequelae.
- B Is tested for in everybody at the first pregnancy check-up
- C A common infection among pregnant women in Norway
- D Common symptoms are fever, nausea and abdominal pain

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13

A 35-year old woman pregnant for the first time attends your GP surgery in gestational week 38+5. Previously she has generally been healthy and does not take any regular medication. The pregnancy has progressed normally and the patient has attended for regular check-ups with you. At today's check-up the patient complains about a frontal headache, but feels otherwise well. You measure her blood pressure to be 160/100, 158/97 and 165/95. Negative urine dipstick. What is the most correct recommendation for her?

- A You say that since everything has been normal so far, she can take 1g paracetamol and see if her headache disappears
- B You recommend that she attends for a new blood pressure measurement in 5 days
- C You start her on antihypertensive medication, e.g. labetalol (Trandate®), and give her a new appointment in 5 days
- D X** You refer the patient to the Obstetrics Outpatient Clinic and ask for an assessment today or tomorrow

In this case the correct action is to refer to the specialist healthcare services after gestational week 37. Systolic pressure above 150 mmHg must always be followed up in pregnant women due to the risk of intracerebral events. The specialist healthcare service will assess the size of the fetus and amount of amniotic fluid. It will be then be assessed whether it is safe to continue the pregnancy.

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A young woman attends for an appointment with you, her GP. She gave birth to her 3rd child 2 months ago. She had diet-controlled gestational diabetes, otherwise it was an uncomplicated pregnancy and delivery.

What is the most correct follow-up for this woman?

- A Ask her to keep a blood sugar diary and give her an appointment for follow-up in one week
Incorrect. A standardised test is needed to detect any TSD.
- B Ask her to come back another day for a p-glucose test
Incorrect. This does not detect any T2D.
- C X** Give her an appointment for an oral glucose tolerance test in a couple of weeks
Correct. This is the recommended procedure to detect T2D in women who have had gestational diabetes.
- D Send a referral to the Endocrinology Outpatient Clinic at the nearest hospital
Incorrect. These patients should not primarily be followed up at the Endocrinology Department.

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15

A 32-year old woman finds out that she is pregnant for the first time. She is 2 days over her expected period, the pregnancy is planned. When should she book an appointment with her GP for her first pregnancy check-up?

- A In 1-2 weeks
- B In 8-12 weeks
- C X** In 4-8 weeks
The first pregnancy check-up is recommended between weeks 8 and 12.
- D In 2-4 weeks

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16

You are a physician out in the districts. Travelling time to the hospital is three hours. A woman is gravida 3, para 2 with 2 normal pregnancies and deliveries. She attends for a planned check-up in gestational week 39 and you palpate a fetus in breech position. What is the most correct information to tell her now?

- A You believe that a breech delivery is associated with a high risk; you recommend she has a Caesarian section and refer her to the hospital tomorrow
Many countries recommend a Caesarian in women with a fetus in a breech position, but in Norway we recommend a vaginal delivery in women with a normal-sized fetus and uncomplicated pregnancy.
- B X You say you will refer her to the hospital for assessment of delivery method and possible external cephalic version
We recommend trying external cephalic version in women with a baby in the breech position. We recommend referral in weeks 36-37 because it is easier to turn at this time than closer to term. But it is also possible to try out external cephalic version in week 39.
- C You say that you will perform an external cephalic version now, and ask the midwife in the office next door to assist you
External cephalic version must only be performed in a hospital with facilities for performing a Caesarian section.
- D You say that it is too late for an external cephalic version. This has to be done no later than gestational week 37
It is possible to try an external version if the waters have not broken.

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17

What does this ultrasound scan reveal? (The distance measured is 48 mm)



- A Cross-section of a fetal abdomen
The image shows a fetal head, not an abdomen. The cerebral falx can be clearly seen.
- B X A fetal head in the second trimester
The image shows measurement of the biparietal diameter (BPD) and a measurement of 48 mm is displayed on the image. This measurement corresponds to a gestation length of 19 weeks.
- C A fetal head in the third trimester
A BPD of 48 mm does not correspond to the size of a fetal head in the third trimester.
- D A fetal head in the first trimester
A BPD of 48 mm is too large to be in the first trimester
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18

Where does the fertilisation between an egg cell and a sperm cell usually take place?

- A In the ovary
- B In the cervix
- C X In the Fallopian tube
Fertilisation normally takes place in the Fallopian tube
- D In the uterine cavity
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19

Ida (29 years old) is pregnant for the first time. She has checked out various websites for pregnant women and is feeling very confused by all the information she finds. She has a BMI of 35 and wonders if it is correct that she has an increased risk for many of the complications of pregnancy. Which of the complications below is Ida at increased risk of getting based on her BMI?

- A Breech delivery
No known risk as such.
- B Precipitate labour
Not correct, more likely to be a long labour.
- C Anaemia
Incorrect
- D X Early spontaneous miscarriage
Correct answer. There is a significantly increased risk of spontaneous miscarriage in obese women.
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20

A 15-year old girl and her father attend the GP surgery for a medication check-up for the girl's ADHD. She was diagnosed with ADHD 1 year ago. Relevant treatment including medication was started in BUP. The girl takes methylphenidate 40 mg in the morning. You are told that over the last months the girl has had increasing problems at school with a lot of absences, she is sleeping a lot, has started self-harming, eats very little, does not take part in social activities or regular activities, and is irritable if she is not left alone. Which is the most probable comorbidity?

A Behaviour disorder

The symptoms described are characteristic of depression which is a common comorbidity among people with ADHD as an adolescent. Bipolar disorder is an important differential diagnosis, but there is no information on symptoms of mania. Behaviour disorders are also a common comorbidity among adolescents with ADHD, but are characterised by repeated and persistent antisocial, aggressive or challenging behaviour with a clear breach of social expectations and norms relative to the age. Personality disorders are rare in 15-year olds, and are personality traits that persist over years.

B Personality disorder

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C X Depression

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D Bipolar disorder

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21

A 10-year old boy attends the doctor's surgery with his parents because the boy has increasingly made movements and sounds that bother him. He has blinked a little too hard and often for periods over the last few years. He has also had episodes of sniffing and throat clearing even though he doesn't have a cold. The last 6 months there has been a severe exacerbation with daily incidents with strong neck jerking and hitting and kicking the walls. Kicking the walls occurs mostly at home. In addition, his mother says that he can suddenly touch other people on the body, and that the parents of fellow pupils have contacted them to say they are shocked by his behaviour. He can breathe very heavily and exaggeratedly which has also scared others. The boy cries and wants to stop being bad. What would you do to help this patient?

A X Refer to BUP for investigation and treatment

The vignette describes a tic disorder resulting in functional impairment that must be investigated and treated by BUP. Sertraline can be a treatment option, but will not be the first choice. There is no information that suggests there is a need for parental guidance. Investigation with MRI of the head and EEG are not standard in the investigation of tic disorders.

B Refer the patient for MRI of the head and EEG to exclude a brain tumour and epilepsy

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C Treat the patient with Sertraline

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D Refer the family to the Family Counselling services for parental guidance

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22

You are a doctor in general practice. A girl (14-years old) and her mother attend as an "emergency appointment". The girl has previously been healthy, amenable and done well at school. Over the last six months she has become more and more irritable, will not eat dinner with the family, and her mother hears her exercising in her room in the evenings. The mother has not seen her daughter vomit, but is concerned about a serious illness as the girl has lost several kilos in weight. The girl entered puberty around the age of 12, but has not had her periods the last 3 months. The patient says she is healthy, and that it's not a problem if she loses weight because she has thick thighs. At examination you find: Height 160cm, weight 36 kg (BMI 14.2 kg below the 2.5 percentile) BT 90/70, pulse 55, blood glucose 5, Hb 13. Apart from the loss of weight she appears to be in good health. Which further investigations and treatment do you think is most correct?

- A X** Medical history, extended blood tests, mapping of diet and exercise patterns, and at the same time referral to the specialist healthcare services (BUP, Child and Adolescent Psychiatry Services) *Medical history, extended blood tests, mapping of diet and exercise patterns, and at the same time referral to the specialist healthcare services (BUP, Child and Adolescent Psychiatry Services) is correct.*

A more thorough mapping of the medical history development and current status is important for your assessment, and the progression and somatic status are sufficiently serious that follow-up in the specialist healthcare service (BUP, Child and Adolescent Psychiatry Services) is necessary. It is important to quickly initiate treatment, therefore the referral should be sent immediately. With such extreme underweight, it is not advisable to wait and see. She has had a large weight loss so far and she does not believe that she needs to increase her nutritional intake. Probably, further weight loss would be expected if treatment does not start immediately.

- B** Because the patient refuses to talk to you and she appears to be in good general health, you can't see any reason to waste time with an uncooperative patient, but encourage the mother to contact you if things get worse.

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- C** Because the weight loss has occurred gradually over several months and she appears to be in good general health, it is reasonable to agree an appointment in a week's time when the test results are back. You encourage her to increase her nutritional intake before the next appointment. *Medical history, extended blood tests, mapping of diet and exercise patterns, and at the same time referral to the specialist healthcare services (BUP, Child and Adolescent Psychiatry Services) is correct.*

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- D** Eating disorders are a serious condition, and because the patient will not cooperate, voluntary admission with the parents' permission is recommended. *Medical history, extended blood tests, mapping of diet and exercise patterns, and at the same time referral to the specialist healthcare services (BUP, Child and Adolescent Psychiatry Services) is correct.*

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23

A mother comes to the Emergency Clinic with her 14-year old daughter after finding her crying in the bathroom with a rope she had tried to tie around her neck and some superficial cuts on her left wrist. The girl confirms that she had thoughts of wanting to die, and her mother is worried. The mother says that her daughter was admitted to a psychiatric day unit one year ago because of cuts to her left wrist. She then received outpatient follow-up for depression for a while, but stopped six months ago because she had improved. Over the last weeks she has been more and more off school and mostly stays in her room. The girl is quiet, looks down, makes little eye contact and will not say anything about how she feels or what she is thinking. She has some old scars from previous self-harming. What is your assessment of the suicide risk for this girl?

- A** I cannot assess the suicide risk before I have talked more with the girl about suicidal thoughts and suicidal plans.
The suicide risk can be assessed even if you do not manage to speak with the girl about suicidal thoughts. Many of the factors we base the assessment on are from the medical history or information from the family, for example, as in this case. Of course, it is best if you can also know the adolescent's thoughts, but often they won't talk about these things, and you still have to make an assessment.
- B** I assess the suicide risk to be high, mostly due to the probable presence of a mental disorder, an increasing degree of withdrawal and confirmed suicidal thoughts.
The presence of a probable mental disorder contributes to an increased risk, but previous suicide attempt and confirmed suicidal thoughts weigh more heavily as risk factors than increasing withdrawal and confirmed suicidal thoughts.
- C X** I assess the suicide risk to be high, mostly due to the probable presence of a mental disorder, previous suicide attempt and confirmed suicidal thoughts.
B. Previous suicide attempt and the presence of mental disorder are the strongest risk factors for suicide that we know. The girl has previously had a depressive condition, is probably developing depressive symptoms again, confirms suicidal thoughts, appears to have a plan for strangulation, and there is a high risk that she will repeat a suicide attempt.
- D** I assess the suicide risk to be high mostly due to the probable presence of a mental disorder and repeated self-harming.
The presence of a probable mental disorder contributes to an increased risk, but a previous suicide attempt weighs more heavily as a risk factor than only self-harming.
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24

Why is it important to investigate personality disorder in adolescents with emotional difficulties, social relationships and self-harming over several years?

- A X** To ensure the correct treatment
Treatment of personality disorders at a young age give a better response.
- B** To have information on criteria ready for when the person is 18 years old.
- C** Because a personality disorder indicates that there is no evidence-based treatment; the case should therefore be concluded in the specialist healthcare services and receive any follow-up in the form of support meetings in the first line services.
- D** Because it will mean that she is a poor informant about her own health.
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25

Why is it often more difficult to identify psychotic disorders in children and adolescents than in adults?

- A** Because the prevalence is much lower.
Psychosis often develops as a gradual change in mindset, and a gradual change is more difficult to identify when the person is still developing. In addition, the symptoms are typically more diffuse. It is correct that the prevalence is lower in children and adolescents, but that is not the reason that it is more difficult to identify. Children's fantasies can be compared to delusions but do not have the same quality and should be differentiated. Children and adolescents do not mask their psychotic symptoms more than adults.
- B X** Because they are still developing and the symptoms are often less clear than in adults.
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- C** Because children and adolescents often will not talk about psychotic symptoms
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- D** Because children and adolescents have problems distinguishing between fantasy and reality.
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A 5-year old boy has been diagnosed with conduct disorder.
What is the first line of treatment for this disorder?

- A** Systemic family therapy that improves the relationship between the parents so that the child, who is the symptom-bearer, stops his/her problematic behaviour.
Systemic-oriented therapy such as multisystemic therapy (MST) is effective in adolescents with behaviour problems. However, the type of family therapy referred to here, where the child is perceived only as a symptom-bearer, is out of date and not evidence-based.
- B** Cognitive-oriented behavioural therapy with exposure and response prevention which targets the child's anxiety that underlies the behavioural problem
It is correct that cognitive-oriented behavioural therapy is an effective treatment for a number of anxiety conditions in children. However, this is not the first line of treatment for serious behaviour problems.
- C X** A development support guidance programme which promotes positive cooperation between the child and other children and between the child and adults.
Correct answer. This is a well-documented first line of treatment for children with serious behaviour problems.
- D** Psychodynamic-oriented individual play therapy in which the child's inner conflicts are resolved so that the problematic behaviour stops
Play is still an important element in the treatment of small children with behaviour problems in development-supporting guidance programmes such as "De utrolige årene" (The amazing years). However, today psychodynamic-oriented individual play therapy no longer has a sufficient knowledge-base for the treatment of behaviour problems in small children.
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27

A 15-year old boy comes to the doctor's surgery together with his mother. He is pale, moves slowly, turns away and avoids answering questions. He has little facial expression. He has developed and functioned normally until recently. The last 5 weeks he has barely been to school and does not have contact with friends other than via the Internet. He doesn't talk and is sullen, and he can be very angry sometimes. She is worried and anxious because she feels she no longer has contact with him. He thinks things are fine, but is bored at school and thinks his mother is making a big fuss. He is awake all night, she doesn't know if he is playing games or surfing the Internet. He eats little, and is impossible to get up in the morning. Before he was active with ski jumping, but hasn't been to training the last 2 months because he doesn't think it is any fun anymore. What is the most probable diagnosis?

- A** Severe depressive episode with psychotic symptoms
Diagnostic criteria: Episode with depression as described in C, but with hallucinations, delusions, psychomotor retardation or such severe stupor that ordinary social activities cannot be performed. There can be a danger to life consequent to the risk of suicide, dehydration or lack of food intake. Hallucinations and delusions may or may not correlate with mood. See the comment on severe depressive episode. We also do not have any information relating to psychotic symptoms.
- B** Severe depressive episode without psychotic symptoms
Diagnostic criteria: Depression in which many of the symptoms mentioned above are profound and troublesome, commonly loss of self-esteem, and feelings of worthlessness or guilt. Suicidal thoughts and actions are very common and somatic symptoms are generally present. The patient doesn't think he has any problems, and we do not have any information on suicidal tendencies or feelings of worthlessness or guilt. Therefore, less probable.
- C X** Moderate depressive episode
Diagnostic criteria: Four or more of the symptoms mentioned above are normally present, and it is probable that the patient has major problems with continuing ordinary activities. The patient meets the diagnostic criteria
- D** Mild depressive episode
Symptoms of depression: Low mood, lack of energy, lack of interest and ability to enjoy oneself, loss of concentration, increased tiredness and fatigue, disturbed sleep, reduced appetite, reduced self-esteem and self-confidence, feelings of guilt and worthlessness. Can be accompanied by "somatic" (melancholy form) symptoms such as loss of interest and feelings of pleasure, waking up in the morning several hours earlier than normal, depression that is strongest in the morning, pronounced psychomotor retardation, restlessness, loss of appetite, and loss of weight and libido. Diagnostic criteria mild depressive episode: Two or three of the symptoms mentioned are normally present. The patient is normally concerned about this, but will probably be able to continue with most activities. The patient has more than three symptoms and his loss of functionality is too great.

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28

A 10-year old girl attends your GP surgery together with her father. For the last two weeks she has complained almost daily about a headache. She doesn't want to go to school in the morning, and is tired in the afternoons. She is fine the days she can be at home. The headache normally passes after 5-10 minutes. She has previously been healthy with normal development. Her parents are divorced, but cooperate well together. Her little sister who is 5 has recently been diagnosed with type 1 diabetes mellitus. Her best friend changed schools 3 months ago, and she has had problems fitting in socially since then. What would you do to help the patient?

- A** Provide psychoeducation, refer to a paediatrician for investigation and assessment for treatment
The patient has mild symptoms and can be treated by the first line services
- B** Provide psychoeducation, refer for MRI of the head, treat with paracetamol. New check-up in 2 weeks.
The patient has mild symptoms. simple measures such as psychoeducation, a good daily rhythm, regular mealtimes and physical activity are important general factors for reducing some types of headache. There is no indication for referral for MRI.
- C** Provide psychoeducation, refer to BUP for investigation and assessment for treatment
The patient has mild symptoms and can be treated by the first line services
- D X** Provide psychoeducation, important to get a good daily rhythm. Recommend adaptation at the school.
The patient has mild symptoms and can be treated by the first line services. Psychoeducation, a good daily rhythm, regular mealtimes and physical activity are important general factors for reducing some types of headache.

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29

8-year old Siri's mother contacts you with the following concerns: During the last months, Siri has stopped eating sausages because she is afraid a piece could get stuck in her throat. She changes her socks several times a day because she is afraid she could have stepped in something nasty on the floor. When she gets home from school she changes all her clothes because she thinks her room gets dirty if she sits down with her school clothes on. If a friend visits she makes sure that she doesn't go into her room. The mother thinks she spends far too long in the shower. She mentions that it all started after they had had information about swine flu at school. What is the most probable explanation of her symptoms?

- A Siri has generalised anxiety disorder.
The vignette describes compulsive thoughts and actions (changes her socks, clothes), in addition to exaggerated worries, anxiety and avoidance behaviour. The presence of compulsive-obsessive actions distinguishes it from the other anxiety disorders.
- B Siri has paranoid thoughts and is developing a psychosis.
The vignette describes compulsive thoughts and actions (changes her socks, clothes), in addition to exaggerated worries, anxiety and avoidance behaviour. The presence of compulsive-obsessive actions distinguishes it from the other anxiety disorders.
- C At this young age it is normal to react with anxiety to information about serious disease.
The vignette describes compulsive thoughts and actions (changes her socks, clothes), in addition to exaggerated worries, anxiety and avoidance behaviour. The presence of compulsive-obsessive actions distinguishes it from the other anxiety disorders.
- D X Siri has a compulsive-obsessive disorder
The vignette describes compulsive thoughts and actions (changes her socks, clothes), in addition to exaggerated worries, anxiety and avoidance behaviour. The presence of compulsive-obsessive actions distinguishes it from the other anxiety disorders.

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30

Aleksander is a 15-year old boy who in the autumn comes with his father to the GP surgery for assessment of tiredness and chronic stomach ache, which he localises down to the right fossa, which began two months ago around the time he started back at school. They were on holiday in Turkey early in August, but he had no symptoms of infection on holiday; he hasn't had a fever. He often sleeps when he comes home from school which he enjoys and where he has many friends. Father is the trainer for his football team and he is concerned that Aleksander is performing poorly. Aleksander does not have diarrhoea and says he has a daily bowel movement and that it is "normal". He says there is no blood or mucous. He has not vomited, but can feel nauseous. He is eating less and his father feels that he has become thinner over the last month. At examination you find he is slim, a little pale, sunken eyes, but otherwise in good general health. Has slight palpation tenderness low in the abdomen on the right side. No masses. Some inguinal glands. What is the most correct course of action that should be done next?

- A Take a stool sample for infectious gastroenteritis.
- B Requisition US abdomen to exclude pathology.
- C Start treatment for obstipation; a new appointment in two months.
- D X Take blood samples including gluten antibodies, hemofec and Calprotectin in faeces.
Even if constipation is the most common cause of chronic stomach ache, we have here a boy without any clear history or findings of obstipation, but with weight loss, reduced general health, paleness and sunken eyes. Neither is tenderness in the right fossa typical for obstipation. Such patients should be investigated for inflammatory bowel disease and celiac disease using blood and fecal tests immediately in the first line services, and not wait two months. Ultrasound of the abdomen is a specialist task after careful consideration of the most probable diagnosis. Tests for viruses and pathogenic intestinal bacteria are generally relevant in the investigation of IBD and differential diagnostics but, of course, they are not prioritised above the correct alternative when there is no clear medical history to indicate a suspected infectious gastroenteritis.

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31

Mari is a 2-month old girl who is fully breastfed. She wakes very often and cries at night. The parents interpret this to be stomach pains. She sleeps well during the day for 2 hours. She eats well and is following her weight and length curve. She does not particularly gulp a lot. She swallows a lot during the night, and makes noises that her parents interpret as gulping that she swallows again. Her parents suspect that she has reflux (GER). At clinical examination in the surgery you find a healthy-looking child in normal good health without any specific findings. What do you do next?

- A Start with conservative treatment with a high head position and more frequent small meals.
- B X** Explain to the parents about normal conditions.
Mari is growing and putting on weight. She sleeps well during the daytime and there are no findings at clinical examination. This negates GERD. Explain to the parents. No indication for treatment.
- C Start treatment with a proton pump inhibitor (PPI) based on the clinical findings.
- D Refer her to the Paediatric Department for further investigations.

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32

A 3-day old baby is to be discharged from the Maternity ward. Possible VSD was diagnosed in utero and after the birth the Paediatric Cardiologist confirms a moderately-large VSD. The family have been told they will have an Outpatient appointment in 4 weeks. The grandmother who works in the Cardiovascular Dept. asks if this is correct.

What do you think is the reason the doctor has given them this appointment?

- A X** The relatively high lung pressure in the weeks after birth counteracts left to right shunting
Correct answer. It takes a few weeks before the lung pressure falls and left to right shunting (which is what happens with VSD) is thus counteracted.
- B VSD is associated with right to left shunting which rarely induces heart failure.
- C The size of the VSD will not increase until later
- D In neonates the heart does not work very hard because they are very inactive and sleep a lot in the first weeks.

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33

A 2-year old previously healthy boy living in Norway has had a cold and fever for a day. The doctor at the Walk-in Centre ("legevakt") finds that he is lethargic, but not poorly, and that he has suppurative otitis media in one ear.

Which treatment would you recommend?

- A X** Paracetamol dose x 3-4 until pain-free
80% otitis improves spontaneously - so painkillers are recommended in the first instance
- B Ibuprofen dose x 3-4 until pain-free
Can be relevant, but normally paracetamol is recommended as the analgesic
- C Phenoxymethylpenicillin for 5 days
Can be relevant, but in previously healthy children >1 year with one-sided otitis, antibiotics are not recommended in the first instance
- D Course of amoxicillin for 5 days
If antibiotics are to be used, phenoxymethylpenicillin is the first choice of treatment

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34

A 26-month old boy with known egg allergy. Has had all his vaccinations. Admitted with RSV bronchiolitis aged 6 months. Cold and fever initially for 1 week which has persisted with nightly cough and mucous production for the last 2 months. Is in nursery school where he is continually a little behind the other children in physical activities. At examination he has prolonged expiration and uses the abdominal help muscles. What is the most probable diagnosis?

A Whooping cough

The medical history lacks the characteristic symptoms for whooping cough, and this is improbable in a 24-month old child who is fully vaccinated.

B RSV bronchiolitis

Bronchiolitis is given as a diagnosis before 2 years of age. The long-term medical history and atopy predisposition means one must assume that there is an underlying bronchial hyperreactivity (asthma), but this could have been triggered by a viral infection (RSV or other).

C Pneumonia

The child had a fever for 1 week, and after this just a cough with mucous. Pneumonia may have been present initially, but that is not the problem now.

D X Asthma

The child has atopy and this is the second obstructive episode. The medical history with falling capacity for physical activity and long-term productive cough/night cough gives suspicion of an underlying hyperreactivity in the airways (=asthma).

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35

A 7-month old boy. The father has allergy and eczema. Fully breastfed, the mother has no dietary restrictions, introduced to other food from 5 months of age. Subsequently he has tasted most of the family's food. Dry and itchy rash increasing over the last 2 weeks. What is the most probable diagnosis?



- A** Allergic urticaria
Urticaria is subcutaneous swelling and redness. Not dryness and small spots as shown in the image.
- B** Atopic dermatitis due to milk allergy.
The rash is typical for atopic dermatitis with a maculopapular rash on the trunk; the probability of milk allergy is low because the child has been exposed to milk protein through the breast milk since birth.
- C X** Atopic dermatitis probably not due to milk-protein allergy
Atopic dermatitis with a maculopapular rash on the trunk, eczema patches in the elbows. Dry skin.
- D** Chronic urticaria due to milk allergy.
Urticaria is subcutaneous swelling and redness, not dryness and small spots as shown in the image. Milk allergy is improbable as onset was after the introduction of other food and the child has been exposed to milk proteins through the breast milk since birth.

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36

You are a general practitioner. A mother attends with her 1-year old boy. The mother says that a short while ago a lump appeared in the boy's right groin. The lump is not always present, but it generally appears when the boy cries. When the mother squeezes the lump it is soft and can be pushed inwards. When you examine the boy in your office, he is quiet and you cannot find a lump. What is the correct action to take?

- A** You refer for ultrasound querying a swollen lymph node in the groin.
- B** You reassure the mother saying that you cannot find anything wrong when examining the groin.
- C X** You suspect an inguinal hernia and refer to a Surgical Dept for an operation.
The medical history indicates a hernia. The parents' information is given priority.

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37

You are the doctor at the Child Health Centre. A 1-year old boy has only his left testicle in the scrotum. You think you can feel the right testicle in the right groin, but it is not possible to milk it down into the scrotum. What is the correct diagnosis?

- A X** Undescended testicle/testicle retention/retentio testis
Absent testicle in the scrotum indicates an undescended testicle
- B** Phimosis
- C** Hydrocele
- D** Inguinal hernia

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38

You are the doctor in the minor injuries centre. A 13-year old boy has acute pain in the scrotum. The pain is severe and the boy is a little nauseous. What is the correct course of action?

- A** Send the boy home and tell him to come back if the pain does not get better
- B X** Suspect testicular torsion and refer as emergency help to the Surgical Dept
Acute scrotum is always indicative of testicular torsion and requires immediate surgical evaluation
- C** Start antibiotic treatment for suspected epididymitis

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39

A 10-year old girl has been on holiday in India. After coming home, she had watery diarrhoea that lasted more than 3 weeks. She has lost 1 kilo in weight, and complains of burping that tastes of rotten eggs. What is the most probable agent?

A X Giardia Lamblia

A common cause of "traveller's diarrhoea". Incubation time is 5-25 days, with typically watery diarrhoea, malabsorption and a rotten smell when burping. Can persist for a long time.

B Staphylococcus aureus

As a rule causes acute toxin-mediated diarrhoea

C Rotavirus

Seldom persistent diarrhoea

D Campylobacter

The symptoms normally disappear after a few days even though it is possible to excrete bacteria for a long time afterwards

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40

CP is a collective name for a group of conditions characterised by a dysfunction of the movement and motor functions. The condition is caused by damage to the immature brain before the child is 2. What type of additional problems is a child with CP at increased risk of?

A Impaired vision

B X All

In cerebral palsy there is an increased risk of all these additional problems compared to the "normal" population

C Behaviour problems

D Epilepsy

E Cognitive problems

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41

Petter is a 7-month old, previously healthy boy. He started with vomiting and diarrhoea six days ago. The last 24 hours, blood spots and mucous have appeared in his stools. He has also become more lethargic and drinks little. His mother takes him to the GP who finds he is pale, has a pulse 140/minute, temperature 37.2 degrees C, slightly cold peripherally, dry lips and slightly halonated eyes. Petter is referred to the hospital where investigations in the Emergency Department reveal the following:

Test	Result	Ref. range
CRP	27 mg/L	<5 mg/L
Leucocytes	16.9 $10^9/L$	3.7 – 14.7 $\times 10^9/L$
Hb	7.0 g/dL	10.5 – 13.1 g/dL
Thrombocytes	120 $\times 10^9/L$	229 – 497 $\times 10^9/L$
Creatinine	63 micromol/L	14 – 34 micromol/L

Which disease do you primarily suspect and which test best clarifies the diagnosis the same evening?

A Acute lymphatic leukemia: blood smears, urate

B Acute gastroenteritis: S/B, Na, K, faeces culture

C X Haemolytic uremic syndrome: LD, blood smear

Anaemia, thrombocytopenia and elevated creatinine give suspicion of HUS. LD and perhaps haptoglobin are analysed to check whether haemolysis is the cause of the anaemia. Blood smears can detect schistocytes (fragmented red blood cells) which are typical in HUS

D Idiopathic thrombocytopenia: ANA, blood smear, hemo FEC

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42

Children born with this condition often require two surgical procedures in the neonate period. One is to close the skin defect. What is the reason for the other surgical procedure?



- A X** Hydrocephalus
85-90% will develop hydrocephalus. Most require shunt surgery soon after birth
- B** Club foot/Pes equinovarus
- C** Tethered cord
- D** Hip dysplasia

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43

You are contacted by the district nurse as the GP for a 5-year old boy who has been for a check-up at the Child Health Centre that day. She noticed that the boy had poor dental hygiene and a lot of bad teeth; he also had a bruise on his left ear lobe that was painful. When she asked the boy how he got it he said that he "didn't remember" at the same time as he appeared upset and peeked up at his mother. How would you manage this and what advice would you give to the district nurse?

- A** You ask the district nurse to make sure the boy is referred to a dentist.
This is important but not sufficient.
- B X** You give the boy an appointment for examination by you the same day, and consider a referral to the dentist and a note of concern to the Child Welfare Services.
Here the concern for abuse and failure of care is so great that there are clear indications for a rush follow-up and submission of a note of concern.
- C** You request an appointment for the boy in your surgery in 4 weeks.
This is insufficient, the bruise on the boy's ear will have disappeared by then.
- D** You say you will call the mother to find out what happened.
This too is insufficient. The mother may understand what you suspect and instruct the boy in what to say.

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44

Nils who is 8 years old has Diabetes Mellitus Type 1. He wakes up one morning feeling clammy and sweaty with a blood glucose of 11.0 mmol/L. How is this best explained?

- A Night hypoglycemia with hormonal counterregulation in the form of increased excretion of glucagon and decreased excretion of adrenaline and growth hormone.
There is a large increase in growth hormone and adrenaline in hypoglycemia.
 - B Night hypoglycemia with hormonal counterregulation in the form of increased excretion of adrenalin, glucagon and thyroxine.
Thyroxine does not respond to hypoglycemia.
 - C Night hypoglycemia with hormonal counterregulation in the form of reduced excretion of adrenaline and increased excretion of glucagon and leptin.
An increase in the hormone adrenaline gives the clearest symptoms of hypoglycemia: shaking and paleness
 - D X Night hypoglycemia with hormonal counterregulation in the form of increased excretion of adrenaline, glucagon and growth hormone.
These three hormones constitute the most important hormone response in hypoglycemia.
-

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45

There are many reasons why a child can have an increased risk of delayed psychomotor development. Which of the following groups/answers are the most correct?

- A Children who are born extremely premature
 - B Children with a congenital heart disorder
 - C X All
All these patient groups have an increased risk of delayed psychomotor development and there is a large variation in all groups
 - D Children with epilepsy
-

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46

As a doctor you meet a 3-year old girl. Over the last weeks she has had bruises on her legs, and some small red spots have also been seen on her calfs. She is otherwise healthy now, but had a respiratory tract infection a few weeks ago. At clinical examination she is afebrile and in good general health. You find petechiae and bruises on her legs. Otherwise normal results at general clinical examination. General blood tests reveal thrombocytes $28 \times 10^9/L$ (ref. range: $228-435 \times 10^9/L$). All other relevant blood tests are normal. You are almost certain that the patient has ITP (Idiopathic thrombocytopenic purpura). What is the correct way to manage this situation?

- A Intravenous immunoglobulins
Wait and see is correct here. If the platelets fall below 20 it is often reasonable to try immunoglobulins. The indication increases if there is bleeding from mucous membranes.
 - B Oral steroids
This is a newly-occurring ITP with a moderately low platelet count. At this time treatment is not applicable. Moreover, prednisolone is not the first choice in regard to treatment.
 - C Intravenous Rituximab
Wait and see is correct in this situation. Moreover, Rituximab is never the first choice for treatment of children, as a rule it is the 3rd choice in difficult ITP.
 - D X Continued observation
Wait and see is correct here. New tests in a few days. If the platelet count is stable and >20 without a bleeding tendency, then first and foremost we observe. You must however be aware of bleeding from mucous membranes. First choice treatment is immunoglobulins.
-

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47

Which statement is correct?

- A** Iron deficiency is the most common cause of anaemia in children.
Incorrect. Infections are the most common cause of moderate anaemia in children. Iron deficiency is the next most common cause of anaemia in children.
- B** Iron supplements for children should be combined with milk to improve iron uptake in the intestines.
Incorrect. Milk can reduce iron uptake in the intestines and should not be given together with iron supplements.
- C** At the time of diagnosis of acute leukaemia in children, a hypochromic microcytic anaemia is often present.
Incorrect. At onset of acute leukaemia there is often a normochromic normocytic anaemia (decreased production is not due to iron deficiency but to suppressed erythropoiesis due to blast cells).
- D X** In haemolytic uremic syndrome (HUS) in children, thrombocytopenia is often present.
Correct. Thrombocytopenia is common in HUS.

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48

As a specialty registrar, you are working at a GP's office where the first patient of the day is a 3-year old boy. The mother says that he has been down with a number of different respiratory tract infections over the last months and she thinks he is paler than normal. Clinical examination reveals a temperature of 38.4°C and poor general health. You find multiple small glands in his neck, enlarged tonsils and hepatosplenomegaly. Preliminary blood tests at the GP's office are presented in the Table below. What is the most probable diagnosis for this child?

Test:	Result:	Reference range:
CRP	36 mg/L	<5 mg/L
Hb	8.3 g/dL	10.5-13.1 g/dL
Thrombocytes	126 x 10 ⁹ /L	228-435 x 10 ⁹ /L
Leukocytes	15.9 x 10 ⁹ /L	3.7-14.7 x 10 ⁹ /L

- A** Infectious mononucleosis
- B** Hemolytic uremic syndrome
- C X** Acute leukaemia
The patient has been ill over a longer period and has both anaemia and thrombocytopaenia, mild leukocytosis, hepatosplenomegaly and infection. This is a common presentation of acute leukaemia and is the most probable diagnosis (tot. leukocyte count can be low, normal and high in leukaemia. Neutropenia is common). Mononucleosis could be relevant in patients with large tonsils and hepatosplenomegaly, but is normally asymptomatic in children <10 years of age. Mononucleosis does not give such pronounced anaemia or thrombocytopaenia. HUS is characterised by the triad of anaemia, thrombocytopaenia and renal failure. >90% of the cases are associated with E. Coli gastroenteritis and have an acute onset. The patients often have stomach pains and bloody stools. Anaemia develops rapidly and the patient's cardiorespiratory system can be affected. In the current medical history, the patient has been ill for a long time and does not have gastroenteritis symptoms which does not support HUS. Parvovirus B19 is generally asymptomatic, but can give bone marrow suppression. It is rarely as pronounced as in this case. Neither does it cause hepatosplenomegaly.
- D** Parvovirus B19

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49

Kari is 5 years old, weight 20kg and has a nut allergy. At a birthday party where they served cake, she suddenly became red in the face, distant, and started gasping for breath. The emergency services doctor arrived quickly and is going to administer adrenaline. What dose should the doctor give?

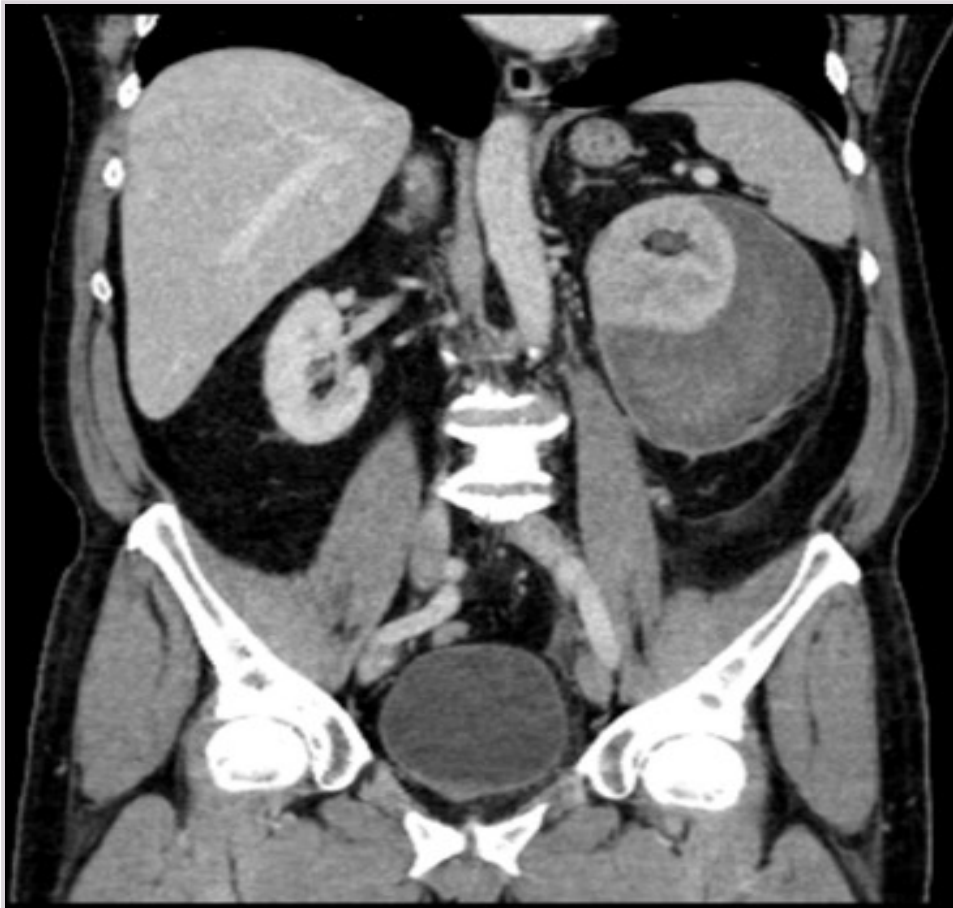
- A Adrenaline 0.1 mg/ml at a dose of 2 ml i.v.
- B Adrenaline 0.01 mg/ml at a dose of 0.2 ml i.m.
- C Adrenaline 0.1 mg/ml at a dose of 0.2 ml i.m.
- D X Adrenaline 1 mg/ml at a dose of 0.2 ml i.m.

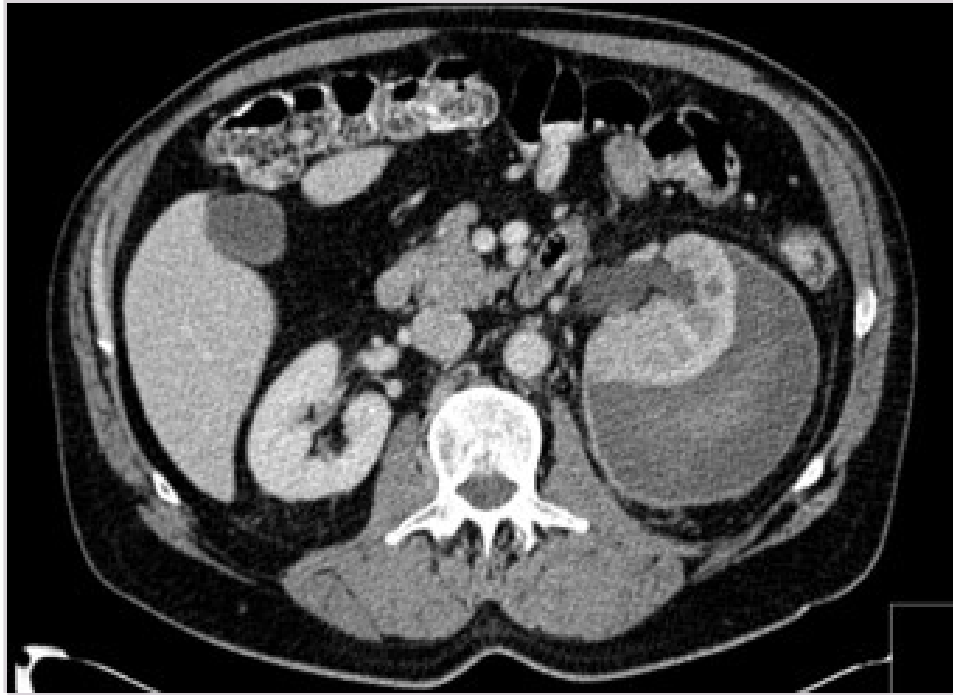
The correct dose is 10 microgram/kg x estimated weight about 20 kg = 200 microgram which is given as 0.2 ml of a 1 mg/ml solution ("regular adrenaline") i.m.

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50

A 65-year old man was admitted as an emergency. He was at a party and when dancing swing collided with another dancer. He got the other dancer's elbow in his left flank. He complains about severe pain in his left flank and has macroscopic haematuria. Findings at examination: BP 140/85 mmHg, Pulse 94/min. No visible injury at examination. Haemoglobin at admission is 11.6 (ref. range 13.4 - 17.0 g/dL.) Palpation tenderness in the left part of his abdomen and palpation tenderness above the costovertebral angle. CT of the kidneys was performed, see the images. What is the treatment?





- A CT abdomen reveals hydronephrosis which should be treated with a JJ-stent.
- B In the event of a fall in haemoglobin, the patient should undergo emergency surgery with a left-sided nephrectomy.
- C X Observation of the patient with check of HgB and vital parameters.
Treatment of patients with a kidney injury whose circulation is stable is first and foremost conservative (close observation and check of HgB). Selective embolisation should be considered rather than a surgical procedure. Nephrectomy is incorrect because it results in loss of renal function. Insertion of a JJ-stent is not indicated when there is an intact collection system. Percutaneous drainage of the haematoma is contraindicated because this can result in significant bleeding which can quickly result in a nephrectomy.
- D Ultrasound-guided percutaneous drainage of the subcapsular haematoma.

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51

72-year old man, previously generally healthy but with mild to moderate micturition problems. In connection with an operation for hip arthrosis, he was given a spinal anaesthetic without insertion of a bladder catheter. The operation was difficult and lasted a long time. Postoperatively the patient had problems with frequent, small volumes of urine and urine leakage. Urine dipstick was negative. What type of incontinence is the most probable in this patient?

- A Stress incontinence
- B Urge incontinence
- C Mixed incontinence
- D X Overflow incontinence
The medical history fits well with the fact that the patient, in connection with the operation, had an over-distended bladder because of the lack of a catheter which thereby weakened the detrusor resulting in poor emptying. This can give overflow incontinence.

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52

A 76-year old man comes as an emergency help appointment to your surgery. Over the last two days he has had pain in the head of his penis with redness and swelling, and he cannot pull the preputium forward. There is no swelling along the shaft of the penis. The pain and the swelling occurred the morning after he had "successful" unplanned intercourse in the town thanks to his GP having prescribed viagra tablets.

- A He has been infected and has a bacterial balanitis.
- B He has priapism secondary to an overdose of viagra.
- C X** He has paraphimosis.
Infections do not cause pain and symptoms this quickly. The medical history and symptoms are typical for paraphimosis.
- D He has urethritis probably with chlamydia.

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53

A 33-year old man was re-admitted as an emergency 4 days after surgery for appendicitis. The operation was difficult with conversion from laparoscopy to open surgery due to bleeding and poor overview. At admission he complained of increasing pain in the right flank and nausea since the day of discharge after the operation. He has cold sweats, chills and is pale. Pulse: 124/min, blood pressure 80/50 and T_p 39.5°C. Blood tests reveal the following:

CRP	220 mg/L	0 - 5
B-HB	14.2 g/dL	13.4 - 17.0
B-Leucocytes	15.6 10 ⁹ /L	3.7 - 10.0
P-Sodium	145 mmol/L	137 - 145
P-Potassium	4.2 mmol/L	3.5 - 4.4
P-Creatinine	106 micromol/L	60 - 105

Emergency ultrasound of the abdomen revealed right side hydronephrosis and hydroureter as well as moderate amounts of free fluid in the pelvic cavity. The time is 23:00 in the evening. What is the appropriate treatment for this patient?

- A The patient should go directly to the operating theatre for explorative laparotomy due to probable postoperative abscess.
- B X** The patient should be given intravenous antibiotics and undergo emergency insertion of a nephrostomy.
The patient has sepsis and needs acute relief of the right kidney with a nephrostomy. A JJ stent is not sufficient.
- C The patient should be given intravenous antibiotics and referred for ultrasound-guided drainage of abscess in the pelvic cavity.
- D The patient should be given intravenous antibiotics and undergo emergency surgery with insertion of a JJ stent in the right ureter.

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54

A woman aged 60 had macroscopic hematuria. Examination with cystoscopy showed a tumour in the urinary bladder. Transurethral resection of the bladder tumour (TURB) has been performed. Histological examination showed non-muscle-invasive urothelial cancer with small areas with *carcinoma in situ* (Ta GII w/ cis.). What is the best action?

- A Radical cystectomy or radical radiation therapy
- B X** Immunotherapy (BCG) within four weeks, and check-up cystoscopy in three months
CIS has a relatively high tendency to recur and progress. Therefore these patients are treated with BCG.
- C Check-up cystoscopy in three months
- D Re-TURB and if no tumour, check-up cystoscopy in three months

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55

A 65-year old man with insulin-dependent diabetes mellitus and hypertension, well-regulated on antihypertensive drugs, is admitted as a semi-acute emergency to the Surgical Department with the diagnosis "tumour abdomen". He has had nightly urine leakage for the last 3 months. He is afebrile, creatinine is 250 µmol/L (reference: 60 - 105 µmol/L). CT abdomen taken the same evening shows a urinary bladder with upper/cranial edge between the umbilicus and xiphoid process, and bilateral hydronephrosis grade III. The urinary bladder contains 6,000 ml. What investigations and treatment should the doctor initiate?

- A Insertion of a permanent catheter should immediately be done and surgery/TURP within 1 week if the creatinine normalises should be planned.
- B Insertion of a permanent catheter should immediately be done, and then ultrasound-guided bilateral nephrostomies as semi-acute help the next morning should be performed.
- C Clean intermittent catheterisation (CIC) should immediately be started, and requisition of cystometry/flowmetry, ultrasound of the kidneys and check of creatinine for the next day should be planned.
- D X Insertion of a permanent catheter to ensure optimal drainage should be done immediately, and requisition of cystometry/flowmetry, blood tests, and new assessment at Urology Outpatients in 2 months should be planned.

Correct answer is B. The patient's urinary bladder needs long-term drainage because the bladder muscle/detrusor has been over-distended and is not functioning. There is a high risk that there is permanent detrusor damage. Cystometry/flowmetry after about 2 months with optimal drainage will clarify the detrusor function. Any surgery/TURP is conditional on satisfactory detrusor strength. The hydronephrosis is secondary to his extreme urine retention and will disappear when the bladder is drained

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56

A 20-year old man has an appointment at the health centre. One of his testicles has increased in size over the last 2-3 weeks. He has no pain. At examination, you feel that one of his testicles is uneven and hard compared to the healthy side, and you suspect testicular cancer. Otherwise you find nothing wrong at clinical examination. Which of the answers below is the best in regard to further investigation of the patient?

- A You order US (ultrasound) of the scrotum, CT of the abdomen/thorax and take blood samples for tumour markers. You give a new appointment for information.
Testicular cancer has a very good prognosis when diagnosis and treatment are performed optimally. If you suspect a tumour, the patient should be referred immediately to the hospital for further investigations. The patient will be entered in the Cancer Care Pathway - testicular cancer and will be diagnosed within a week.
- B X You explain to the patient that you suspect testicular cancer, and therefore refer the patient directly to the Urology Dept. for rush investigations without taking any samples.
Correct answer. Patients with suspected testicular cancer must be referred directly to the nearest Urology department for rush investigations. Investigations conducted by the GP will only result in delay and, in the worst case, a poorer prognosis.
- C You order blood tests with tumour markers and request a rush appointment, within 3 weeks for US (ultrasound) of the scrotum. You give the patient a new appointment after the ultrasound scan.
If a patient has a tumour that grows so rapidly that the patient notices it, he must receive fast investigation and treatment. A delay of several weeks can be risky and make treatment more difficult in rapidly progressing testicular cancer.
- D You explain to the patient that this could be a tumour, but that investigations with blood tests and ultrasound (US) within a week will be able to clarify this. You take blood samples with tumour markers. You order US of the scrotum and at the same time refer the patient to the Urology Dept. for testicular biopsy.
Testicular biopsy is not indicated if a US exam clearly demonstrates a tumour in the testis. A biopsy is very rarely used to make a diagnosis.

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57

A young woman aged 20 goes to the doctor's surgery due to visible blood in her urine, diffuse pain in the lower abdomen and a burning sensation when urinating. You see the patient, examine her and find tenderness in the lower area of the abdomen at palpation. The urine sample is too bloody for the urine dipstick results to be reliable.

What do you do?

- A You refer the patient for cystoscopy and 3-phase CT of the urinary tract.
- B You start antibiotic treatment and order CT of the urinary tract without contrast so that the patient is not exposed to too much radiation.
The patient should not have CT.
- C X Because the patient has symptoms of a UTI you start treatment with antibiotics and ask her to come back in a week for a check-up, or earlier if things do not improve quickly.
Macroscopic haematuria is most often due to a urinary tract infection in young women and must be treated with antibiotics. Further investigations are not necessary if the urine normalises.
- D You send the urine to culture and order CT of the urinary tract. You will contact the patient when the results of the culture are ready so that you can prescribe the correct antibiotics.
The most probable diagnosis in a young woman is bleeding cystitis which must be treated with antibiotics. In this situation, you must start treatment even if antibiotic resistance is not available. The urine must be checked and if the blood disappears completely, the patient should not have a CT of the urinary tract.

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58

Kristian, aged 72, is an active pensioner, and has been referred by his GP to Urology Outpatients due to recurring lower urinary tract infections over the last 18 months; the last time complicated with epididymitis. He has healthy heart and lungs, has insulin-requiring diabetes mellitus, and was operated 3 years ago for spinal stenosis (benign) at level L4-L5. Urination is characterised by hesitancy, reduced stream pressure, long voiding time. Periodic urine leakage, but no urge. Normal values for haemoglobin, creatinine and prostate specific antigen (PSA). Urine dipstick reveals white cells 3+ and nitrite 2+. Ultrasound urinary tract reveals no hydronephrosis, but 400 ml residual urine. Prostate volume is measured at 70 ml.

Which initial investigation and treatment is most suitable for this patient?

- A Insert a permanent bladder catheter and refer the patient for TURP (transurethral resection of the prostate)
With so much residual urine, the detrusor function must be examined using urodynamics.
- B Start with antibiotics for presumed cystitis and at the same time refer the patient for TURP within 2 weeks.
The patient must be investigated further to determine if TURP is necessary
- C Train Kristian to perform CIC 3-5 times a day (Clean Intermittent Catheterisation) and start on Duodart (alpha-blocker + 5-alpha-reductase inhibitor)
With so much residual urine, the patient must be investigated further.
- D X Train Kristian to perform CIC 3-5 times a day and refer for investigation with cystoflowmetry (Pressure-flow investigation).
The patient has a large residual volume, and the urinary bladder needs help to empty. CIC is preferred to a permanent catheter, due in part to the reduced risk of infection and to the improved quality of life for an active 72-year old. There is all reason to be aware of the patient's detrusor function, refer to previous spinal stenosis and diabetes. His micturition problem could be due to detrusor weakness or infravesical outlet blockage, or a combination. If cystoflowmetry reveals detrusor paresis he should not be operated with TURP, but continue with CIC. Cystoflowmetry should therefore be performed before taking a decision on further treatment. Medical treatment of prostate obstruction has a limited effect in patients with residual urine >150 ml.

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59

Harald (50 years old) has diabetes mellitus type II and uses Metformin. Over the last years he has experienced gradually increasing problems with impotence. He has an appointment with you his GP and wants a tablet that will help with his impotence problems. Which statement is (most) correct?

- A Viagra is a prostaglandin E1 inhibitor.
- B PDE5 inhibitors are not contraindicated at concomitant use of nitroglycerine.
- C There is only one type of phosphodiesterase type 5 (PDE5) inhibitor on the market.
- D X Viagra is a phosphodiesterase type 5 (PDE5) inhibitor.
There are several PDE5 inhibitors on the market, but Viagra was the first and continues to be contraindicated in severe angina.

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60

In secondary hyperparathyroidism, PTH hormone production in the parathyroid gland is increased in response to an external stimulus, in contrast to primary hyperparathyroidism. A change in the blood concentration of phosphate and calcium can contribute to the increased PTH production.

Which of the alternatives will result in secondary hyperparathyroidism?

- A Hypophosphatemia and hypercalcemia
- B X Hyperphosphatemia and hypocalcemia
Both changes result in increased PTH production. The phosphate change is perhaps the most important.
- C Hyperphosphatemia and hypercalcemia
- D Hypophosphatemia and hypocalcemia

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61

A 60-year-old woman is admitted after a three-day history with a cough and high fever. She is being treated for diabetes mellitus. On admission, she has stable vital parameters with blood pressure of 120/70 and pulse-oxymetry 94% without additional oxygen. However, her s-creatinine is 450 micromol/L (normal <90). Urine dipstick is negative for glucose, blood, proteins and leukocytes. U-sodium 10 mmol/L (low), u-osmolality 500 (medium to high).

What is the most likely cause of her acute kidney injury?

- A Postrenal obstruction, and it should be considered whether the radiologist should perform a nephrostomy within a few hours.
- B Acute tubular necrosis due to ischaemia/nephrotoxins
- C X Prerenal cause
Glomerulonephritis almost always gives hematuria and/or proteinuria. Acute tubular necrosis gives higher u-sodium and lower u-osmolality. Postrenal obstruction is quite uncommon in women and can give hematuria, and when the kidney injury is as pronounced as in this case you would expect an acute tubular necrosis pattern. History and findings are most compatible with a prerenal cause.
- D Acute glomerulonephritis (probably IgA nephritis caused by a throat infection)

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62

A 28-year old man is referred to the Medical Outpatients Clinic because his GP has found slightly increased serum creatinine (115 umol/L, normal 60-105). The samples are otherwise normal apart from a markedly low s-bicarbonate (14 mmol/L, normal 22-28 mmol/L). He is otherwise healthy and fit. Which of the following renal diseases are characterised by early development of metabolic acidosis?

- A Primary glomerulonephritis
- B Kidney diseases in autoimmune system disorders
- C X Tubular kidney diseases
It is possible to draw this conclusion using knowledge of renal physiology: one of the kidneys' most important functions is to reabsorb/regenerate filtered bicarbonate. This takes place in the proximal tubules, and pure tubular diseases will therefore have this phenotype.
- D Diabetic kidney disease

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63

Medicines that affect the renin angiotensin system are used frequently and for many conditions. Which haemodynamic effects do these medicines have on renal circulation?

- A The afferent arteriole is dilated strongly so that blood flow increases and renal function improves
- B The efferent arteriole is dilated so that the GFR drops
- C X The afferent arteriole is dilated somewhat, but the efferent is dilated even more so that the capillary pressure is reduced considerably and the GFR drops
This is the most correct answer
- D The efferent arteriole is contracted so that the intraglomerular pressure increases and thus filtration and the GFR increase too

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64

A 75-year-old man is on haemodialysis. The dialysis catheter is located in the jugular vein. He attends the Emergency department because he is short of breath, lacks energy and has a temperature. At examination his blood pressure is 90/65, there is slight tenderness around the catheter opening, but not redness or pus. What condition does he most probably have?

- A X Septicaemia
Most probable; one must consider dialysis catheter-related staphylococcus aureus septicaemia.
- B Overhydration
Does not explain the fever or hypotension.
- C Pneumocystis jirovecii pneumonia
Is not common in dialysis patients.
- D Bronchitis
Highly improbable; is generally normotensive.

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65

A 35-year old woman has biopsy-verified IgA nephritis. She is receiving treatment with ACE inhibitors for hypertension and reduction of proteinuria. There is slow disease progression. At the last check-up at the Kidney Outpatient Clinic, her creatinine was 300 micromol/L, eGFR 18 ml/min, and potassium 5.0 mmol/L. She is more tired than previously, her weight is stable and she is still in a full-time job. What would you do now?

- A X Start the evaluation process for a kidney transplant.
By starting now, there is the possibility that the patient can have a kidney transplant before she needs dialysis.
- B Refer her for AV fistula or PD catheter
This is too early; the disease is progressing slowly
- C Start dialysis immediately
Does not meet the criteria for starting dialysis
- D Continue with the same treatment and give the patient an appointment for check-up in 4 months.
You lose the opportunity to initiate the evaluation process for a kidney transplant before there is a need for dialysis.

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66

Nephrotic syndrome is characterised by general oedema and significant changes in blood test results. Which of the following combinations of blood test results belong most probably to such a patient? (ref.values: Hb 11,7 - 15,3 g/dL (female), 13,4 - 17,0 g/dL (male), s-creatinine 45 - 90 µmol/L (female), 60 - 105 µmol/L (male), s-cholesterol >=50 years: 3,9 - 7,8 mmol/L, s-albumin 40-69 years: 36-45 g/L)

- A Hb 13.2 g/dl, s-creatinine 185 umol/L, s-cholesterol 6.9 mmol/L, s-albumin 28 g/L
- B Hb 11.2 g/dl, s-creatinine 85 umol/L, s-cholesterol 5.9 mmol/L, s-albumin 33 g/L
- C X Hb 11.2 g/dl, s-creatinine 85 umol/L, s-cholesterol 12.2 mmol/L, s-albumin 23 g/L
- D Hb 11.2 g/dl, s-creatinine 85 umol/L, s-cholesterol 5.9 mmol/L, s-albumin 62 g/L

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67

At the health centre you see a 47-year old man who has previously been healthy. He feels unwell and has a headache, and thinks his right arm feels a little numb. He does not smoke, takes no medication and has a BMI of 28 (BMI 25.0-29.9 overweight).

Lab: BP 228/140. Creatinine 90 $\mu\text{mol/L}$ (60-105 $\mu\text{mol/L}$), eGFR 62 mL/min/1.73 m² (>60 mL/min/1.73m²), Urine dipstick: ++albumin.

Which of the following assessments is most correct?

- A X** You admit the patient to the Dept. of Medicine for emergency help.
This patient must be admitted as he has signs of end organ damage caused by hypertension. Albuminuria and neurological manifestations.
- B** You order rush CT of the head and give the patient an appointment for follow-up the next day if there are no findings from the investigation.
- C** You start treatment with a calcium-antagonist and give him an appointment for follow-up in 3 days' time.
- D** You start blood pressure treatment with an angiotensin receptor-blocker and give the patient a new appointment in 2 days' time.

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68

When considering starting treatment for hypertension, it is useful to have information on any subclinical organ damage.

Which of the following test combinations has the best benefit/cost ratio?

- A** s-creatinine, s-uric acid, echocardiography
- B X** u-dipstick, s-creatinine, ECG
- C** s-creatinine, ophthalmoscopy, echocardiography
- D** ECG, echocardiography, ultrasound carotid vessels

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69

The definition of hypertension is a systolic blood pressure above 140 or diastolic blood pressure above 90 mmHg measured several times under standard conditions at the doctor's surgery. The treatment target is <140/90 mmHg for most patients, but there are exceptions.

Which of the groups below should have a lower target level after treatment?

- A** Patients with hypertensive nephrosclerosis (arterionephrosclerosis).
- B** Patients with IgA glomerulonephritis.
- C** Patients with impaired renal function after a heart attack.
- D X** Patients with chronic renal disease and proteinuria demonstrated by u-dipstick.

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70

Anna (82 years old) has COPD, diabetes mellitus type II and chronic renal failure and must start on renal replacement therapy. She is overweight (BMI 30) and has previously undergone several abdominal operations. The nearest haemodialysis unit is 1.5 hours away, each way.

Which method of dialysis is best for her and why?

- A X** Haemodialysis at the nearest hospital because she is not suitable for peritoneal dialysis.
Medically she is not suited for PD due to previous abdominal operations (danger of adhesions), COLD and adipositas.
- B** Haemodialysis at the nearest hospital because peritoneal dialysis is too demanding for the municipal home nursing services.
The municipal healthcare services have a duty to try home treatment if it is considered medically to be the best form of treatment.
- C** Haemodialysis at the nearest hospital because peritoneal dialysis is contraindicated in diabetes mellitus.
DM is not a contraindication for peritoneal dialysis.
- D** Peritoneal dialysis in the home due to the long travel time.
Long travel time is not a good enough reason for this patient.

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71

A 69-year old woman has measured her blood sugar in capillary blood using her sister's equipment for measuring blood sugar at home. This gave a result of 13.4 mmol/L about an hour after she had drunk coffee and eaten apple cake with cream. She feels well. Her doctor performed a glucose tolerance test which gave the following results for p-glucose:

- Fasting sample (0 sample): 7.9 mmol/L
- Sample 2h after glucose intake: 9.9 mmol/L

Reference range for p-glucose is 4.2-6.3 mmol/L

What is the most correct classification of the patient based on the above information?

- A X** Diabetes mellitus
fasting >7
- B** Both diabetes mellitus and impaired glucose tolerance
- C** Impaired glucose tolerance
- D** Neither diabetes mellitus nor impaired glucose tolerance

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72

A 69-year old woman went to her GP because she had felt tired and lacked energy more than usual over the last 6 months. A fasting blood sample was taken at 8.00 am the results of which are shown below.

Analysis	Unit	Reference range	Result (Flag)
S-Glucose	mmol/L	4.0 - 6.0	6.5 (H)
B-HbA1c (glycated haemoglobin)	mmol/mol	28 - 40	44 (H)
S-Calcium, total	mmol/L	2.15 - 2.51	2.53 (H)
S-Calcium, free in serum (standardised at pH 7.40)	mmol/L	1.18 - 1.32	1.29
S-Cortisol	nmol/L	At: 06-10: 133 - 537 At: 16-20: 68 - 327	343
S-Anti-thyroid peroxidase (TPO)	kU/L	< 35	111 (H)
S-Phosphate	mmol/L	0.85 - 1.50	1.12
S-Free T4	pmol/L	12.0 - 22.0	8.6 (L)
S-PTH (Parathyroid hormone)	pmol/L	1.6 - 6.9	6.0
S-TSH (Thyroid stimulating hormone)	mIU/L	0.27 - 4.20	18 (H)
Anti-TSH receptor (TRAS)	IU/L	<1.0	0.1

Based on the medical history and the results of the biochemical analyses, what is the most probable diagnosis?

- A** Adrenal cortex insufficiency
- B X** Primary hypothyroidism due to autoimmune thyroiditis
Supported by TSH, fT4, anti-TPO
- C** Diabetes mellitus type II
- D** Hypercalcemia due to hyperparathyroidism

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73

Which two classes of antidiabetics should primarily be chosen in cases of known heart disease when metformin and diet/physical activity do not provide adequate glucose regulation?

- A DPP4 inhibitor or insulin
- B X** SGLT2 inhibitor or GLP1 analogue
Long-term studies have shown that some SGLT2 inhibitors and GLP1 analogues have given increased survival and reduced the incidence of new cardiac events in patients with known heart disease. Both the Norwegian, European and American guidelines therefore recommend preferential use of these drugs.
- C Sulphonylurea or SGLT2 inhibitor
Sulphonylurea is not normally preferred in cases of known heart disease due to the risk of persistent hypoglycemia. Studies have not shown any beneficial effect in this patient group, but rather poorer results.
- D DPP4 inhibitor or GLP1 analogue

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74

A 60-year old woman comes to see you because she has had episodes of sweating that have increased over the last months. Combined with this she has also had palpitations and anxiety. You measure her blood pressure which is considerably raised. Some years ago the patient was diagnosed with primary hyperparathyroidism and was treated surgically. You refer her now for CT of the adrenals which reveals a left-sided tumour. What is the most probable diagnosis?

- A Conn's syndrome (aldosterone-producing tumour)
- B Acromegaly
- C X** Pheochromocytoma as part of multiple endocrine neoplasia (MEN) type 2
Episodic symptoms and elevated blood pressure are typical of pheochromocytoma. As she has had primary HPT it is most probably MEN2
- D Cushing's syndrome

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75

A man aged 55 has been shown to have hypercalcemia and elevated PTH compatible with primary hyperparathyroidism. He has normal kidney function. Which of these statements can give a corresponding pattern of blood test results?

- A tertiary hyperparathyroidism
- B X** familial hypocalciuric hypercalcemia
In this condition, calcium and PTH are elevated due to an inactivating mutation in the calcium sensing receptor. This is important to exclude as these patients are not to be treated surgically or in any other way.
- C secondary hyperparathyroidism
- D myelomatosis

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76

A 35-year old woman was diagnosed with autoimmune hyperthyroidism (Graves' disease) 1 year ago. She is being treated with an anti-thyroid drug (carbimazole). Over the last six months, metabolic results have been normal with free thyroxine (FT4) in the reference range (11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) around 1.0 mIU/L (ref. 0.24-3.78 mIU/L). The last month she has been tired, slightly nauseous and dizzy, and has lost about 4-5 kg in weight. Regular periods. Blood pressure 90/60. Normal kidney function, serum sodium 136 mmol/L (ref. 137-145 mmol/L) and potassium 4.3 mmol/L (ref. 3.6-4.6 mmol/L). FT4 is now 15.6 pmol/L and TSH is 0.97 mIU/L. Which of the blood test results below is the most important for clarifying the condition?

- A TSH receptor antibody (TRAS) and anti-TPO (anti-thyroid peroxidase)
Incorrect. She has autoimmune hyperthyroidism and TRAS is elevated in >90% of patients with autoimmune hyperthyroidism. Anti-TPO is elevated in >90% of patients with autoimmune hypothyroidism. The levels of TRAS and anti-TPO have no/little relevance in this problem (particularly because metabolic test results are normal).
- B Follicle stimulating hormone (FSH) and Luteinizing hormone (LH)
Incorrect answer. In women, the levels of FSH and LH increase after the menopause. This patient is 35, and has regular periods.
- C Prolactin
Incorrect answer. The patient's symptomatology does not indicate hyperprolactinemia. In hyperprolactinemia women experience irregular periods and they can have galactorrhoea.
- D X Cortisol and ACTH
Correct answer. Symptoms and findings (hypotension, low serum sodium) can indicate that she has hypocortisolism. Patients with an autoimmune disease (in this case: Graves') have an increased risk of other autoimmune diseases, and whether she has primary hypocortisolism (Addison's disease) should be clarified quickly because there is a potential for a life-threatening condition if it is not treated.

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77

A 51-year old woman has hyperthyroidism with free thyroxine (FT4) 51.2 pmol/L (reference range 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) <0.01 mIU/L (ref. 0.24-3.78 mIU/L). TSH receptor antibody is 12.4 (ref. <1.5) IU/L. Moderate endocrine ophthalmopathy. Two weeks after starting on an anti-thyroid drug (carbimazole) she has an itchy exanthem on her trunk. What do you recommend she should do?

- A That she discontinues carbimazole and takes new blood tests in two weeks
Not the most correct answer. She has pronounced hyperthyroidism and if she discontinues carbimazole for two weeks the level of FT4 will probably increase significantly with exacerbation of subjective symptoms and the risk of exacerbating the endocrine ophthalmopathy.
- B That she discontinues the carbimazole and is treated with radioactive iodine (RAI)
Not the most correct answer. She has pronounced hyperthyroidism and if she discontinues carbimazole the level of circulating thyroid hormones will probably increase significantly with exacerbation of subjective symptoms. In this situation, if you give RAI the circulating thyroid hormones will increase even more due to inflammation with leakage of hormones from the gland; in addition, RAI will increase the risk of exacerbation of her endocrine ophthalmopathy.
- C X That she switches to a different anti-thyroid drug (propylthiouracil=PTU) and take an antihistamine.
The most correct answer. 10-15% of patients who take anti-thyroid drugs experience mild side effects such as itching, rash, joint pains or gastrointestinal problems. Then it is possible to switch treatment from carbimazole to PTU (or vice-versa) because sometimes one of these drugs gives fewer side effects than the other. Another alternative is to reduce the dose of the drug the patient is taking. In both cases, the addition of an antihistamine can be beneficial.
- D That she discontinues carbimazole and is treated surgically
Not the most correct answer. She has pronounced hyperthyroidism and if she discontinues carbimazole the level of circulating thyroid hormones will probably increase significantly with exacerbation of subjective symptoms. If she has to be treated surgically, she must be pre-treated with anti-thyroid drugs (or iodine) to lower the level of circulating thyroid hormones before surgery.

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78

A woman, 61 years of age, has newly diagnosed type 2 diabetes. She complains of numbness in her feet and wonders if this can have anything to do with her diabetes. Which examination would you do first considering that this could be diabetic polyneuropathy (DPN)?

A X 10g monofilament test

Correct answer. The 10g monofilament test is a simple test and the first examination if diabetic polyneuropathy is suspected.

Source: National Guidelines for Diabetes 2018

<https://helsedirektoratet.no/retningslinjer/diabetes/seksjon?Tittel=diabetisk-fot-og-nevropati-2681#undersøkelse-og-diagnostikk-av-nevropati-og-identifisering-av-pasienter-med-risiko-for-fotsårsterk-anbefaling>

B Palpate the foot pulses

Not the most relevant. The 10g monofilament test is a simple test and the first examination if diabetic polyneuropathy (DPN) is suspected. Palpation of foot pulses is most relevant when assessing the risk of developing foot ulcers.

Source: National Guidelines for Diabetes 2018

<https://helsedirektoratet.no/retningslinjer/diabetes/seksjon?Tittel=diabetisk-fot-og-nevropati-2681#undersøkelse-og-diagnostikk-av-nevropati-og-identifisering-av-pasienter-med-risiko-for-fotsårsterk-anbefaling>

C Examine the patella reflex

Incorrect answer. If there are weak reflexes, one would expect the Achilles reflex to be weakened before the patellar reflex because DPN starts distally. The 10g monofilament test is a simple test and the first examination if diabetic polyneuropathy is suspected.

Source: National Guidelines for Diabetes 2018

<https://helsedirektoratet.no/retningslinjer/diabetes/seksjon?Tittel=diabetisk-fot-og-nevropati-2681#undersøkelse-og-diagnostikk-av-nevropati-og-identifisering-av-pasienter-med-risiko-for-fotsårsterk-anbefaling>

D Refer for neurography

Incorrect answer. The 10g monofilament test is a simple test and the first examination if diabetic polyneuropathy is suspected. In the event of uncertainty about the diagnosis or if there is asymmetry or a general lack of reflexes, it may be relevant to refer for neurography or to a neurologist.

Source: National Guidelines for Diabetes 2018

<https://helsedirektoratet.no/retningslinjer/diabetes/seksjon?Tittel=diabetisk-fot-og-nevropati-2681#undersøkelse-og-diagnostikk-av-nevropati-og-identifisering-av-pasienter-med-risiko-for-fotsårsterk-anbefaling>

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79

A 78-year old woman with multimorbidity lives in a care home and has had type 1 diabetes for 36 years. She uses insulin multi-injections and has problems with repeated hypoglycemic episodes with confusion and anxiousness. What is the treatment target (HbA1c and/or blood glucose) for this patient?

- A** HbA1c between 53-64 mmol/mol (7.0-8.0%). Fasting blood glucose 5-8 mmol/L

Incorrect answer. For most patients the treatment target for HbA1c should be about 53 mmol/mol (7%) if a good quality of life can be achieved without unacceptable hypoglycemic episodes. For people in care homes and others with significantly shorter life expectancy, an important target is to avoid symptomatic hyperglycemia. This is achieved for most people when the blood glucose rarely exceeds 12-14 mmol/L. HbA1c is less significant in this context.

- B X** That the patient avoids symptomatic hyperglycemia, i.e. the blood glucose rarely exceeds 12-14 mmol/L

Correct answer. For most patients the treatment target for HbA1c should be about 53 mmol/mol (7%) if a good quality of life can be achieved without unacceptable hypoglycemic episodes. For people in care homes and others with significantly shorter life expectancy, an important target is to avoid symptomatic hyperglycemia. This is achieved for most people when the blood glucose rarely exceeds 12-14 mmol/L. HbA1c is less significant in this context.

- C** HbA1c about 53 mmol/mol (7%). Fasting blood glucose 4-7 mmol/L

Incorrect answer. For most patients the treatment target for HbA1c should be about 53 mmol/mol (7%) if a good quality of life can be achieved without unacceptable hypoglycemic episodes. For people in care homes and others with significantly shorter life expectancy, an important target is to avoid symptomatic hyperglycemia. This is achieved for most people when the blood glucose rarely exceeds 12-14 mmol/L. HbA1c is less significant in this context.

Source: National Guidelines for Diabetes 2018

<https://helsedirektoratet.no/retningslinjer/diabetes/seksjon?Tittel=blodsukkersenkende-behandling-og-behandlingsmal-3295#behandlingsmal-for-hba1c-ved-diabetes-type-2sterk-anbefaling><https://helsedirektoratet.no/retningslinjer/diabetes/seksjon?Tittel=blodsukkersenkende-behandling-og-behandlingsmal-3295#behandlingsmal-for-hba1c-ved-diabetes-type-2sterk-anbefaling>

- D** HbA1c about 48 mmol/mol (6.5%). Fasting blood glucose 4-6 mmol/L

Incorrect answer. For most patients the treatment target for HbA1c should be about 53 mmol/mol (7%) if a good quality of life can be achieved without unacceptable hypoglycemic episodes. For people in care homes and others with significantly shorter life expectancy, an important target is to avoid symptomatic hyperglycemia. This is achieved for most people when the blood glucose rarely exceeds 12-14 mmol/L. HbA1c is less significant in this context.

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80

A 42-year old man has had type 1 diabetes (T1D) for 25 years. He has had laser treatment on both eyes due to diabetic retinopathy and now has a corrected visual acuity of 0.4+ on the right eye and 0.4+ on the left eye. Normal field of vision. He wants a doctor's certificate for a driving licence for private cars (group 1). Does he meet the health requirements for a driving licence for group 1 in regard to visual acuity?

- A** He meets the health requirements in regard to visual acuity
Incorrect answer. For a group 1 driving licence, the health requirements are met when the applicant's visual acuity is at least 0.5 when both eyes are examined at the same time. This should be done for clarification.
- B X** It is unclear whether he meets the health requirements in regard to visual acuity
Correct answer. For a group 1 driving licence, the health requirements are met when the applicant's visual acuity is at least 0.5 when both eyes are examined at the same time. Binocular vision (vision using both eyes at the same time) should be investigated. With a corrected visual acuity of 0.4+ on the right eye and 0.4+ on the left eye, it is possible that the visual acuity is ≥ 0.5 when both eyes are examined at the same time.
- C** He does not meet the health requirements in regard to visual acuity
Not the most correct answer. For a group 1 driving licence, the health requirements are met when the applicant's visual acuity is at least 0.5 when both eyes are examined at the same time. This should be done. With a corrected visual acuity of 0.4+ on the right eye and 0.4+ on the left eye, it is possible that the visual acuity is ≥ 0.5 when both eyes are examined at the same time. Source: Norwegian Directorate of Health: Driving licence – guide for health requirements [https://helsedirektoratet.no/retningslinjer/forerkortveilederen/seksjon?Tittel=syn-9-13-helsekrav-10650#synsstyrke-\(helsekrav-til-førerkort\)](https://helsedirektoratet.no/retningslinjer/forerkortveilederen/seksjon?Tittel=syn-9-13-helsekrav-10650#synsstyrke-(helsekrav-til-førerkort))

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81

A 55-year old woman has lost weight, has palpitations, slight tremors and signs of periorbital oedema. Moderately enlarged thyroid gland with even consistency, no nodules, no palpation tenderness. Free thyroxine (FT4) is 31.8 (reference range 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) <0.01 mIU/L (ref. 0.24-3.78 mIU/L). Which additional blood tests or investigations should be done first to clarify whether she has autoimmune hyperthyroidism (Graves' disease)?

- A** Thyroid scintigraphy
Incorrect answer. >90% of patients with autoimmune hyperthyroidism have elevated levels of thyrotropin receptor antibody (TSH receptor antibody=TRAS), and if TRAS is elevated she has autoimmune hyperthyroidism. It is not necessary to use scintigraphy to clarify this. If TRAS is negative, scintigraphy can be relevant. <http://legemiddelhandboka.no/Terapi/5217>
- B** C-reactive protein (CRP)
Incorrect answer. There is no place for CRP in the diagnosis of autoimmune hyperthyroidism. In subacute thyroiditis, which is an inflammation condition, CRP is elevated. In subacute thyroiditis FT4 is (transient) high, TSH (transient) suppressed and the patient often has a fever and signs of infection, as well as palpation tenderness of the thyroid gland.
- C X** TSH receptor antibody
Correct answer. >90% of patients with autoimmune hyperthyroidism have elevated levels of TSH receptor antibody (TRAS) and if TRAS is elevated this patient has autoimmune hyperthyroidism.
- D** Anti-TPO = anti-thyroid peroxidase antibody
Incorrect answer. Elevated levels of anti-TPO are seen in >90% of patients with autoimmune hypothyroidism, while >90% of patients with autoimmune hyperthyroidism have elevated levels of TSH receptor antibody. An elevated level of anti-TPO will not clarify the diagnosis in this patient.

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82

A woman (aged 64) has felt increasingly tired and worn out over the last 1-2 years. She takes no regular medicines. She goes to her GP who measures her BP 115/65 and pulse 56. Initial blood tests show TSH 2.4 mIU/L (0.24-4.2) and free T4 7.6 pmol/L (11.6-19.1).

Which of the following laboratory tests are most relevant in further differential diagnosis?

- A** Anti-TPO
In primary hypothyroidism, TSH is always clearly elevated, and only then is it necessary to measure anti-TPO.
- B** Salivary cortisol levels in the morning and evening
Salivary cortisol levels are primarily used for hypercortisolism, and are then tested in the late evening.
- C** Free T3
Free T3 is primarily relevant for thyrotoxicosis.
- D X** FSH, LH, prolactin and cortisol in serum (morning)
The results are compatible with secondary hypothyroidism. TSH is low (a TSH in the ref. range is too low when fT4 is low), but low fT4 and TSH in the normal range can also be due to other serious disease that results in down-regulation of the thyroid axis. It is important to evaluate the remaining pituitary hormone axes for failure of several pituitary hormones. Gonadotropins should be elevated in postmenopausal women, and low values confirm pituitary failure. In particular, it is important to exclude cortisol deficiency. Treatment with thyroxine should in this case not be started before the cortisol axis has been substituted. The prolactin level is often elevated in pituitary failure because the cause is generally large adenomas that press on the pituitary stalk.

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83

A 58-year old woman sees you as her GP about problems with one of her breasts. The last few weeks, her left breast has been slightly more tender than her right, but not acutely painful. The woman is otherwise healthy and takes no medicines. She has never breastfed.

At examination you see the following skin changes on her breast:



You palpate both breasts and find a 3 cm tumour in the upper lateral quadrant of the left breast. You do not palpate clearly enlarged lymph nodes on either side.
Which statement is the most correct?

- A The skin changes indicate breast cancer with metastases, and the woman must be referred for mammography
Incorrect answer. It is not possible to conclude that there are distant metastases based on the skin changes. The patient must be referred to the Diagnostic Breast Centre.
- B The skin changes indicate a fibroadenoma in the breast, but the woman should nonetheless be referred to the Diagnostic Breast Centre.
Incorrect answer. A fibroadenoma should not give skin changes.
- C X The skin changes indicate locally advanced breast cancer, and the woman must be referred to the Diagnostic Breast Centre
Correct answer. These changes are called peau d'orange (orange peel skin), and can indicate locally advanced breast cancer. Suspected breast cancer must always be referred to the Diagnostic Breast Centre.
- D The skin changes indicate mastitis, but the woman should still be referred for mammography
Incorrect answer. Mastitis is common in breastfeeding women. It can occur in non-breastfeeding women, but then, during diagnosis, one must always keep in mind that there could be an underlying malignancy.

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84

In your office you have a 62-year old woman with primary hyperparathyroidism. The condition has just recently been diagnosed, and treatment has not yet started. When asked about symptoms, the patient reports having been very thirsty with frequent toilet visits, tingling in fingers and toes, cramps in both legs and muscle weakness. She feels lethargic and is often constipated.

Which of the symptoms mentioned fit the diagnosis of primary hyperparathyroidism well, and why?

- A Tingling in fingers and toes, muscle weakness and lethargy due to hypocalcemia
These symptoms fit hypocalcemia well, but you do not get hypocalcemia in primary hyperparathyroidism.
- B Increased thirst, muscle weakness and constipation due to hypocalcemia
These symptoms do not fit with hypocalcemia.
- C X Increased thirst, muscle weakness and constipation due to hypercalcemia
Primary hyperparathyroidism causes hypercalcemia. Hypercalcemia gives polyuria and thus increased thirst. Muscle weakness and constipation are also typical. One can also have psychiatric symptoms, kidney stones, leg pain, etc.
Source: Løvås et al.: Endokrinologi, en medisinsk lærebok (1st edition, 2013), pp. 182-189
- D Tingling in fingers and toes, muscle weakness and lethargy due to hypercalcemia
These symptoms (with the exception of lethargy which can occur with both) do not fit with hypercalcemia.

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85

A 55-year old woman sees you as her GP after she has noticed several episodes with secretion from her left breast.

Should this be investigated further?

- A Secretion from the breast does not need to be investigated further unless one finds a tumour at clinical examination.
Incorrect answer. Clear and bloody secretion must always be investigated regardless of the clinical findings. It is nevertheless important to investigate because any additional findings are important for prioritisation at the unit to which she is referred. Cloudy/milky secretion does not need investigation, that is normal.
- B Secretion from the breast should always be investigated, and after taking a medical history and performing a clinical examination, you refer her.
Incorrect answer. Only clear or bloody (fresh or old blood) fluid from the breast is to be further investigated. Other secretion is normal
- C X If the medical history reveals clear or bloody fluid from her breast, the patient must be referred for investigation for a tumour in the milk duct.
Correct answer. The patient must be referred for investigation. The tumour is generally benign (papilloma).
- D If the medical history reveals clear or bloody fluid from her breast, the patient must be referred for investigation for breast cancer.
Partly correct. The patient must be referred, but the cause is generally a benign tumor (papilloma)

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86

A 60-year old man has an appointment with his GP because of a palpable tumour in his thyroid. He has no discomfort from his throat, but discovered the tumor when he was looking in the mirror while shaving. The tumour is well-defined, appears to be movable and has a relatively soft consistency. It feels like it is about 3cm at its largest. His basal metabolism is normal. How should this be investigated further?

- A The patient should be referred for CT of the neck
Incorrect answer. An ultrasound scan and ultrasound-guided fine needle biopsy should be performed. CT is not a good enough investigation to evaluate whether this could be malignant or not. CT is relevant in cases of a very large goitre, but only to get an overview of extent.
- B X The patient should be referred to an endocrinological outpatient clinic for investigation including an ultrasound scan and maybe a fine needle biopsy.
This is routine practice. If there is doubt after ultrasound and/or with test results, follow-up may be relevant. Otherwise follow-up is concluded, but the patient contacts his GP if he subsequently gets problems in his throat.
- C Further investigation is not necessary as he has no discomfort.
Incorrect answer. A new-onset palpable tumour in the thyroid should be investigated. Usually this is benign, but cancer cannot be excluded even if he doesn't have any problems.
- D Thyroid scintigraphy should be performed. If cold nodules are found these should be removed surgically.
Incorrect answer. Scintigraphy is not relevant as an investigation as he is euthyroid. Hot and cold nodules are too non-specific. Scintigraphy is only useful in hyperthyroidism. Ultrasound-guided fine needle biopsy should be performed.

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87

A 66-year old man has been shown to have an elevated serum PSA by his GP, and has been investigated further through the Cancer Care Pathway for prostate cancer. Biopsy reveals prostate cancer with Grade Group 4 (Gleason 4+4). The Urologist is considering radical prostatectomy. Which imaging diagnostic is best suited to staging to take into consideration metastases?

- A Metastasis investigation is not necessary in Grade Group 4.
Incorrect - Grade Group 4 is high-risk prostate cancer and should be investigated for metastases.
- B MRI prostate.
MRI prostate is an integral part of the Cancer Care Pathway and is performed before biopsy; it provides information on local staging (T-stage) but not metastases.
- C CT of lungs (thorax) and abdomen.
CT is not the best modality for demonstrating skeletal metastases, which are the most common form with prostate cancer.
- D X MRI pelvis and spine
MRI has high sensitivity for demonstrating metastases in the pelvic lymph nodes and skeleton, and is the best option given here.

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88

A 74-year old man has hypertension (180/100mmHg) and is being treated for diabetes mellitus with metformin tablets. He is now being investigated for glomerulonephritis because of proteinuria and oedema. You want an ultra-sound guided kidney biopsy. Which preparation of the patient is important to consider in this situation?

- A Ensure good hydration; if necessary give fluids intravenously.
This can be important in cases of kidney failure and use of X-ray contrast.
- B X Get his blood pressure under control with antihypertensives.
High blood pressure gives an increased risk of bleeding with a kidney biopsy and should be corrected if possible.
- C Discontinue metformin.
Not a risk factor with kidney biopsy, but can be important when using X-ray contrast in patients with concomitant renal failure.
- D Give prophylactic antibiotics.
There is little risk of infection with percutaneous ultrasound-guided kidney biopsy.

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89

A 23-year old woman has had a lot of problems with recurring urinary tract infections. She has now been admitted to hospital with symptoms of infection in the upper urinary tract, with a high fever in spite of antibiotic treatment for 3 days through her GP. Which imaging diagnostic should be the first choice?

- A CT urinary tract with i.v. contrast in the parenchymal phase.
Can give a precise diagnosis of infections, anomalies and complications with a moderate radiation dose, but in young patients takes second place to ultrasound.
- B X** Ultrasound scan of the urinary tract.
To determine whether hydronephrosis is present or complications of pyelonephritis such as abscess. When a patient is admitted with pyelonephritis one must almost assume it is complicated and therefore imaging diagnostics are indicated. Uncomplicated UTIs do not otherwise require imaging diagnostics.
- C 3-phase CT of the urinary tract.
3-phase CT gives a high radiation dose and should be avoided if possible in young women.
- D Stone-CT urinary tract without i.v. contrast.
This is a low dose alternative, but the medical history does not indicate a stone.

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90

What is the most important limitation of ultrasound in regard to concrements when investigating the urinary tract?

- A Ultrasound does not provide images of chalk (calcium carbonate)-containing lesions.
- B Ultrasound cannot distinguish between a kidney stone, gallstone or arterial chalk (calcium carbonate).
- C Peristalsis in the ureter wall gives movement artefacts.
- D X** Intestinal gas artefacts hinder inspection of the ureters.
The ureter is the most common localisation of symptom-inducing urinary tract concrements, and whole or parts of the ureters are often hidden by intestinal gas artefacts. Peristalsis in the ureter wall is not a problem. Chalk-containing structures are typically seen on ultrasound as a highly echogenic surface with an acoustic shadow. As a rule it is possible to determine whether the concrements lie in the gall bladder, kidneys or arteries.

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91

In connection with hospitalisation for left flank pain, CT without i.v. contrast was performed which showed an 8 mm concrement in the left ureteropelvic transition. Eventually, the patient's pain was alleviated and the kidney was relieved using a JJ-stent. The patient was discharged feeling well the next day. The patient was given an Outpatient appointment the following week when treatment with ESWL was planned. They wanted to confirm whether the concrement was still present and whether it was in the same location as previously. Which imaging modality is usually used to check the location of a urinary tract concrement?

- A CT urinary tract with i.v. contrast, in 3 phases.
Unnecessary with 3 phases for stone diagnosis; very high radiation dose.
- B Stone-CT urinary tract without i.v. contrast.
A larger radiation dose than X-ray, and takes second place if the results after X-ray are uncertain.
- C X** X-ray urinary tract.
Generally, a low-dose X-ray investigation is sufficient to confirm the presence of a concrement.
- D Ultrasound of the urinary tract.
Ultrasound can sometimes demonstrate but cannot exclude concrements.

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92

When using CT to decide whether a demonstrated kidney lesion is a solid, malignancy-suspect tumour, a combination of several contrast phases is preferably used. How are the phases normally combined in this instance, and why?

- A X** Precontrast phase and parenchymal phase. An increase in density between the phases verifies that it is a circumscribed tumour.
The majority of kidney tumours are visible in the parenchymal phase, and have a significant increase in density from the precontrast phase (= contrast uptake). The arterial phase is less useful, but can contribute some information. Washout is used in the diagnosis of adrenal expansions, but not for kidney tumours.
- B** Precontrast phase and arterial phase. Verifies calcifications in the tumour and the vessels that supply the tumour.
- C** Precontrast phase, parenchymal phase and excretory phase. Can measure the density in the phases and calculate the absolute and relative washout.
- D** Arterial phase and parenchymal phase. Visualises both vessel supply and the extent of the tumour.

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93

Vesicoureteral reflux (VUR) is a condition in which the urine flows back from the bladder and up into the ureters, and eventually to the renal pelvis. VUR is assumed to occur in 1-2% of all children. Reflux is demonstrated in 15-50% of children with urinary tract infections. Which imaging modality is used to detect and grade VUR?

- A** CT urography (with intravenous contrast)
- B X** X-ray - MCUG
X-ray - MCUG is a reference method for diagnosing and grading VUR. In MCUG the urethra and bladder are also visualised. However, the investigation involves a certain amount of radiation exposure. Ultrasound can visualise VUR, but requires ultrasound contrast in the bladder (intravesically) and is little used. Ultrasound is however important in the evaluation of the kidney parenchyma/kidney growth, etc. Nuclear medicine methods (radionuclide cystography) can be used to diagnose VUR, but are used very little in Norway, and the contrast must also be given intravesically. In renography and CT urography, the contrast is given intravenously and these methods therefore do not provide any information on reflux.
- C** Diuresis renography
- D** Ultrasound without contrast

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94

Wet lungs (TTN/Transient Tachypnea of the Newborn) is a benign condition that is due to the retention of a small amount of amniotic fluid in the lung tissue after birth. This is the most common cause of respiratory problems in the newborn. The condition manifests as mild breathing problems immediately, or within a few hours, after the birth. Symptoms can persist for a few hours to a few days (max. 48-72 hours).

Which of the following alternatives is a well-known risk factor for wet lungs?

- A** Discoloured amniotic fluid
- B** Renal disease in the mother
- C X** Caesarian section
Risk factors include a Caesarian section and prolonged labour, asthma and diabetes in the mother, and if the baby is a boy. Slight prematurity is also listed to be a risk factor in the literature, but is not "well-known", and answer A has intentionally included extreme prematurity.
- D** Extreme prematurity (<28 weeks)

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95

A 40-year old woman has recently undergone surgery for breast cancer. She tells you that the tumour is human epidermal growth factor receptor 2 (HER2) positive. She asks you a number of questions about this.

Which statement is correct?

A X HER2-positive breast cancer tumours are HER2-amplified

The correct answer is "HER2-positive breast cancer tumours are HER2-amplified". This means that there is an increased number of copies of the HER2 gene in the tumour. HER2-positive tumours are often more aggressive and are therefore not low grade. HER2-amplified tumours most often produce large amounts of HER2 protein.

B HER2-positive breast cancer tumours have little HER2 protein

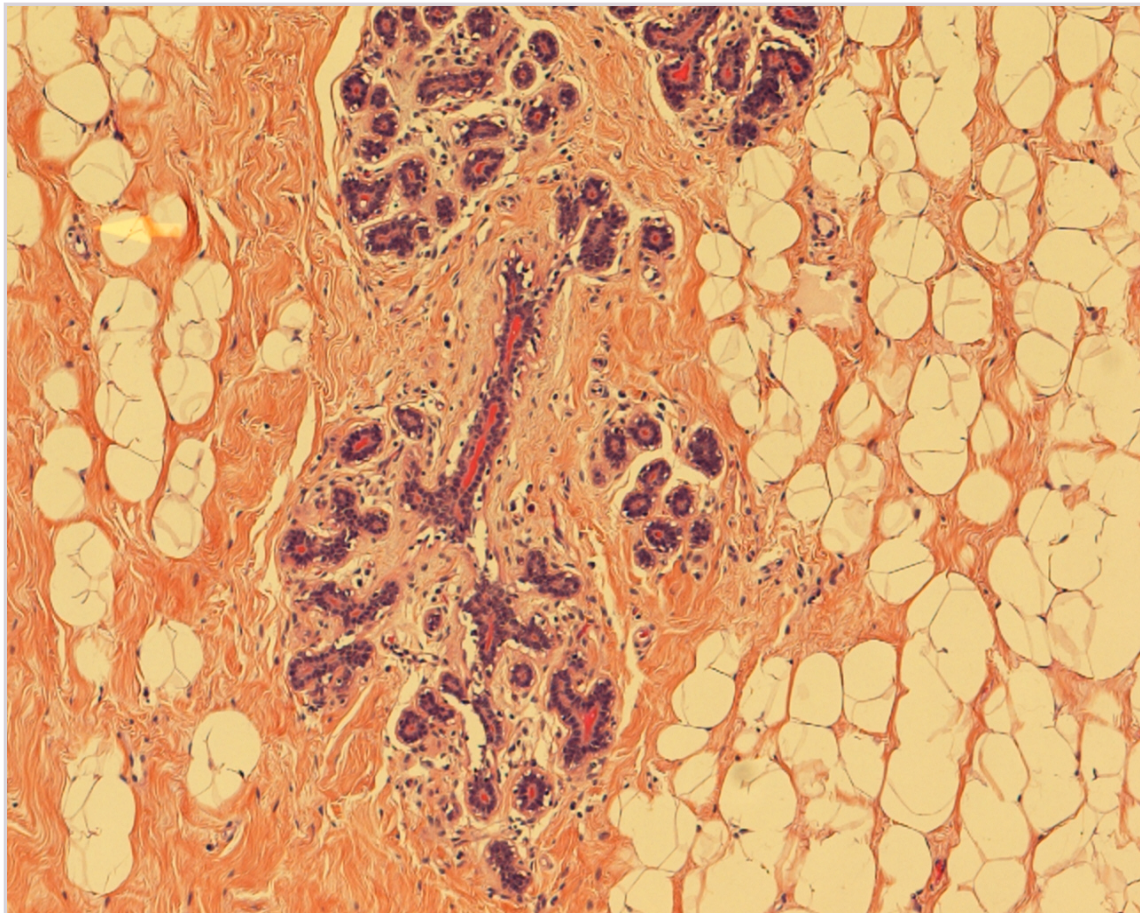
C HER2-positive breast cancer tumours are BRCA1-mutated

D HER2-positive breast cancer tumours are often low-grade

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96

A 34-year old woman undergoes surgical resection of a tumour-suspected area in the upper, lateral quadrant, right breast. The image shows a hematoxylin and eosin (H&E) stained histology section from the area (x100).



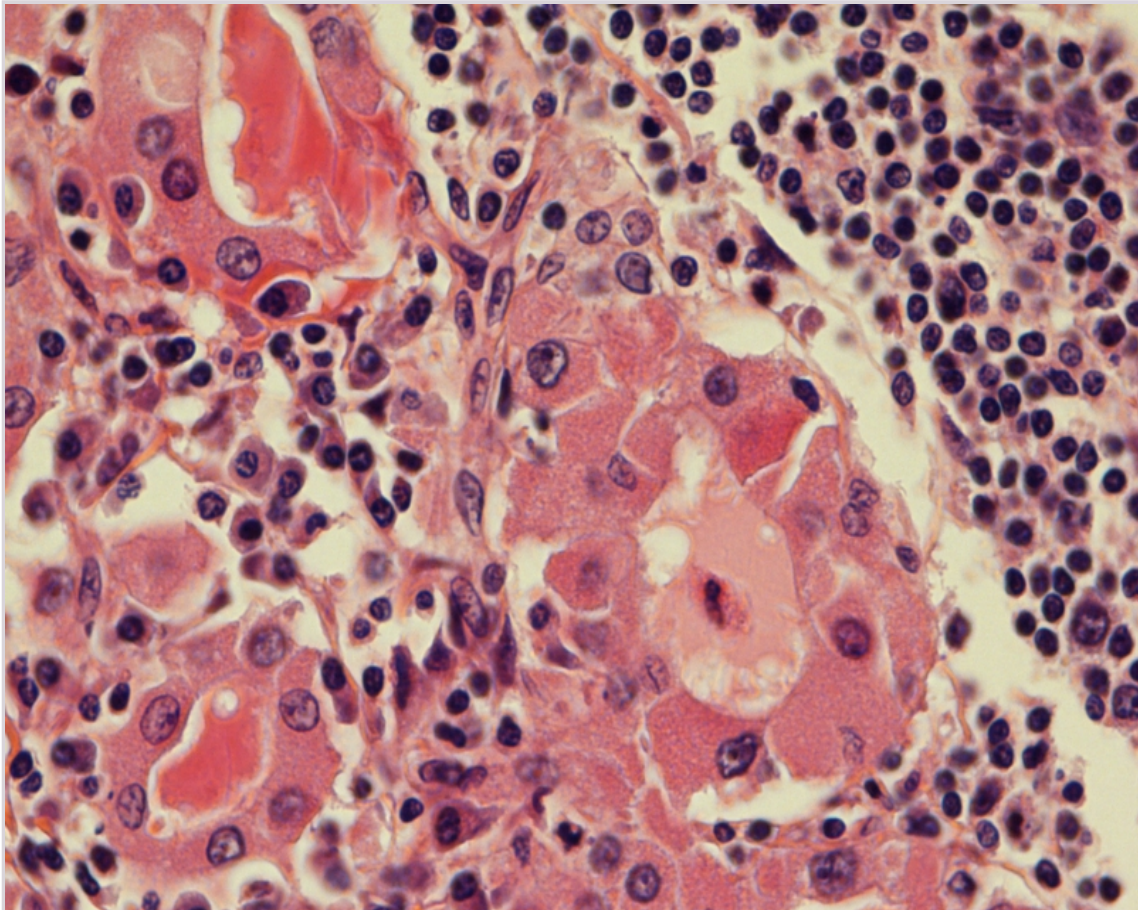
Which diagnosis best fits the findings in the image?

- A Ductal carcinoma in situ
Incorrect answer. The image shows normal glandular endpieces and duct structures, stroma and fatty tissue. There is no atypia.
- B Metastasis from malignant melanoma
Incorrect answer. The image shows normal glandular endpieces and duct structures, stroma and fatty tissue. There is no atypia.
- C Infiltrating carcinoma
Incorrect answer. The image shows normal glandular endpieces and duct structures, stroma and fatty tissue. There is no atypia.
- D X Normal breast tissue
Correct answer. The image shows normal glandular endpieces and ducts surrounded by connective tissue, and fatty tissue.
-

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97

A 24-year old woman has had an enlarged thyroid for several months. It started during pregnancy and the thyroid was tender during the first weeks. Now she has symptoms of hypothyroidism. The image shows a hematoxylin and eosin (H&E) stained histology section from her thyroid (x600).



What is the diagnosis?

- A** Granulomatous thyroiditis
Incorrect answer. With granulomatous inflammation we find signs of lymphocytes, but here there are remains of follicles with Hürthle cell changes (apocrine metaplasia/oncocyctic metaplasia) and lymphocyte infiltration. No epithelioid cells or other signs of granulomatous inflammation.
- B** Papillary carcinoma
Incorrect answer. The image shows follicles with Hürthle cell changes (apocrine metaplasia/oncocyctic metaplasia) and lymphocyte infiltration
- C X** Lymphocytic thyroiditis (Hashimoto's disease)
Correct answer
- D** Hyperplasia (Grave's disease)
Incorrect answer. The image shows follicles with Hürthle cell changes (apocrine metaplasia/oncocyctic metaplasia) and lymphocyte infiltration. There is no sign of hyperplastic follicular epithelial cells. There is no colloid.
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98

One of your patients was operated with removal of a tumour in her left ovary. You receive the pathology report. The report states that the tumour contains respiratory tract epithelium, squamous epithelium, sebaceous glands and hair follicles.

Based on the findings in the pathology report, which statement is correct?

- A** The tumour is probably a metastasis from a skin tumour
- B** The tumour is probably a serous ovarian cancer
- C** The tumour is probably a stromal (sex cord stromal) tumour
- D X** The tumour is probably a germinal cell tumour
The pathology report reflects a teratoma. Teratomas are classified as germinal cell tumours.
-

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99

A 60-year old woman comes to you because of postmenopausal bleeding. After investigation by taking a pipelle sample she is diagnosed with endometrial hyperplasia with atypia.

Which statement about endometrial hyperplasia is correct?

- A** Endometrial hyperplasia with atypia does not need treatment, but the woman should be followed-up every fifth year.
- B** Endometrial hyperplasia with atypia means that there is an infiltrating growth
- C** One generally sees atrophic glands and little stroma in endometrial hyperplasia.
- D X** Endometrial hyperplasia with and without atypia have different risks of developing cancer
The correct answer is: Endometrial hyperplasia with and without atypia have different risks of developing cancer. Endometrial hyperplasia with atypia has a higher risk of developing cancer than hyperplasia without atypia. The demonstration of infiltrating growth means that there are areas which are in the process of developing adenocarcinoma. The woman should be treated, not just followed-up, due to the risk of cancer developing. In endometrial hyperplasia one often sees densely-packed (too many) glands with active epithelium.
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100

A 38-year old man has recently undergone surgery for removal of a testicular tumour. The tumour has been diagnosed to be a seminoma.

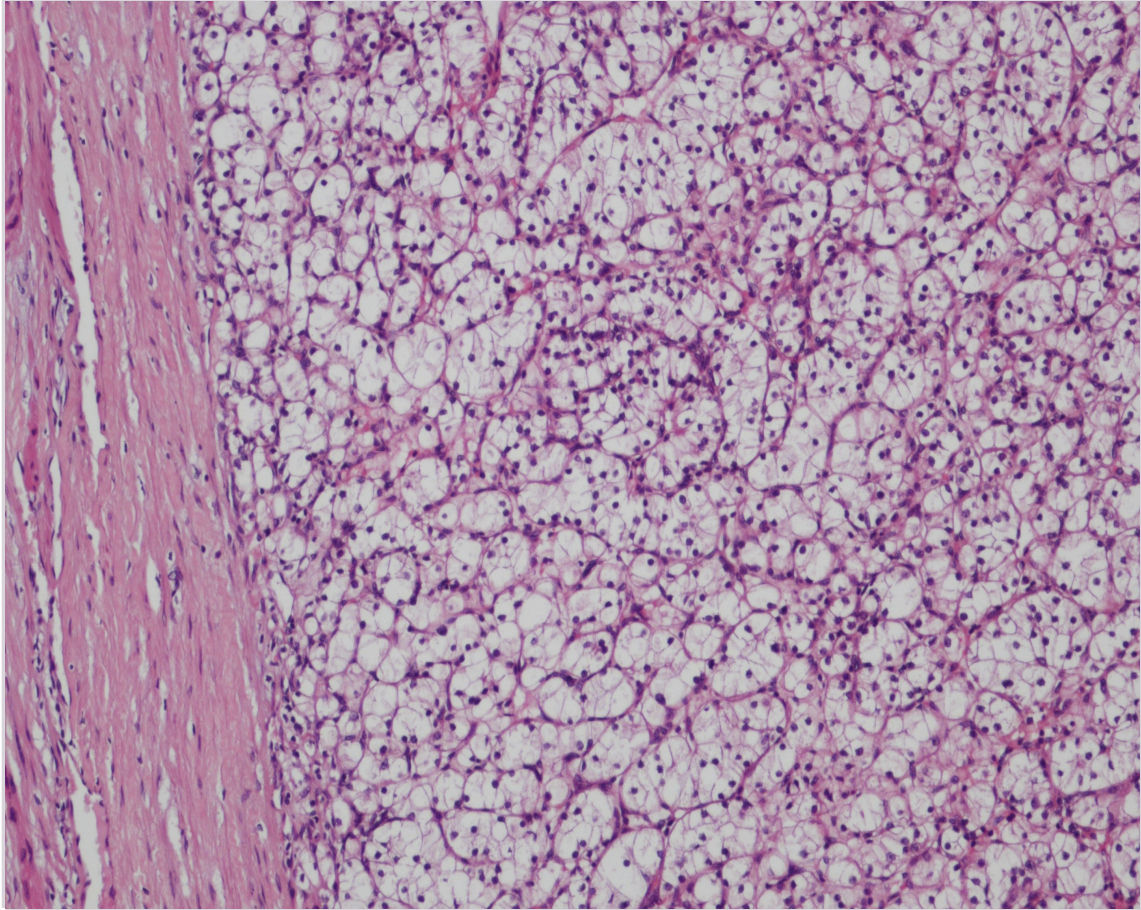
Which statement is correct?

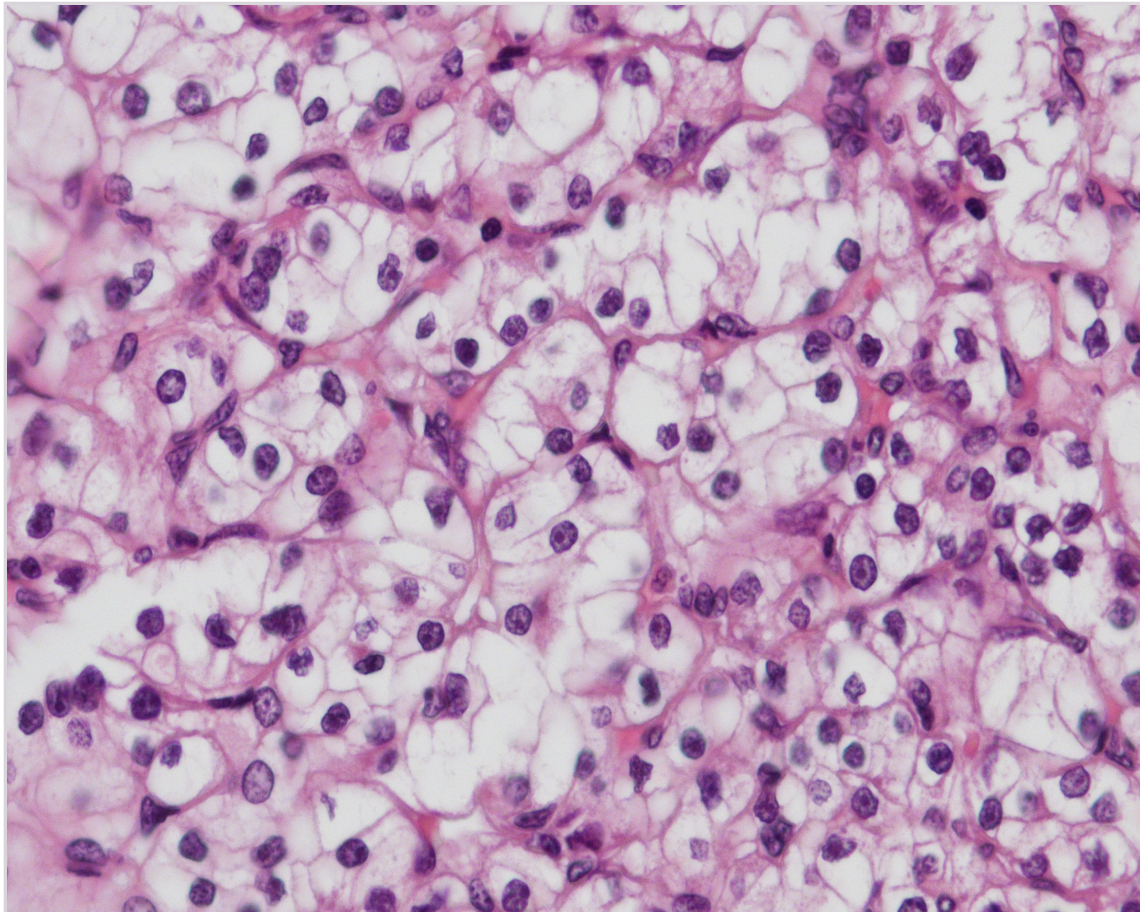
- A X** Seminomas are classified as germinal cell tumours
Correct answer: Seminomas are classified as germinal cell tumours. Testicular tumours occur most frequently in young adult men, and seminomas have the highest incidence in the 30-50-year age group. Most testicular tumours are slow-growing and do not cause pain. Germinal cell tumours are the most common.
- B** Seminomas occur most frequently in men aged between 70 and 80
- C** Stromal (sex cord stromal) tumours are the most common tumour in the testis
- D** Most testicular tumours grow rapidly and cause pain
-

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101

A 76-year old man has had pain in his lumbar region for quite some time, and occasionally has noticed haematuria. Ultrasound scan reveals a 5 cm diameter, almost round tumour in the upper pole of the left kidney. The images show histopathological sections from the tumour (H&E, 100x and 400x).





What is the most probable diagnosis?

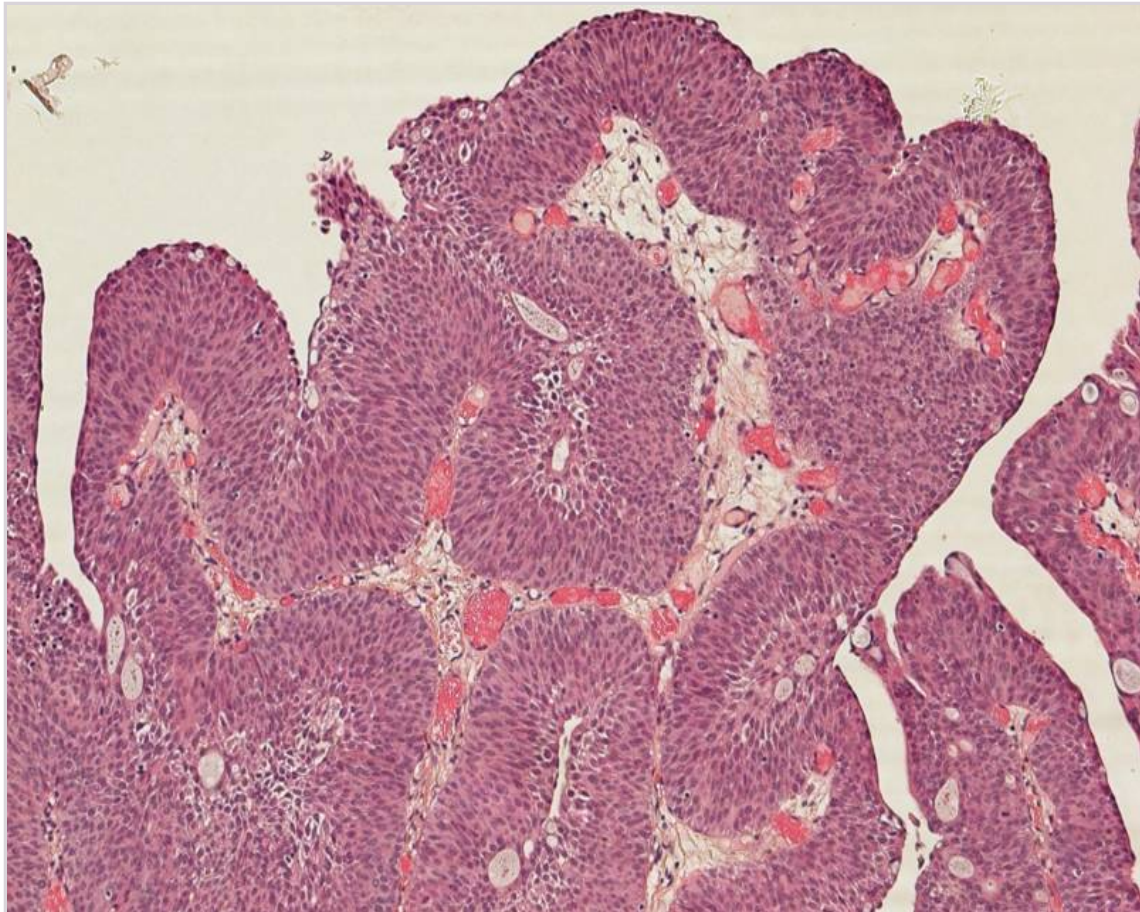
- A** Ectopic adrenal cortex
The tumour cells are "similar" to the adrenal. However, they lack the order and structure that characterises the various layers in the adrenal cortex. The cellular atypia is not particularly pronounced, but it is present and is typical for renal cell carcinoma.
- B** Wilms' tumour
Wilms' tumour occurs in children (2-5 years old). It has a varied histological picture with tissue types of blastemal, epithelial and stromal origin.
- C** Lipoma
The tumour cells can remind one a little of fat cells, but fat cells are larger; the nuclei in fat cells are very small and are positioned at the extreme periphery of the cell.
- D X** Renal cell carcinoma
The tumour tissue is comprised of groups of cells with large quantities of often colourless cytoplasm. In some cells, there are fragments of pink-coloured cytoplasm. The nuclei are often centrally-positioned. They are not large, but closer examination reveals that they have an irregular shape and are often hyperchromatic. There are thin vessels between the tumour cell groups. These can bleed and this tumour often has macroscopic bleeds and necroses.

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102

A 60-year old man was referred for cystoscopy due to persistent haematuria. A biopsy was taken from a lesion in the urinary bladder mucous membrane. The image shows a section from this area (H&E stain, x100).

What is the diagnosis?



- A** Invasive urothelial carcinoma, WHO grade 3
There is no evidence of invasive growth and little/no atypia.
- B** Granulomatous cystitis
There are no lymphocyte infiltrates, macrophages or epithelioid nodules in this section
- C** Squamous cell metaplasia
Squamous cell metaplasia can be seen occasionally in the bladder mucous membrane, but there is none in this section.
- D X** Papillary urothelial carcinoma, WHO grade 1
The image shows a section from a papillary urothelial neoplasm of low malignant potential (PUNLMP). The transition epithelium is normally flat. Here we see a papillary lesion. There is minimal atypia, but the epithelium is thicker than expected.

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103

Growth of more than one bacterial strain in a urine sample is often interpreted as a sign of contamination at sampling.

In which cases do this phenomenon most probably represent a true mixed infection?

- A** When the sample is collected as a mid-stream sample
Mixed culture is often seen when the sample is collected as a mid-stream sample; however, this is not optimal sampling. This normally represents contamination at sampling, not a true mixed infection.
- B** In cases of known anomaly of the urinary tract
Not normally associated with mixed infections
- C** In men with prostatic hypertrophy
Not normally associated with mixed infections
- D X** When the sample is collected using a single-use urinary catheter
Urine sampling using a single-use catheter is a more reliable method for collecting a clean sample than collecting the sample as a mid-stream sample. When the sample is collected using a single-use catheter, it will therefore be more probable that the mixed culture represents a true mixed infection than when the sample is collected using a mid-stream sample.

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104

In a six-month old child with a fever, a urine sample collected using a plastic bag sample reveals 10^4 CFU/ml of *E. coli*.

How should this finding be best interpreted in regard to the probable cause of urinary tract infection?

- A The finding cannot be taken into account because the plastic bag sample is best suited for gram-positive bacteria that are not normally present in the perineum
Both gram-negative and gram-positive bacteria are present in the perineum
- B As the requirement for significant bacteriuria in infants has been set at 10^4 CFU/ml, the finding must be assumed to represent the probable cause of the urinary tract infection
The threshold for significant bacteriuria for plastic bag urine is 10^5 CFU/ml.
- C X The finding is not significant because the use of a urinary plastic bag sample requires a bacterial count of at least 10^5 CFU/ml
Only with a pure culture of a urinary tract pathogen with a microbe concentration of 100,000 CFU/ml or more can findings from a plastic bag sample be taken into account
- D If other causes of the fever cannot be found, the finding must be presumed to represent the probable cause of the urinary tract infection
Bag samples are useful if they are negative. If bacteria are found in the bag urine sample, they must be correlated with the clinical findings and urinary dipstick and microscopy findings, if performed.

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105

The term primary urinary tract pathogenic bacterial strains is used about bacterial strains that can cause urinary tract infections in people with normal urinary tracts.

Which bacterial strain belongs to this group?

- A *Chlamydia trachomatis*
Chlamydia can cause urethritis but not UTI
- B X *Staphylococcus saprophyticus*
Classified as a primary urinary tract pathogenic bacteria, causes 1-10% of urinary tract infections, primarily uncomplicated cystitis in younger women.
- C *Enterococcus faecalis*
Secondary pathogenic bacteria
- D *Klebsiella oxytoca*
Classified as a secondary urinary tract pathogen

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106

In your practice, you get the results from the urinary culture of a patient with pyelonephritis. The clean culture gives *E. coli* 10^5 CFU/ml which is sensitive to nitrofurantoin, gentamicin, trimethoprim sulfa and cefotaxime.

Which of these medications is the best suited to treat this patient in general practice?

- A Nitrofurantoin
This medicine has little tissue penetration which means that it is only suitable for treating uncomplicated urinary tract infections.
- B Cefotaxime
Available only as an injection, therefore it is not suitable for use in general practice.
- C X Trimethoprim sulfa
- D Gentamicin
Available only as an injection, therefore it is not suitable for use in general practice.

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107

A young woman has just returned from holiday in Tanzania and attends your office with a fever of 39.5 degrees Celsius. She has a urticarial rash on her thighs and stomach. She hasn't noticed that she has been bitten by an insect, but says that this started a few days after she went swimming in Lake Victoria, a freshwater lake.

What is the most probable diagnosis?

A X Acute schistosomiasis (Katayama fever)

The disease is transferred by cercariae that live on freshwater snails. It is typically transmitted when bathing in freshwater in East Africa.

B Leishmaniasis (Kala-azar)

C Rickettsiosis

D Typhoid fever

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108

Patients with rheumatoid arthritis are increasingly taking tocilizumab (RoActemra®) as immunosuppressive treatment. This medicine blocks the Interleukin-6 receptor.

When diagnosing infections, which problems are associated with this medication?

A Reduced pain response and absent leukocytosis

B X Reduced fever response and absent CRP increase

IL-6 inhibition impairs the signal to the temperature centre in the hypothalamus and inhibits the liver's ability to produce CRP

C Reduced pain response and absent CRP increase

D Reduced experience of dyspnoea and absent leukocytosis

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109

A 20-year old woman has had unprotected sex (vaginal intercourse) with a man who has subsequently been shown to be HIV positive although he was unaware of this at the time of intercourse.

What are the chances that she is infected?

A 5-10%

B 2-5%

C X Less than 1%

The risk of infection for heterosexual intercourse is well under 1%

D More than 15%

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110

Treatment for a urinary tract infection has been started in an 85-year old woman with a fever of 38.5°C admitted to a care home. Urine culture reveals clean culture of *Proteus mirabilis* (belongs to the Enterobacteriaceae family) with 10⁴ CFU/ml, with the following sensitivity profile:

ampicillin R

cefuroxime I

nitrofurantoin S

mecillinam S

trimethoprim S

Which of the following medicines is best suited to treatment of this patient in the care home?

A Trimethoprim

Only recommended in cases of lower urinary tract infections

B Cefuroxime

Difficult to use in a care home as it is only available as an injection preparation

C X Mecillinam

D Nitrofurantoin

Only recommended in cases of lower urinary tract infections; here an upper urinary tract infection is suspected as indicated by the fever.

E Ampicillin

Not suitable due to in vitro resistance

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111

Angiotensin receptor antagonists are often used for hypertension and heart failure.

Which of the following conditions warrants extra monitoring of the patient after starting on an angiotensin receptor antagonist?

- A Aortic insufficiency
- B Intermittent claudication
- C Prior tendency to syncope when treated with nitroglycerine
- D X Tendency for hyperkalaemia

Angiotensin receptor antagonists have themselves a potassium-sparing effect, and thus you should ensure that the patient does not develop manifest hyperkalaemia.

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112

Alpha-blockers have a vasodilatory effect and are marketed, among other indications, as blood pressure lowering agents.

Why is this group of medicines not used extensively in the treatment of high blood pressure?

- A It has a diabetogenic effect
- B It can cause severe hypokalaemia
- C It can cause impotence
- D X It increases the risk of heart failure

This has been shown in studies - the other statements are not correct.

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113

A patient has newly-diagnosed osteoporosis and you are considering treatment with alendronate and calcium. An interaction search displays a warning symbol and the following text:

M05B A Bisphosphonates - A12A A Calcium

Decreased absorption of oral bisphosphonates.

What is the most correct handling of this interaction?

- A You increase the dose of alendronate by 50%
- B Alendronate and calcium cannot be combined
- C X Ask the patient to take alendronate before breakfast and calcium in the evening
as recommended by interaksjoner.no
- D You ask the patient to take alendronate and calcium every other day

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114

Contraceptive agents contain one or more hormones.

Which of the following contraceptive agents does *not* contain oestrogen?

- A NuvaRing contraceptive ring
- B X Nexplanon contraceptive rod implant
Contains etonogestrel
- C Evra contraceptive patches
- D Loette contraceptive pills

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115

A 72-year old woman with diabetes type 2, elevated blood pressure and hypercholesterolaemia has taken the following medicines over the last six months:

- Metformin (a biguanide derivative, for diabetes)
- Empagliflozin (a sodium-glucose-cotransporter-2 inhibitor (SGLT2 inhibitor), for diabetes)
- Valsartan (an angiotensin II receptor antagonist, for high blood pressure)
- Atorvastatin (a statin, for elevated cholesterol)

Over the last months the patient has had very frequent, recurring urinary tract infections.

Based on this, which of the patient's medicines should you consider discontinuing?

- A Atorvastatin
- B X** Empagliflozin
- C Valsartan
- D Metformin

Acts by increasing the excretion of glucose in the urine. Bacteria are fond of sugar.

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116

After the American "Women's Health Initiative" study on postmenopausal oestrogen therapy was published in 2002, there was a significant drop in this treatment in a number of industrialised countries. In the wake of this reduction in postmenopausal oestrogen treatment, epidemiologists could also measure a reduction in a certain type of cancer in postmenopausal women.

Which type of cancer showed a drop in incidence?

- A Colon cancer
- B Endometrial cancer
- C Vaginal cancer
- D X** Breast cancer

Correct answer

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117

In connection with major trauma, some patients may suffer a large, but often reversible, reduction in renal function. Such renal function impairment may result in the contraindication of central groups of analgesics. Among the most used analgesic medications we find the opioids morphine and codeine, the NSAID diclofenac, and paracetamol.

One of these four drugs may be used at recommended doses without taking into account the patient's kidney function. Which one?

- A Codeine
Codeine is metabolised to morphine and subsequently to M6G, which can accumulate if renal function is reduced.
- B Diclofenac
NSAIDs are nephrotoxic - they reduce renal blood flow and can further impair renal function or trigger acute renal failure in situations in which renal function is already impaired.
- C Morphine
Morphine is metabolised to M6G, which can accumulate if renal function is reduced.
- D X** Paracetamol
Paracetamol is metabolised in the liver primarily to inactive metabolites and is not dependent on renal function for excretion. Neither is it nephrotoxic.

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118

A woman is solely breastfeeding her two-month old child. She must take a medicine which potentially could have an effect on the breastfed child. To evaluate how safe the medicine would be for the child, you must calculate the child's *theoretical dose*, i.e. how much medicine the child theoretically will take up.

How is the theoretical dose calculated?

- A The amount of milk consumed (about 150 ml per kg bodyweight per day) is multiplied by the concentration of the medicine in the mother's serum
not the TD; does not take into account the variation in uptake in breastmilk from serum
 - B The serum concentration of the medicine is measured in the child's blood and multiplied by the child's blood volume (about 500 ml)
not the TD
 - C X The amount of milk consumed (about 150 ml per kg bodyweight per day) is multiplied by the concentration of the medicine in the milk
ref LM handbook
 - D The amount of milk consumed (about 150 ml per kg bodyweight per day) is divided by the concentration of the medicine in the milk
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119

A young woman takes lamotrigine as indicated for epilepsy. She is well-regulated on a relatively low dose. She is planning to become pregnant.

What should you tell her?

- A She should discontinue lamotrigine before she becomes pregnant
 - B X She should be monitored with repeated serum concentration measurements and any necessary dose adjustments before, during and after the pregnancy.
ref SPC, the serum concentration drops during pregnancy and dose adjustment may be necessary
 - C She should switch from lamotrigine to valproate before she becomes pregnant
It has been well-documented that valproate increases the risk of neural tube defects (probably in total 1–2% of exposed fetuses), and such treatment is an indication for prenatal diagnostics. Several studies indicate that folic acid supplements could protect the fetus against neural tube defects. It is also suspected that exposure to valproate during pregnancy can affect cognitive and behavioural development in some children. See also antiepileptic drugs
 - D It is unlikely that the pregnancy will affect the dose requirements, and monitoring other than routine is not necessary
ref SPC, the serum concentration drops during pregnancy and dose adjustment may be necessary
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120

A 75-year old man takes isosorbide dinitrate as indicated for angina pectoris. He sees you as his GP because he wants a prescription for sildenafil for erectile dysfunction. An interaction search reveals possible interaction between isosorbide dinitrate and sildenafil.

What undesired effect can occur if these two medicines are combined?

- A Sildenafil induces metabolism of isosorbide dinitrate and gives an increased risk of therapy failure
 - B X The combination will increase the blood pressure lowering effect and give an increased risk of hypotension
*G04B E03 Sildenafil - C01D A08 Isosorbide dinitrate
Increased blood pressure lowering effect; increased risk of hypotension. The combination is contraindicated in the SPC for Viagra and the SPC for Revatio.*
 - C The combination will lower the blood pressure reducing effect and will give an increased risk of angina pectoris symptoms
 - D Sildenafil inhibits metabolism of isosorbide dinitrate and gives an increased risk of overdosing
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Testen har 120 oppgaver. På utskriftstidspunktet var 0 oppgaver blitt trukket og det var gjort fasitendringer på 1 oppgaver.