

2016 høst - IID - MD4043/MD4041
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1

How many ultrasound examinations are done in uncomplicated pregnancies?

- A Ultrasound is offered routinely in the second and third trimester.
In some countries ultrasound examination is also routinely offered in the third trimester, but its usefulness is poorly documented.
In Norway a third trimester ultrasound examination is only done when clinically indicated.
 - B Ultrasound is not offered routinely in uncomplicated pregnancies.
Ultrasound examination in pregnancy is an offer and not mandatory. But all pregnant women are offered an ultrasound examination in the second trimester, and almost all complete this examination.
 - C X All pregnant women are offered an ultrasound examination in the second trimester.
Provision of an ultrasound examination was recommended in Norway by consensus conferences in 1986 and 1995.
 - D All pregnant women are offered two ultrasound examinations (first and second trimester).
This offer is common in several other countries (Denmark, United Kingdom), but an ultrasound examination in the first trimester is not a general offer in Norway. The authorities fear excessive focus on diagnosing trisomy 21.
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2

Some infections are especially dangerous in pregnancy. What is correct?

- A Toxoplasmosis infection can cause foetal meningomyelocele (spina bifida).
Meningomyelocele occurs early in the first trimester. Toxoplasmosis infection in this time period can cause spontaneous abortion, but not meningomyelocele. Infection later in pregnancy can cause foetal brain injury.
 - B Listeria infects the foetal intestine and may cause gastroschisis (defect in the anterior abdominal wall).
This is not correct. Listeria can cause serious infection in the pregnant woman, but there is no connection with foetal abdominal wall defects.
 - C Infection with Cytomegalovirus (CMV) can cause severe foetal anaemia.
CMV could harm the foetus and give neurological sequelae, but not anaemia.
 - D X Infection with Parvovirus B19 can cause severe foetal anaemia.
Parvovirus B19 (fifth disease/erythema infectiosum) can inhibit the formation of foetal red blood cells and cause severe anaemia.
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3

You are the general practitioner (GP) for a 45-year-old woman. The patient is para 3. She is sterilised and has heavy menstrual bleeding lasting 3-14 days and with bleeding intervals of 1-3 weeks. She consults you for help and says that she has some pain.

What should you do at this consultation, except for a gynaecological examination?

- A Take a cervical cytology
This is not sufficient to exclude pathology of the endometrium in this perimenopausal woman.
 - B Refer her to a CT scan of the abdomen/pelvis
Histology from the endometrium has to be investigated.
 - C Insert an intrauterine hormonal contraceptive device
For a perimenopausal patient you first have to exclude endometrial carcinoma or its precursor.
 - D X Take an endometrial biopsy (Pipelle)
It would be preferable if you could take an endometrial biopsy, but in the event that you cannot do this you can refer the woman to a gynaecologist.
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4

Why is the chance of delivering live, healthy children significantly reduced for women aged > 40 years?

- A The prevalence of fallopian tubes damage (tubal factor), uterine fibroids (myomas), endometriosis and other gynaecological diseases increases with the woman's age.
Wrong answer. These factors contribute to infertility, but do not represent the most important reproductive limitation in humans.
- B X** The woman's ovarian reserve is reduced both quantitatively and qualitatively with increasing age.
Increasing incidence of "genetically divergent" oocytes in older women makes it more difficult to get pregnant, and increases both the risk of miscarriage and birth defects in the child.
- C Older women often have older partners, and sperm quality decreases in older men.
- D The older the woman is, the fewer primordial follicles (ova) are found in her ovaries.
Partially correct answer, but must include presence of genetic abnormalities/qualitative aspects as well.

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5

A 65-year-old woman consulted her doctor because of weight loss and frequent urination. Investigations show that the symptoms most likely are caused by an ovarian tumour. What type of ovarian tumour is the most likely diagnosis?

- A Trophoblast
- B Germ cell
- C Stromal
- D X** Epithelial
Epithelial tumour is the most common type of ovarian tumour

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6

Which immunoglobulins cross the placental barrier?

- A X** IgG
IgM refers to those antibodies which are produced immediately after exposure, while IgG refers to a later reaction. IgG passes the placental barrier, but not IgM.
- B Neither IgG nor IgM cross the placental barrier.
- C IgM
- D Both IgG and IgM

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7

Which of these conditions is the most correct clinical indication for HRT (hormone replacement therapy)?

- A Prevention of ovarian cancer when there is premature ovarian failure
- B Prevention of Alzheimer's disease
- C X** Hot flashes
- D Anovulatory PCOS

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8

A 38-year-old woman has not had any menstrual periods for more than one year, and after investigation, she has been diagnosed with premature ovarian failure. She is otherwise perfectly healthy and have no hereditary diseases.

For how long should she take combined hormonal replacement therapy with oestrogen and progesterone?

- A X** Until 50-51 years of age.
Guidelines recommend treatment with oestrogen until anticipated time of menopause, about 50-51 years of age, to prevent osteoporosis. In addition treatment with progesterone is recommended to prevent oestrogen-induced hyperplasia/endometrial cancer.
- B For 2-3 years. And then try to discontinue it.
- C Lifelong.
- D She should not be on this at all because of the increased risk of ovarian cancer.

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9

A 56-year-old woman, para 3, consults you as her general practitioner (GP) because of urinary incontinence, especially when coughing and jogging. What is the most likely cause of this?

- A A ureteral diverticulum.
 - B Urinary tract infection.
 - C X Stress incontinence.
 - D Urge incontinence.
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10

How is the contraceptive implant administered?

- A Subdermally every 6th year.
Subdermal administration is correct, but the contraceptive implant must be changed every 3rd year to have an adequate contraceptive effect.
 - B Intrauterine every 5th year.
The contraceptive implant is not for intrauterine use.
 - C X Subdermally every 3rd year.
Correct answer. We went through this on a model in the contraception seminar.
 - D By injection every 12th week.
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11

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

- A Bed rest for a minimum of 4 weeks and Klexane (Enoksaparin) to prevent thrombosis.
Incorrect answer. It is unfavourable both physically (risk of thrombosis, muscle atrophy) and psychologically with prolonged bed rest right after child birth.
 - B Intensified pelvic floor muscle exercise after instruction from a physiotherapist.
Partially correct, but hardly adequate for a large prolapse which protrudes through the vaginal opening.
 - C X Treatment with a vaginal ring pessary and local oestrogens.
Correct answer. She should get conservative treatment with a vaginal ring pessary for as long as possible, at least until she has finished breastfeeding and has regained menstruation. She can use local oestrogens while breastfeeding.
 - D Surgical correction of the prolapse as an emergency procedure.
Incorrect answer. The prolapse can spontaneously improve greatly during the first months after child birth and may not necessarily need surgical correction.
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12

A midwife is attending a home birth and calls you, as the emergency doctor, for advice. The labour has stalled. The cervix has shortened and has been dilated to 5 cm for the last 3 hours. What advice is most appropriate?

- A Refer to the hospital for an emergency caesarean section.
 - B X Refer to hospital for evaluation of cephalopelvic disproportion and oxytocin administration.
 - C Stimulate the uterus by squeezing and massaging the woman's abdomen.
 - D Stimulate the nipples to increase oxytocin levels and stimulate contractions.
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13

You are a GP. A woman pregnant in week 17 comes to see you. She has previously been healthy. She lists a whole load of symptoms.

Which symptoms are important for the doctor to prioritize and investigate with regard to the pregnancy?

- A Occasional headaches in the last weeks
Headache as a symptom should of course be investigated further, but it is highly improbable that it is related to pregnancy so early in the pregnancy
 - B Increasing constipation the last weeks
Normal in pregnancy; not immediately threatening for the pregnancy
 - C X Frequent, stinging and painful urination over the last fews days
Urinary tract infection should be treated
 - D Increasing whiteish, odourless discharge over the last weeks
Normal in pregnancy
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14

You started as the locum GP 2 weeks ago in Bjerkvik municipality. The medical secretary tells you that a woman who gave birth 1 week ago wants an appointment for a post-partum "check-up". The medical secretary wonders what she should do. You look in the patient's notes and see that the locum GP who worked there before you had made a note that in week 32 of pregnancy, the patient had pregnancy diabetes treated by diet.

What is the correct message for the secretary?

- A The patient is to be given an appointment next week. She is to have a fasting blood glucose test and bring a urine sample with her
 - B X The patient is to be given an appointment in about 2 months. She is to attend fasting for a "glucose tolerance test"
 - C The patient doesn't need a postpartum check-up as pregnancy diabetes resolves itself after the pregnancy
 - D The patient is to be given an appointment as soon as possible for insertion of the coil, as she must avoid unplanned pregnancies
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15

You are a patient's general practitioner (GP). The patient is pregnant in week 10. Previously, she has delivered one child. The baby was delivered at 32 weeks due to severe intrauterine growth restriction. The patient did not have pre-eclampsia in this pregnancy.

How will you follow the current pregnancy?

- A The woman should be referred to a specialist if there is a decrease in symphysiofundal height (SFH) and at the same time an increasing blood pressure.
The fundal height measurement is not sensitive enough to catch intrauterine growth restriction. Foetal growth restriction can be present without signs of pre-eclampsia or hypertension.
 - B Follow her with blood pressure measurements, she has a risk of pre-eclampsia because she has previously delivered an intrauterine growth restricted child.
Blood pressure measurement is only one of the investigations that this woman should be followed with.
 - C X Refer the woman to a specialist in the first trimester to evaluate the need to start administration of Albyl-E (acetylsalicylic acid), and do a Doppler scan of the uterine artery approximately in week 24.
A woman with previous placental insufficiency and delivery of a premature intrauterine growth restricted child should be referred to a specialist for planning of follow-up during pregnancy.
 - D She should be referred to a specialist if flattening of the symphysiofundal height (SFH) is found in week 24.
The woman should be referred to a specialist in the first trimester.
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16

You are a general practitioner (GP) and a patient is pregnant in week 18. She has previously delivered 2 children, in week 29 and 33 respectively. She is afraid of pre-term labour also this time and has had some pelvic pressure and heaviness sensation. She wants to be referred to a gynaecologist.

- A X** You refer to a gynaecologist because of the previous history of pre-term labour in order to start treatment with progesterone vagitories.
The patient should be followed up by a gynaecologist because of her previous history with pre-term labour in order to start prophylactic treatment.
- B** Only women with symptoms should be referred, hence, you refer this patient to a gynaecologist.
All women with risk factors should be referred, independent of symptoms.
- C** You comfort her and say that it is not necessary, because she gave birth later in the second pregnancy than in the first pregnancy.
Before week 34 is also a preterm child birth.
- D** You inform her that the foetus is not yet viable so it is too early with referral to the gynaecologist.
Prophylaxis with progesterone should start from week 18.
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17

You are a general practitioner (GP). A patient is a 40-year-old woman, pregnant in week 10. She has previously had two normal pregnancies and has delivered 2 healthy children. You do the 1st pregnancy check-up and inform her about the following:

- A X** That because of advanced age she may, if she wishes, be referred to a specialist in prenatal medicine.
This is an offer to women who will be > 38 years old at child birth.
- B** That you have to refer her to a specialist because of advanced age.
It is necessary to clarify why she has to be referred.
- C** That she will be followed by you throughout the pregnancy and that you will refer her to a specialist if something happens which should be evaluated.
- D** That she has given birth to healthy children earlier and therefore she will have a normal pregnancy this time as well.
Advanced age is a risk factor for adverse outcomes of pregnancy.
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18

A patient is pregnant for the third time and is in week 24. She has previously experienced pre-term labour twice, in week 31 and week 29, respectively. Both children had normal birth weight for gestational age. The follow-up in this pregnancy is done by her general practitioner (GP) and by a private practice specialist. She now has got back pain and says she feels pressure and heaviness. She contacts you as her GP.

What kind of evaluation/treatment is the most important now?

- A** Comfort her, await further development and see her in approximately 2 days.
- B** Send her to the private practice specialist.
- C X** Make contact with the maternity ward at the hospital for further assessment of the woman.
Correct. The woman should be transported to the hospital in order for her to get assessed, to possibly give her glucocorticoids to aid pulmonary development, anti-contraction medication (tocolytics) and antibiotics.
- D** Investigate if there is a urinary tract infection and treat it.
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19

The patient is a healthy woman, para 3, all normal pregnancies: 2 normal vaginal deliveries and 1 caesarean section. Now she is pregnant again and the investigations by routine ultrasound in week 18 and ultrasound control in week 32 confirm that the placenta is placed on the anterior uterine wall and there is placenta previa.

Which is the most important risk factor to be aware of in this situation?

A Vasa praevia.

B X Placenta accreta.

Correct answer, for a woman with a previous caesarean section there is an increased risk of placenta accreta. The risk of having an abnormally invasive placenta increases seven times following one previous caesarean section, and increases 56 times if the woman has had three or more previous caesarean sections.

C Intrauterine foetal growth restriction.

D Hypertension in pregnancy.

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20

You are the emergency doctor on call and you are called to the home of a 15-year-old boy, after his mother found him crying in the bathroom with an untightened belt around his neck. According to the mother he was hospitalised at a psychiatric ward one year ago due to disruptive behavior/acting out, suicidal threats and a possible suicidal attempt.

He received outpatient care for depression for six months, then follow-up of child welfare services with assistance to him and his parents due to major conflicts at home and behavioural difficulties.

For the last weeks, he has had increasing school absence, been very irritable, angry and withdrawn.

The boy gives little eye contact and will not say anything about how he is doing, or what he thinks.

What is your evaluation of suicidal risk in the boy?

A The suicidal risk is high, because of probable mental illness and increasing withdrawal.

The presence of mental illness contributes to an increased risk, but previous suicidal threats and attempts carry more weight as risk factors than just increasing withdrawal.

B X The suicidal risk is high, because of probable mental illness and previous hospitalisation for suicidal threats and a possible suicidal attempt.

Previous suicide attempts along with the presence of mental illness are the strongest risk factors for suicide that we know. The boy previously had a depressive disorder and major behavioral problems, and is now likely developing depressive symptoms again. He has previously been admitted to hospital due to suicidal threats and a possible suicidal attempt, has now been stopped during a possible new suicidal act, and the risk of a repeated suicidal attempt is high.

C The suicidal risk is high, because of probable mental illness and conflicts in the family.

The presence of mental illness contributes to an increased risk, but previous suicidal threats and attempts carry more weight as risk factors than conflicts in the family.

D The suicidal risk cannot be assessed before I have talked to the boy about his thoughts about death and suicidal plans.

The suicidal risk can be considered even if you do not get to talk to the boy about possible suicidal thoughts. Many of the factors we base our assessment on are factors we get from the previous history and information we get from, for instance, family members, such as in this case. Obviously it's best if you also obtain the youth's own thoughts, but often they will not talk about these, and you have to make a judgment anyway.

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21

A 12-year-old boy, has been diagnosed with hyperkinetic disorder and has recently started with Ritalin SR (methylphenidate Sustained Release). As a general practitioner (GP) you have to give advice about other treatment measures.

What other treatment measures are the most important in a comprehensive treatment regimen?

A X Educational and behavioural measures.

Medical treatment of hyperkinetic disorder should always be given as part of a broader treatment programme. Educational and behavioural measures are important and have evidence of effect.

B "Time-out" from concentration intensive tasks.

The patient should maintain regular school activity during a trial of medical therapy because this is useful for evaluating the impact of the therapy.

C Physical exercise and a proper diet.

Leisure activities, physical exercise and a proper diet are helpful measures to improve and maintain good health, but have not shown any effect on symptoms of hyperkinetic disorder.

D Leisure activities which can build self-confidence.

Leisure activities, physical exercise and a proper diet are helpful measures to improve and maintain good health, but have not shown any effect on symptoms of hyperkinetic disorder.

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22

A 7-year-old boy is running around and makes a lot of noise both inside and outside the classroom. He is afraid of the dark and has difficulty falling asleep at night. At school he does not sit still in his seat, but is restless and disturbs the others, and he has few friends.

What additional information is most important in order to clarify whether he has hyperkinetic disorder/ADHD?

A If the care at home is good enough, with engagement and warmth in close relationships.

B X If he is impulsive and has attention difficulties, and if he has symptoms also in his leisure time.

It should be assessed if the likelihood for hyperkinetic disorder is large by clarifying whether the patient has attention deficit, hyperactivity and impulsivity in several situations. At a high probability of this, the patient should be referred to the educational-psychological services for further assessment. This additional information is most important, and therefore the correct answer. The other response options can be considered as secondary: Patients with hyperactivity and impulsiveness are often bullied or performs this themselves, and are at increased risk of experiencing traumatic events, so this must be considered. An assessment of the care situation at home is always needed in the work up, but it will be worthwhile having first learned about the child's resources and symptoms so that the child's own contributions to the interaction with parents can be assessed.

In connection with the assessment of interaction one can also try to get an idea of the relationship with the parents and the extent to which the child has received supportive help from parents in his development, such as help with emotional regulation. This may provide input to the understanding of the situation and treatment planning.

C If the connection with the parents was good during his first few years of life, and if he got help with emotional regulation.

D If he is exposed to or performs bullying, or if he has experienced traumatic events.

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23

A 10-year-old boy has involuntary, rapid movements of the face and mouth, and eye blinking. This started when he was 6 years old and has increased lately. For the last two years, he makes sudden noises at times: clearing of the throat and loud shouting. The symptoms are bothersome and affects his functioning at school.

Which measure will you prioritise as the first choice?

A X Guidance of the patient, family and school.

Treatment should always start with information to and guidance of the patient, family and school about Tourette syndrome. Facilitating at home and at school will be particularly important for this condition and in order to decrease stress. At school it is often useful with private rooms that can be used for relaxation when tics are at their worst and it must often be informed about such matters. If it is considered that the patient can utilise conversational therapy, Habit Reversal Training (HRT) is a good treatment for bothersome tics which affects function. Drug therapy is only indicated if the patient cannot make use of HRT or this has no effect and/or when tics are particularly troublesome. Family therapy is only indicated if there is special communication problems within the family which constitutes a significant stress factor.

B Habit Reversal Training (tic reversal treatment)

C Family therapy

D Medical treatment with clonidine or a neuroleptic.

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24

A 10-year-old boy has a bad temper with much anger. He is very active, restless in class and often fights at school. He has repeatedly hit other children so they had to see a doctor. He dislikes school, concentrating only for a few minutes at a time and is starting to lag behind in reading and mathematics. The parents are concerned and responsive to the advice they can get.

Which diagnoses are most probable and therefore important to investigate first?

A X Conduct disorder, hyperkinetic disorder and specific learning difficulties

Conduct disorder is characterised by a persistent pattern of aggressive behaviour that violates social norms for the age and/or exceeds the boundaries of others (violence, theft etc). Restlessness, problematic behaviour, quick temper, short concentration span and academic difficulties may also be hyperkinetic disorder, and specific learning difficulties may be the reason why he is lagging behind in reading and mathematics.

It is important to investigate all these three conditions early so that measures can be implemented. The answer option with all three of these is therefore the correct answer.

Depression and anxiety disorder can be comorbid, and should in that sense also be investigated, but the combinations of the other three answer options do not cover the three main conditions which should be investigated first.

B Specific learning difficulties, depression and anxiety disorder

C Depression, anxiety disorder and conduct disorder

D Hyperkinetic disorder, specific learning difficulties and depression

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25

A 7-year-old girl, in first grade, is an only child in a closely knit family (mother, father and the girl). She has always been very cautious. For the last 2-3 months, she has been hesitant to go to school. She complains about stomach ache and goes to the toilet repeatedly to avoid school. She worries that something bad might happen with her or with her mother, and asks repetitively if her mother and father love her. Every day her mother accompany her to school, and has to comfort the girl for a long time before she gets to go to work. The girl wants to be together with others from the class if they come to her home.

Which diagnosis is most likely?

- A Obsessive compulsive disorder
Obsessive compulsive disorder is characterised by rigidity in thought (filthiness, contagion) or action (washing, checking, touching) with loss of function. This girl appears to have some rigidity of thought (worries), repeating questions and toilet visits, but these are more likely tied to anxiety in a transitional situation - and anxiety for separation.
- B X** Separation anxiety disorder
Separation anxiety disorder is the correct answer and is characterised by fear of separation from attachment figures, unrealistic worries about the caregivers and one self, not wanting to be alone, frequent somatic symptoms, decreased social functioning. The strenght and/or duration of the problem should exceed what is considered normal for the age, and the debut is in early childhood.
- C Social anxiety disorder
Social anxiety disorder is characterised by fear/insecurity in regards to strangers in social situations, with avoidance behaviour. This girl likes to be together with others, just not outside the safe confines of her home. It is the anxiety of separation that is particularly prominent here, so separation anxiety disorder is more probable. Social anxiety disorder is an important differential diagnosis.
- D Depression
Depression with typical features such as sadness, anhedonia, and reduced energy is not clearly expressed, and the girl seems to enjoy being with others, when it is in a safe environment.

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26

A 12-year-old girl, has over the last three weeks been sad, had concentration and sleeping difficulties. Even when she participates in activities that are usually fun, she cannot feel enjoyment. She is unhappy with her appearance, and feels that others think she's boring. You think she has a depressive episode, currently of a mild degree, and want to try out the recommended treatment regimen in general practice.

Which elements will be the first choices in this regimen?

- A Use the "circle of growth" to increase self-esteem
The "circle of growth" is not a validated method.
- B Medical treatment with a SSRI (selective Serotonin reuptake inhibitor).
Medical treatment is not the first treatment choice during a mild depressive episode in a 12-year-old.
- C X** Improve sleep hygiene and change dysfunctional thoughts.
Improvement of sleep hygiene in combination with cognitive techniques to change dysfunctional thoughts are the most appropriate first treatment choices.
- D Expose her to "triggers" with response prevention.
Exposure with response prevention is a method for anxiety treatment (not the first choice for depression).

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27

In child and adolescent psychiatry the multi-axial diagnostic system (ICD-10) is used to describe biopsychosocial factors. One of the axes covers deviant psychosocial situation. Which of the following factors are included in this axis?

- A Acute life events, somatic illness in the child
- B Divergent upbringing, the child's global functioning
- C X Divergent family relationships, mentally ill parent.

Multi-axial diagnosis in ICD-10 consists of 6 axes: Axis 1: Clinical psychiatric condition, Axis 2: Specific developmental disorders, Axis 3: Mental retardation, Axis 4: Somatic conditions, Axis 5: Deviant psychosocial situation, Axis 6: Global assessment of functioning.

Divergent family relationships (Axis 5.1) and mentally ill parent (Axis 5.2) is the correct answer. Divergent upbringing is included (Axis 5.4), but the child's global functioning is scored on Axis 6. Acute life events is included (Axis 5.6), but somatic illness is scored on Axis 4. Mental retardation is scored on Axis 3, while physical child abuse is scored in divergent family relationships (Axis 5.1).

- D Mental retardation in the child, physical child abuse

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28

A 15-year-old girl witnessed a dramatic incident 6 months ago, where a person fired shots right by the school she attends, killing 5 people and finally himself. One of the people killed was the girl's little sister. Now she is very sad and anxious, keeps mostly at home with her parents and has not been in school since the incident. She is troubled by insomnia and nightmares, and has difficulty concentrating. What is the most likely diagnosis?

- A X PTSD, because she fulfills all of the diagnostic criteria.
The diagnosis of PTSD requires: A. Triggering traumatic event, B. Reliving (eg. nightmares), C. Avoidance behaviour, D. Increased physiological readiness (insomnia, vigilance, easily startled). Decreased functioning is also required. She fulfills all of these criteria. Developmental trauma disorder is not an established diagnosis in current diagnostic systems.
- B Separation anxiety, because she is anxious, stays together with her parents, and does not fulfill all the criteria for PTSD.
- C Depression, because she is very sad, has difficulty sleeping, and does not fulfill all the criteria for PTSD.
- D Developmental trauma disorder, because this happened at a crucial developmental stage, she has symptoms of trauma, and does not fulfill all the criteria for PTSD.

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29

You are the school doctor at a primary school, and you are contacted by the principal who says that a teacher is concerned about a 7-year-old boy, who is followed up by a child and adolescent psychiatrist because of ADHD. The boy came to school today, he seemed upset and stated that it was painful to sit. Spontaneously he told the teacher that "Daddy has given me spanking because I peed myself last night."

You examine the boy and finds that on his right buttock he has a red-blue bruise of approximately 7 x 10 cm which is tender to the touch. In addition, you find that he has a brown mark located on the left ear cartilage and some unremarkable scrapes and bruises on his legs and knees. The boy repeats the story of the bruise on his buttock, in addition he says that "Daddy dragged me in my ear." How do you handle this?

- A You submit a written report of concern to the child welfare services and ask the general practitioner (GP) to control the boy in about a week.
- B X You contact the child welfare services and police by telephone immediately after the examination of the boy.
Here it is important to take action immediately because the boy has fresh skin bruises and a history. The Child Welfare Act and the obligation you have to avert child abuse authorise an emergency message to the authorities.
- C You ask the principal to convene the parents to a meeting the same day to determine if the boy's story is correct.
- D You send a message to the general practitioner (GP) and ask that the boy and his family are followed up by him/her.

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30

Which disease is best suited with the following clinical findings: skin bleeding on lower limb, arthritis and haematuria?

- A Haemolytic uraemic syndrome
Gives a triad of renal failure, anaemia, thrombocytopenia. Not associated with arthritis.
- B Glomerulonephritis
Usually does not give skin changes, arthritis or skin bleeding.
- C X Henoch Schönlein Purpura
Correct answer.
- D Kawasaki disease
This disease is dominated by other skin and mucosal changes (macular rash, conjunctivitis, desquamation of fingers), and not skin bleeding.

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31

Mia is 2 years old and goes to a nursery. Last week she had loose stools, and for the last days her parents have thought that she looks a little pale. Today the nursery called and asked the parents to fetch her because she seemed very lethargic. The parents took her directly to the emergency room when they saw her. The doctor finds that she is very faint, pale and in poor general condition with scattered bruises and bleeding under the skin. Temperature 37.1, pulse 130, capillary refill 2 sec. Hb 5.2 g/dl and CRP <5 mg/L. The emergency room doctor sends her directly to the hospital children's emergency room where several blood tests are ordered after the doctor on call have examined her.

The first blood test results are:

Hb 4.8 g/dL (ref. 10.5 to 13.5 g/dL)
Leucocytes $5.2 \times 10^9/L$ (ref. 4.0 to $14.0 \times 10^9/L$)
Thrombocytes $10 \times 10^9/L$ (ref. 164-370 $\times 10^9/L$)
CRP <5 mg/L (ref. <5 mg/L)
Creatinine 92 $\mu\text{mol/L}$ (ref. 15 to 31 $\mu\text{mol/L}$)

What is the most likely diagnosis?

- A X Haemolytic uraemic syndrome
Fullfills all the signs: haemolytic anaemia, thrombocytopenia, increased creatinine/renal failure
- B Post-infectious glomerulonephritis
Too pronounced cytopenia, probably too high creatinine and there is only a short while since she had symptoms of infection (loose stools) and the renal failure.
- C Moderate to severe dehydration
This would rather have resulted in increased Hb, and probably a normal thrombocyte count. And the creatinine increase is too high for dehydration. Besides, the medical history with loose stools is not dramatic enough here to develop severe dehydration.
- D Acute lymphatic leukaemia
Do not expect increased creatinine/renal failure in acute lymphatic leukaemia.

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32

Mari, 12 years old, is a previously healthy girl. Over the last two weeks she has had a worsening dry cough, mild fever and gradually increasing weakness. She has been home from school for the past five days. On examination by the general practitioner (GP), she is weak and pale, but she is not severely lethargic. Respiration rate is 26/min. She has a normal blood pressure and a slightly increased pulse, 100/minute, temperature 38.3. Over the lungs there are light crackles bilaterally, mostly basally, but there is no dullness to percussion. CRP 42 mg/L (ref: <5 mg/L).

Which microbe do you think has caused the infection?

- A X *Mycoplasma pneumoniae*
Typical clinical findings for atypical pneumonia, typical age, long-lasting moderate symptoms, low-grade temperature and a low CRP, bilateral findings.
- B Respiratory syncytial virus
The typical age for RS-virus pneumonia is < 2 years of age
- C Influenza virus type A or B
All ages, but a more acute presentation, higher temperature and muscle pain/headache
- D Streptococcal pneumonia
Presentation is more acute, the patients is usually more sick, higher temperature and CRP, usually unilateral localisation

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33

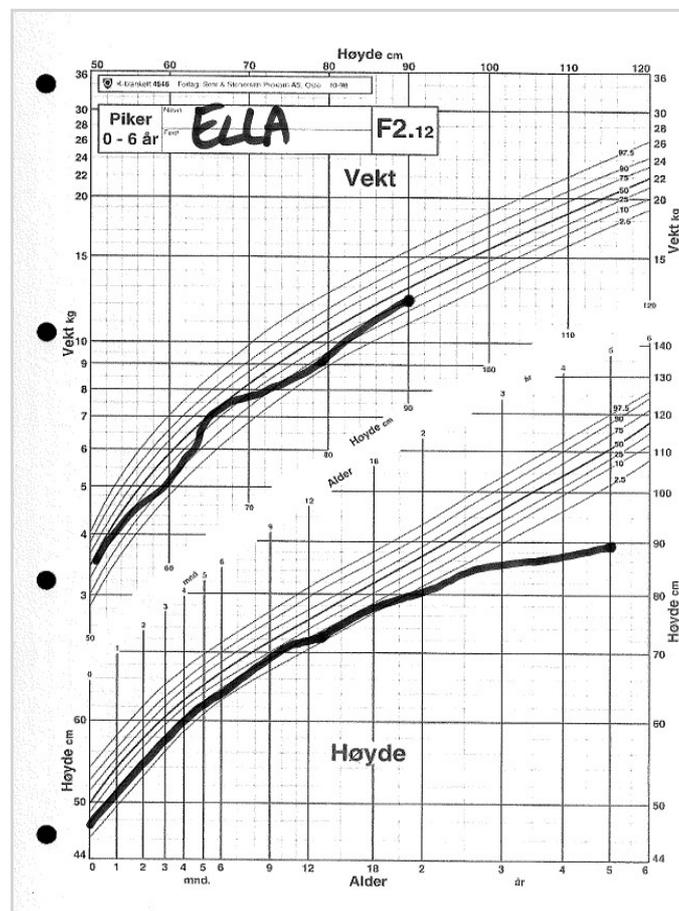
Peder is fasting before surgery tomorrow. He weighs 37 kg. How much fluid will you give intravenously per hour to cover his basic needs?

- A 153 ml/hour
Here the basic need per 24 hours is covered in 12 hours.
- B 98 ml/hour
- C 42 ml/hour
- D X 77 ml/hour
Basic need: 37 kg. (0-10 kg: 1000 ml + 10-20 kg: 500 ml + 20-37kg: 20ml x 17: 340 ml = 1840) : 24 = 77 ml

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34

Ella (5-year-old girl) had a normal length at birth, but from about 1.5 years of age, she has begun to deviate from the normal range. Look at the growth curve. She was born at term, and has a slight infection-induced asthma treated with beta-2 agonist as needed. Her father is 183 cm and her mother is 170 cm. Bone age is two years delayed. On clinical examination there are normal findings. What is the most probable diagnosis?



- A** Coeliac disease or other malabsorption condition
This is unlikely because weight loss tends to precede loss of length/height in chronic diseases involving malabsorption. She has no clues in her medical history for such disease.
- B X** Growth hormone deficiency
Most appropriate diagnosis. Growth hormone does not really affect growth the first 1-2 years of life, and she may well have been born with growth hormone deficiency (or acquired this later). Growth hormone deficiency rarely give other symptoms, and weight related to height is normal. Skeletal age will be delayed by growth hormone deficiency.
- C** Genetically determined short stature
This is unlikely because both parents are of normal height, bone age is much delayed, and the growth is poor (further and further away from normal).
- D** Russell Silver syndrome
Children with congenital syndromes with short stature is usually of small stature also at birth and in infancy.
-

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35

What is the most important preventive measure against respiratory distress syndrome (RDS) for premature infants?

- A** Endotracheal surfactant
RDS is caused by surfactant deficiency and surfactant is an important part of the treatment, but is usually not given as a preventive measure.
- B** Early CPAP (non-invasive mechanical ventilation)
Is used to decrease the respiratory work load in the newborn by counteracting atelectasis formation and increasing functional residual capacity. Also works as a treatment for RDS.
- C** Early invasive mechanical ventilation (respirator)
Invasive mechanical ventilation (respirator) is used to treat severe RDS, but not as a preventive measure.
- D X** Antenatal corticosteroids
Administration of antenatal corticosteroids is the most important treatment that prevents RDS by stimulating the infant's own production of surfactant.
-

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36

What is the expected pre-ductal oxygen saturation in a newborn term infant about 5 minutes after birth?

- A** 65-70%
- B** 90-95%
- C** 95-100%
It usually takes 10 to 14 minutes before the measured transcutaneous oxygen saturation increases to 95% in healthy term infants, it rarely gets above 95% during the first 10 minutes.
- D X** 80-85%
Umbilical venous blood typically has a saturation of 85% or lower, it normally takes more than five minutes from the umbilical cord is cut until the oxygen saturation increases, even in term children with healthy lungs.
-

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37

Henrik, 9 years old, has had a chronic inflammatory disease for 5 years and has used immunosuppressive medication for a long time. The specialist he sees has told Henrik's parents, general practitioner (GP) and public health nurse that he therefore should not get live vaccines. Which 3 vaccines should he not get?

- A** Human papillomavirus, hepatitis B and influenza
All of these are inactivated (killed) vaccines. The influenza vaccine is especially recommended for people with a deficient immune system.
- B** Haemophilus influenza, pneumococcal and polio
All of these are inactivated (killed) vaccines, and are recommended
- C X** Measles, mumps and rubella
All of these are live attenuated vaccines
- D** Diphtheria, tetanus and pertussis
All of these are inactivated (killed) vaccines, and are recommended
-

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38

Jon is a 2-year-old boy. He has atopic eczema and is allergic to eggs and milk. He is in the nursery. There he eats a tomato and drinks some milk from his friend's glass. 20 minutes later he gets a red skin rash and swollen lips, he coughs and vomits.

What mechanism and food are causing his symptoms?

- A X** Type I allergic reaction caused by milk
Milk is one of the most common foods that provide type I allergic reaction in children. Jon's symptoms and the rapid development of these corresponds with a type I allergic reaction.
- B** Type IV allergic reaction caused by milk
Type IV allergic reaction is a late reaction, which usually takes 2-3 days to develop and provide symptoms from the skin and/or stomach. Jon's symptoms and the rapid development of these, does not match the type IV allergic reaction.
- C** Histamine release caused by the tomato
Tomato can cause histamine release. This causes mild symptoms such as redness and itching of the skin, usually around the mouth and face, eczema exacerbation (later in the course) and sometimes diarrhoea (later in the course). Jon has other more powerful symptoms which occur rapidly after ingestion, which is inconsistent with histamine release.
- D** Type I allergic reaction caused by the tomato
Tomato is not among the most common foods that provide type I allergic reaction. Jon's symptoms and the rapid development are typical of the type I allergic reaction, but tomato is among the most common foods that provide histamine release (see 1).

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39

You are on call at the children's ward emergency room. A 5-year-old boy arrives, he is unconscious and has twitching throughout his body.

Which of these tests helps you the least in the emergency situation?

- A** CT scan of the brain
It is important to detect if there is a treatable underlying cause and CT may be appropriate in emergency situations, and should certainly be done before EEG in the emergency room
- B X** EEG
EEG does not contribute to the immediate handling of the child and may delay treatment.
- C** Glucose measurement
Has to be measured when there is an acute seizure
- D** Electrolyte measurement
Has to be measured when there is an acute seizure

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40

A 5-month-old girl is previously healthy and has no atopic predisposition. She now has a fever and a stuffy nose, and for the last 24 hours she has been a bit lethargic and will not take the breast. On examination, she is pale, lethargic, and her respiratory rate is 70/min with retractions sub- and intercostally. Capillary refill time < 2 seconds and pulse 140/minute. She is admitted to the hospital, where oxygen saturation is 90%. Over the lungs crackles are found on both sides and she has a prolonged expiration phase.

Blood tests show:

CRP 42 mg/L (ref. <5 mg/L)

Haemoglobin 10.8 g/dL (ref. 10.8 to 13.5 g/dL)

Leucocytes $7.8 \times 10^9/L$ (ref. 4.0 to $20.0 \times 10^9/L$)

pH 7.30 (ref. 7.35 to 7.45)

pCO₂ 6.9 kPa (ref. 4.5 to 6.0 kPa)

BE -6 (ref. -3 To 3)

She initially gets nasal oxygen and a nasogastric tube for breast milk.

What kind of treatment should be started at the hospital?

- A Saline solution nasal drops, inhaled beta2 agonist
- B Saline and/or adrenaline inhalation, oral steroids
- C X** Saline solution nasal drops, saline and/or adrenaline inhalation
Everything indicates that this is a viral bronchiolitis that neither should be treated with antibiotics nor steroids primarily. But with saline solution nasal drops, oxygen for low saturation, iv fluid because of risk of dehydration and inhalations (saline, possibly adrenaline, but not beta2-agonist) to relieve obstructive respiration.
- D Saline and/or adrenaline inhalation, Penicillin

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41

Which of the following conditions is characterised by persistent fever, changes in mucous membranes and skin rash?

- A Henoch Schönlein purpura
Usually no persistent and high fever, usually just a skin rash, nephritis, stomach ache
- B X** Kawasaki syndrome
In the definition of this disease five days of high fever is required and at least three out of four: non-purulent conjunctivitis, cracked/fissured lips and possibly a raspberry tongue, enlarged lymph nodes in the neck and a skin rash.
- C Haemolytic uraemic syndrome
Tiredness and pallor after an episode of colitis with bloody diarrhoea
- D Acute nephritic syndrome
Usually no or moderate fever, slight oedema, haematuria +/- proteinuria

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42

You have to assess the growth of a 15-year-old boy with a height of 156 cm, and you have the following information:

Born to term with length 49 cm and weight 3 kg. His height was on the 50th percentile until he started school. Then it gradually fell off and now he lies between the 2.5 and 10th percentile. He feels perfectly healthy. On examination he has a testicular volume of 3 ml bilaterally. His mother's height is 165 cm and his father's height is 178 cm. His father's voice began to crack at age 17.

Which explanation for the boy's growth pattern is most likely?

- A Chronic illness with unrecognised symptoms
- B Genetically determined short stature
- C Midline brain damage with pituitary deficiency
- D X** Constitutionally delayed growth and puberty

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43

Which is the most common type of seizure in febrile convulsions?

- A Atonic seizure
- B X** Generalised tonic-clonic (GTC) seizure
- C Absence seizure
- D Partial seizure

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44

Which of the following findings do you associate with malrotation of the intestines in children?

- A Malabsorption
 - B Invagination
 - C X** Volvulus
 - D Chronic constipation
-

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45

Ane is the first child of healthy parents. She was born at term after a normal pregnancy. Her birth weight was 3350g. She was discharged on the 3rd day after birth, and her weight began to increase again after a normal postnatal weight loss. Nothing special was noted during the stay in the Maternity Ward. At the 6-week check-up at the Mother and Child Clinic, the doctor noted that Ane had jaundice. Her somatic status was otherwise unremarkable.

Which diagnosis should the doctor consider that justifies quick referral to the nearest Paediatric Department?

- A Acute infection
 - B X** Bile duct atresia
Bile duct atresia is a possible diagnosis and needs urgent investigation. Usually there is pale stools
 - C Rhesus immunisation
 - D Breast milk jaundice
-

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46

Tore, a 7-month-old boy, is brought to your office because his parents have observed some strange twitches, as if he is startled. These can often come in series after each other, and they only last a few seconds. He can have several such episodes every day. In between the episodes he is in good shape, gives good contact and eats well. He is not yet sitting entirely without help, but does roll over. What is the best management of this boy?

- A Written referral to Paediatric Outpatients for assessment
 - B X** Emergency admission to the Paediatric department
Infantile spasms cannot be excluded. This demands urgent investigation.
 - C Routine follow up at the Mother and Child Clinic and new doctor's appointment if it gets worse
 - D Follow up with the general practitioner (GP) in a week
-

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47

What is the most characteristic finding by microscopy of a peripheral blood smear in a child with haemolytic uremic syndrome?

- A Dominating amount of small erythrocytes
Microcytes may occur, but they do not dominate the picture. This is more typically seen in iron-deficiency anaemia.
 - B Presence of monocytes is evident
This is not typical for HUS.
 - C Presence of hypersegmented granulocytes is evident
This is not seen in HUS. Usually occurring in megaloblastic anaemia and in iron-deficiency anaemia.
 - D X** Presence of fragmented erythrocytes is evident
In haemolytic uremic syndrome (HUS) there is a microangiopathic haemolytic anemia resulting in destruction of erythrocytes.
-

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48

The GP sees a 26-year old patient with a swelling in the left scrotum and believes it is a hydrocele testis. The GP uses a torch and send light through scrotum. Findings support the suspicion of a hydrocele testis.

Which investigation or referral should the doctor order next?

- A Referral to a specialist in urology to investigate for a hydrocele.
 - B CT testis to exclude a spermatocele
 - C X** Ultrasound of the scrotum to verify the diagnosis.
 - D Urinary dip-stick to check for an ascending urinary tract infection.
-

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49

A 73-year old man, who is a retired ship's mechanic, has been diagnosed with a muscle-invasive bladder cancer at transurethral resection (TUR-b). He is otherwise healthy. Investigation with CT scan of the abdomen/pelvis and an x-ray of the thorax has not demonstrated any signs of metastases. What treatment should this patient have?

- A New transurethral bladder resection (TUR-b) within 4-6 weeks
 - B X** Either radical cystoprostatectomy or radiotherapy
 - C Intravesical immunotherapy with a 6-week Bacille Calmette-Guérin (BCG) induction course
 - D Cystoscopy control in 3 months
-

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50

A 3.5 cm tumor has been found in the upper pole of the right kidney of a 62-year-old man. He has hypertension and type II-diabetes, but is otherwise healthy.

What is the recommended treatment for this finding?

- A "Wait and see" observation
 - B X** Partial nephrectomy
Partial nephrectomy with the best conservation of kidney function
 - C Radical nephrectomy
 - D Chemotherapy
-

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51

A 16-year-old boy has spent his summer holidays in Greece and has had unprotected sexual intercourse. He comes to the emergency room with severe pain in the left testicle which began a few hours ago. He says that he has had several days of discharge from the urethra. On examination the patient has intense pain on palpation of the whole left testicle and epididymis.

Blood tests show: CRP 7 mg/L (ref. 0-5), B-Leucocytes $5.1 \times 10^9/L$ (ref. 4.1-9.8)

What will You do?

- A X** You order a Doppler ultrasound of the scrotum
Acute pain in the testicles must always be investigated with Doppler ultrasound to exclude testicular torsion, especially in young males.
 - B You perform a swab from the urethra to exclude infection with Gonorrhoea and give the patient antibiotic treatment with oral Ciprofloxacin
 - C You suspect infection with Chlamydia and start a 7-day course of the antibiotic Doxycyclin
 - D You perform a swab from the urethra to exclude infection with Gonorrhoea and give the patient a single-dose treatment with Penicillin
-

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52

You have recently taken over as the GP for a man aged 70 years old. In his medical records you find that 8 years ago he was investigated for asymptomatic microscopic haematuria using cystoscopy and CT of the urinary tract. The patient is now contacting you because of problems with urination at night. He has to get up 3 times at night and his sleep is affected. You examine the patient and find an enlarged prostate; perform a urine dipstick test and find 2+ for blood. What do you do next with this finding?

- A Patients older than 70 years of age should be investigated with CT of the urinary tracts and cystoscopy only if they have macrohaematuria. You offer medical treatment for BPH.
Patients should be referred for investigation regardless of age. Exceptions are young people who also can be examined with ultrasound as the imaging modality.
- B Since the patient has already been investigated for microscopic hematuria you consider this as adequate even though it is a few years ago. Urination problems in his age are probably caused by an enlarged prostate and you offer medical treatment for this.
The medical treatment is OK, but further follow-up of microhaematuria is indicated because of new symptoms.
- C X** As he now has symptoms from the urinary tract, you refer the patient for a new three-phase CT and cystoscopy at the Urology Outpatient Clinic.
The patient was investigated 8 years ago and there are now new symptoms which make you suspect a serious condition. The patient has to be referred for investigation with cystoscopy and CT of the urinary tract.
- D You plan to check the urine 3 times at 3-4 weeks' interval. If the haematuria goes away there is no need for further investigation.
Patients with microhaematuria and symptoms have to be investigated with CT and cystoscopy even if there is a negativ urine strip/dipstick test at a follow-up appointment.

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53

Regarding NSAID (non-steroidal anti-inflammatory drug) treatment of kidney stones, which of the following statements is the most correct:

- A NSAIDs increase the urine production by inhibiting the prostaglandin synthesis and thereby increase the likelihood of spontaneously passing a kidney stone.
See the comment to B
- B NSAIDs increase the circulation to the kidneys by inhibiting the synthesis of prostaglandins and thereby increase the likelihood of spontaneously passing a kidney stone
NSAIDs reduce the circulation to the kidneys and reduce the production of urine
- C X** NSAIDs analgetic effect is a result of inhibition of the prostaglandin synthesis
Correct answer. Reduced blood circulation gives reduced production of urine and thereby less pain
- D If the patient has normal creatinine and potassium levels the kidney function is normal in both kidneys
Normal blood tests say little about each kidney's function, because both kidneys contribute and compensate for the total kidney function

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54

A 67-year-old man seeks medical advice because of a 1 centimeter large lesion on the glans penis close to the transition to the prepuce. What is the most frequent localisation of penile cancer metastases? (Remember the embryological development)

- A Retroperitoneal lymph nodes in the abdomen
- B X** Lymph nodes in the groin
- C Retroperitoneal lymph nodes in the pelvis
- D Lymph nodes in the mediastinum

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55

A 65-year-old man, is previously healthy and has had no previous difficulty with passing urine. In connection with knee replacement surgery he received spinal anaesthesia. The operation was difficult and prolonged. Postoperatively, the patient complained of very frequent urination in small portions and incontinence. Urine dipstick test was negative. What type of incontinence is most likely in this patient?

A X Overflow incontinence

Lacking a urinary catheter and the prolonged operation led to an over-stretched bladder that fails to contract. The leak will continue until renal failure develops. This patient needs treatment with a urinary catheter.

B Stress incontinence

C Mixed incontinence

D Urge incontinence

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56

A 25-year-old man has had type 1 diabetes for nine years. Since he was 18 years old he has only occasionally turned up to planned medical check-ups because he feels perfectly healthy. He uses insulin, he almost never has symptoms of low blood sugar and does not measure his blood sugar very often. At an ophthalmologist check-up a year ago retinopathy grade 1 was discovered. He now comes to his general practitioner (GP) for a check-up. On clinical examination, he has a blood pressure of 114/65 mmHg, he is slim and in good general condition. Normal findings on examination of the heart and lungs.

Lab results:

Creatinine 87 micromol/l (ref.:60-105 micromoles/L)

Glucose 8,2 mmol/l (ref.:4,0-6,0)

HbA1c 9,8% (ref.:4,3-5,6%)

Urine strip/dipstick test: albumin +, u-albumin/creatinine ratio: 20 mg/mmol (ref. : <2.5 mg/mmol)

How are we to understand the condition and what is it most important to do now?

A X Findings are consistent with early diabetic kidney damage. Good glycaemic control is the most important measure to prevent permanent kidney damage, and is also the main preventive measure against retinopathy.

Correct, the most important preventive measure against microvascular complications is to have good glycaemic control. For a young person with few cardiovascular risk factors and few symptoms of hypoglycaemia, an improved glycaemic control is possible without great risk.

B Findings are consistent with established diabetic nephropathy. The most important treatment measure is to start an ACE-inhibitor or angiotensin II receptor antagonist.

Established diabetic nephropathy is defined by u-ACR > 30 mg/mmol.

In principle, it is appropriate to treat with an ACE inhibitor or ARB, but this is not the main action, and problematic since he already has a low blood pressure.

C The finding of low-grade albuminuria has little prognostic importance for the development of permanent kidney damage. As long as he has normal blood pressure and normal kidney function no further measures are necessary.

Incorrect, microalbuminuria is the first sign of diabetic kidney damage.

D Findings are not typical for diabetic kidney damage, he should be referred to a nephrologist for a kidney biopsy.

The medical history is typical, there is no need for a kidney biopsy.

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57

Anna (60 years) is admitted to hospital due to poor general condition. On admission she has a s-creatinine of 490 µmol/L (reference: 45 - 90 µmol/L) and s-potassium of 6.4 mmol/L (reference: 3,6 - 4,6 mmol/L).

Which of the following alternatives should the doctor initiate?

- A X** Start glucose-insulin infusion to treat the hyperkalaemia.
Severe hyperkalaemia must be treated first, and glucose-insulin acts quickly and may be sufficient. Calcium Resonium (calcium polystyrene sulfonate) only takes effect after 2 days. Dialysis may not be necessary in this case.
- B** Start Calcium Resonium (calcium polystyrene sulfonate) to increase excretion of potassium through the large intestine.
- C** Insert a groin catheter and start haemodialysis to treat the kidney failure.
- D** Insert a urinary catheter to ensure drainage and start isotonic NaCl to initiate diuresis and reduce the hyperkalaemia.

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58

A 55-year-old man with known chronic renal disease stage 3, is admitted to hospital with general weakness, severe fatigue, nausea and general body itching. He has noted decreased urine production over the last few days. He has just had gastroenteritis with diarrhoea and vomiting. He has known hypertension and use lisinopril (ACE inhibitor) and furosemide (loop diuretic). On clinical examination you find dry mucous membranes, the ECG shows sinus tachycardia, pulse 115/min.

Blood pressure is 105/66 mmHg.

Blood tests show the following:

Haemoglobin 11.0 g/dl (13.4 to 17.0 g/dL)

Leucocytes 5.3x10⁹/L (4.1 to 9.8x10⁹/L)

Creatinine 560 µmol/L (60-105 µmol/L)

s-potassium 7.6 mmol/L (3,6 to 4.6 mmol/L)

s-sodium 134 mmol/L (137 - 145 mmol/L)

ECG: sinus tachycardia, high pointy T-waves

Which first step is the right thing to do?

- A** Continue with the ACE inhibitor and give intravenous 0,9% NaCl.
- B X** Discontinue the ACE inhibitor and diuretic and give intravenous 0,9% NaCl and intravenous glucose-insulin.
The patient probably has acute pre-renal kidney failure on top of chronic renal disease. Vomiting and diarrhoea gives hypovolaemia, this is enhanced by diuretics. He uses an ACE inhibitor which reduces the kidneys' ability to maintain GFR. He needs fluids, and the diuretic and ACE inhibitor should be discontinued. The hyperkalaemia is life-threatening (see ECG), and the surest way to bring down the s-potassium quickly will be to administer glucose with insulin. Although dialysis will treat the hyperkalaemia, one cannot wait until tomorrow when there is such a serious hyperkalaemia.
- C** Contact the dialysis doctor and arrange to start dialysis tomorrow.
- D** Discontinue the ACE inhibitor and diuretic and give intravenous 0,9% NaCl

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59

A 52-year-old man contacts you because he has developed swelling in both legs, right up to the knees, and has increased five kilograms in weight. Blood pressure is 135/80 mmHg, s-creatinine is 79 micromol/L (60-105).

Urine strip/dipstick test shows: Blood: ++. Albumin: +++++. Leukocytes: Negative. Glucose: Negative.

What is the most likely diagnosis?

- A** Heart failure
No clinical evidence for heart failure.
- B X** Nephrotic syndrome
Considerable proteinuria, normal kidney function and oedema fits with the nephrotic syndrome.
- C** Deep venous thrombosis (DVT)
Bilateral oedema makes DVT less likely. Albuminuria is not a sign of DVT.
- D** Nephritic syndrome
The patient has normal kidney function and normal blood pressure which do not fit with the nephritic syndrome.

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60

Anne (42 years) is previously healthy. She now comes to her general practitioner (GP) because she has felt unwell for the last 7 days. Light headache. At clinical examination you find blood pressure 180/110 mmHg and perhaps slightly reduced power of the left upper limb. Previously her husband felt that Anne had slightly slurred speech, but you cannot find this today. Which decision is the most accurate?

- A She has to be urgently admitted to hospital to exclude development of a stroke
- B You have to check her blood pressure, blood tests and clinical condition tomorrow, and then start anti-hypertensive treatment with an ACE inhibitor or a low-dose thiazide
- C X** She has to be urgently admitted to hospital to exclude development of a stroke or a hypertensive crisis
This may very well be a hypertensive crisis with neurological symptoms (even if the blood pressure is not extremely high, it is the relative increase in blood pressure that is important). This is an emergency situation. A stroke cannot be excluded and also has to be considered.
- D She must be admitted to hospital urgently in order to decrease the blood pressure with intravenous medication (labetalol, beta+alpha blocker) to a level around 140/75 mmHg within the next 12 hours.

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61

Anna (78 years) has had hypertension for many years. She has been treated with a moderate dose calcium channel blocker (amlodipine 5 mg x 1) and a small dose of a diuretic (hydrochlorothiazide 12,5mg x 1), and her blood pressure has been fine around 140/90 mmHg. At today's check-up the blood pressure is much higher even after prolonged rest and repeated measurements: 190/105 mmHg. She feels in good shape except that she has a little headache and wants to go home. Which assessment is the most accurate?

- A She seems a bit stressed and you arrange for a new check-up in 2 months
- B X** You have to order blood and urine tests (electrolytes, creatinine, glucose, cholesterol etc.), increase the dose of both her medications to the maximum, and arrange for a check-up in 3-4 days
An unexpected increase in blood pressure in such a patient has to be investigated more thoroughly. It could be caused by renal artery stenosis or other conditions, and anyway you should intensify the medical treatment the same day and take her back quickly for a check-up. Hospital admission is not necessary, this is not an hypertensive crisis.
- C You should add an ACE-inhibitor and arrange for a check-up in 4-5 weeks
- D She has to be admitted to the hospital medical ward because of a hypertensive crisis

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62

Kristoffer (27 years) has been followed up at the general practitioner's office (GP) because his blood pressure has been 155/95 mmHg on several occasions. Kristoffer is somewhat overweight (BMI 29), he is a smoker, and does not exercise.

Kristoffer has no known heart disease, lung disease or other medical problems. He uses no regular medication, except that he six months ago started with hydrochlorothiazide 25 mg x 1 with which he has no complaints. The blood pressure has dropped to 140/85 mmHg. He has now been to a check-up with a colleague of yours while you have been on leave, and you see now that your colleague suggests some changes in the treatment regimen.

Which of the following statements is most accurate:

- A X** You should change the treatment to a calcium channel blocker or an ACE inhibitor.
With young patients one should be careful with diuretics because they may cause metabolic side-effects such as hyperglycaemia and hypercholesterolaemia etc., and when you consider treatment over decades this becomes important. This patient is at risk of/already has the metabolic syndrome, and should therefore not take diuretics in monotherapy.
- B The blood pressure is not optimally treated and you should add a beta blocker in low dose.
- C You should measure the C-peptide level to investigate if the patient is in danger of developing diabetes.
- D Electrolytes should be measured to investigate for side-effects and possibly in order to discover, and correct, any electrolyte deficiencies present.

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63

A man has type 2 diabetes and chronic kidney disease; moderately reduced kidney function with an estimated GFR of 41 mL/min/1.73 m². He is treated for hypertension and hyperlipidemia and has had a myocardial infarction with stent insertion.

What is the treatment goal for HbA1c for this patient according to the Norwegian guidelines for diabetes 2016?

A HbA1c < 7% (53 mmol/mol)

Incorrect. According to the Norwegian guidelines for diabetes in 2016 intensified glucose lowering treatment should be customised to the individual patient with type 2 diabetes. The treatment goal for most patients is an HbA1c around 7% (53 mmol/mol). HbA1c between 7.0 and 8.0% (53 to 64 mmol/mol) may be appropriate for patients with extensive disease duration, considerable co-morbidity (especially renal impairment, eGFR < 45 mL/min/1.73 m²) as in this patient, as well as in patients with risk of hypoglycemia.

B HbA1c around 7% (53 mmol/mol)

Incorrect. According to the Norwegian guidelines for diabetes in 2016 intensified glucose lowering treatment should be customised to the individual patient with type 2 diabetes. The treatment goal for most patients is an HbA1c around 7% (53 mmol/mol). HbA1c between 7.0 and 8.0% (53 to 64 mmol/mol) may be appropriate for patients with extensive disease duration, considerable co-morbidity (especially renal impairment, eGFR < 45 mL/min/1.73 m²) as in this patient, as well as in patients with risk of hypoglycemia.

C X HbA1c between 7% and 8% (53 - 64 mmol/mol)

Correct. According to the Norwegian guidelines for diabetes in 2016 intensified glucose lowering treatment should be customised to the individual patient with type 2 diabetes. The treatment goal for most patients is an HbA1c around 7% (53 mmol/mol). HbA1c between 7.0 and 8.0% (53 to 64 mmol/mol) may be appropriate for patients with extensive disease duration, considerable co-morbidity (especially renal impairment, eGFR < 45 mL/min/1.73 m²) as in this patient, as well as in patients with risk of hypoglycemia.

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64

Lise is a 70-year-old woman who recently got a distal radius fracture when she stumbled on the floor. She was referred to a bone density measurement showing T-score -2.7 in the lumbar spine and -3.0 in the femoral neck. She has previously been healthy and takes no regular medication.

Which is the first choice in treating this patient, in addition to calcium and vitamin D supplements?

A Zoledronate (intravenous bisphosphonate)

Zoledronate is an alternative if there are side-effects of Alendronate and if the patient has oesophagitis

B Denosumab (antibody to RANKL)

A good alternative if side-effects to Zoledronate (see comment about Zoledronate)

C Oestrogen/progestogen

An alternative for women right after menopause

D X Alendronate (oral bisphosphonate)

Alendronate is the first choice in treatment of osteoporosis because it reduces the incidence of fractures and it is low-cost

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65

A 35-year-old woman starts with a thyreostatic medication (Neo-Mercazole/Carbimazole 10 mg x 3) because of Graves' disease, with a free thyroxine level of 42 pmol/L (reference range 12.0-22.0 pmol/L), thyroid stimulating hormone (TSH) <0.01 mIU/L (reference range 0.27-4.20 mIU/L) and elevated levels of TSH receptor antibody. After 3 weeks, she contacts you as her general practitioner (GP) because she has a fever around 39 degrees Celsius and a sore throat. You have no endocrinologist to consult with.

What will you do?

- A** Reduce the dose of Neo-Mercazole (Carbimazole) to 10 mg x 2. Order blood tests including white blood cell count and differential count.
Incorrect.
- B** Change over to another thyreostatic medication: Propylthiouracil. Order blood tests, including a white blood cell count and differential count.
Incorrect.
- C X** Discontinue Neo-Mercazole (Carbimazole). Order blood tests, including a white blood cell count and differential count. Do not start any new thyreostatic medication for the time being.
Correct. Thyreostatics can cause agranulocytosis, and although this occurs very rarely (in <0.5% of patients), it is a very serious side-effect. If a patient got agranulocytosis from one type of drug in this group (eg. Neo-Mercazole/Carbimazole) it is not considered as safe to give another drug (eg. Propylthiouracil). Patients starting with thyreostatics should get (preferably in writing) information about the need to stop with the medication and consult a doctor quickly for control of a white blood cell count with a differential count if they develop a fever, a sore throat or other signs of infection. Thyreostatic medication should not be restarted until the results of haematological tests show a normal number of granulocytes.

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66

A 48-year-old man contacts you because he, after a week of flu symptoms, for the last 4-5 days has been sweating, had palpitations and a tremor. He has a clammy skin and is very tender on palpation of the thyroid gland, which is evenly enlarged without firm parts. No ophthalmopathy. Blood pressure is 140/72 mmHg, pulse 92/min regular.

Blood test results:

	Patient	Reference range
Haemoglobin in blood	13,6 g/dL	13,4-17,0 g/dL
C-reactive protein	82 mg/dL	< 5 mg/dL
Leucocytes	14,5 x 10 ⁹ /L	3,7-10,0 x 10 ⁹ /L
Free thyroxine (FT4)	41 pmol/L	12,0-22,0 pmol/L
Thyroid stimulating hormone (TSH)	<0,01 mIU/L	from 0,27-4,20 mIU/L
TSH receptor antibody (anti-TSH receptor, TRAS)	1,0 IU/L	Negative <1,0 IU/L; Positive ≥ 1,0 IU/L

You think the most likely diagnosis is subacute thyroiditis, but is unsure whether it can be Graves' disease because TRAS is just bordering on a positive value.

Which investigation can be useful to separate subacute thyroiditis from Graves' disease in this patient?

- A** MRI of the thyroid gland
Incorrect. This investigation has no/little use in separating subacute thyroiditis from Graves' disease. In this case there is no suspected abscess, where an MRI might be useful (but not to distinguish the two conditions).
- B** Ultrasound scan of the thyroid gland
Incorrect. This investigation has no/little use in separating subacute thyroiditis from Graves' disease. In this case there is no suspected cyst/abscess/nodule, where ultrasound might be useful (but not to distinguish the two conditions).
- C X** Thyroid scintigraphy with uptake testing
Correct answer. In Graves' disease the thyroid scintigraphy shows an evenly increased uptake throughout the gland. In subacute thyroiditis (which is an inflammatory condition with leakage of thyroid hormone) there is no, or very low, uptake at thyroid scintigraphy.

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67

A 44-year-old woman got a concussion after a fall. A CT scan of the brain and an MRI of the pituitary showed a surprising find of a large pituitary macroadenoma. The tumor grew into the cavernous sinus on the left and superiorly. There was only 1 mm to the optic chiasma. The pituitary stalk was a bit difficult to identify, but deviated sharply to the right.

Upon questioning, it turns out that the patient has not had menstruation for a few years. She uses no regular medication.

Endocrine tests showed:

Prolactin 1368 mIU/L (upper reference limit 420 mIU/L), IGF-1 32 nmol/L (reference range 12-33 nmol/L), FSH 2.0 IU/L (premenopausal reference range 2-12 IU/L, postmenopausal reference range 12-40 IU/L), LH 2.3 IU/L (premenopausal reference range 2-12 IU/L, postmenopausal reference range 12-40 IU/L), cortisol 223 nmol/L (samples taken at 10.30) (reference area morning cortisol 280 - 740 nmol/L), TSH 4.8 mIU/L (reference range from 0.2-3.8 mIU/L) and free T4 13.2 pmol/L (reference range 10.8-20.4 pmol/L)

What kind of pituitary adenoma is most likely in this patient?

- A TSH-producing pituitary adenoma
TSH-producing pituitary adenomas are very rare. A slight increase in TSH and a normal free T4 is no unusual combination in otherwise healthy people and can mean that the thyroid gland needs some extra stimulation for the metabolism to be maintained at adequate levels.
- B Prolactinoma (prolactin producing pituitary adenoma)
In a large macroadenoma like this the prolactin levels, in the majority of cases, will be significantly higher, in many cases thousands or possibly tens of thousands.
- C Acromegaly (growth hormone producing pituitary adenoma)
Incorrect. There is no test result of growth hormone here, and IGF-1 is also barely within the reference area. The patient has not had any particular symptoms since this pituitary adenoma is detected as a surprise finding. Overall, this makes acromegaly unlikely. Acromegaly is also much rarer than a non-functional pituitary adenoma.
- D X** Non-functional pituitary adenoma
Correct. The patient has a large pituitary adenoma affecting the pituitary stalk and as a secondary effect there is a slight increase in prolactin caused by reduced/missing inhibition by the hypothalamus. There is also some evidence of a partial failure of one or more of the other pituitary axes. This is probably caused by volume effects (by the tumour) on the pituitary.

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68

You diagnose diabetes mellitus in a 35-year-old man. His body mass index is 35 kg/m². In a fasting serum sample the C-peptide concentration is 2.2 nmol/L (reference range: 0.3-2.4 nmol/L) and the glucose concentration is 8 mmol/L (reference range: 4.0-6.0 mmol/L). There are no detectable antibodies against glutamic acid decarboxylase (GAD) or protein tyrosine phosphatase (IA-2). His parents both got diabetes when they were 60-70 years old.

Which type of diabetes is most likely?

- A Diabetes mellitus type 1
Incorrect. In diabetes mellitus type 1 there is usually a low insulin production (ie. low level of C-peptide), and 80-90% of patients have detectable antibodies.
- B Maturity onset diabetes of the young (MODY)
Incorrect. Admittedly it could be expected when there is a family history of diabetes in first-degree relatives, but the disease occurs much earlier than in our patient's parents, typically before the age of 25 years.
- C X** Diabetes mellitus type 2
Correct. A relatively high level of C-peptide (even when it is inside the reference range) indicate that he has considerable insulin production and that insulin resistance is an important factor for the development of diabetes in this patient. Obesity is a risk factor.
- D Latent autoimmune diabetes in adults (LADA)
incorrect. This diagnosis requires detectable antibodies.

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69

A 42-year-old married and slightly overweight man is the managing director of medium sized company which is currently in a downsizing process. In recent months he has developed erectile dysfunction. He consults his doctor who orders blood tests.

There are normal values for FSH, LH, ACTH, cortisol, growth hormone, IGF-1 and euthyroid metabolic tests. Testosterone is around the lower reference value, and prolactin is about 800 mIE/L (ref.range: 86-324 mIE/L).

The doctor thinks this is striking and orders an MRI scan of the pituitary showing an adenoma, 4 mm in diameter, in the middle of the pituitary gland. When the doctor informs the patient about this finding it emerges that the patient was very stressed the morning of the blood tests because he had to catch an important meeting.

What is the most likely cause of the patient's problems and the relevant findings?

- A** The patient has a non-functional pituitary adenoma that puts pressure on the pituitary stalk and gives hyperprolactinaemia which in turn gives hypogonadism. This is the cause of the patient's erectile dysfunction.
Incorrect. This is just a microadenoma and these rarely affect the pituitary stalk.
- B X** The patient's erectile dysfunction is not secondary to pituitary disease or endocrine disturbances, but most likely related to high levels of pressure at work and possibly problems in his marriage.
Correct. Prolactin is only slightly raised, and might be normal if the blood tests were taken again in a calm, non-stressed situation.
- C** The patient has a pituitary microadenoma that produces both prolactin and growth hormone. The erectile dysfunction is a sign of incipient acromegaly.
Incorrect. The patient has a normal level of IGF-1 and none of the common symptoms and signs of acromegaly.
- D** The patient has a microprolactinoma which is the cause of the increased prolactin level, the tendency for a low testosterone level and the erectile dysfunction.
Incorrect. Such a moderately elevated prolactin level will not affect the gonadotropins and secondarily give hypogonadism. The patient's obesity is probably the cause of the slightly decreased total testosterone.

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70

A 24-year-old man is referred to an endocrine outpatient clinic because of low levels of testosterone. Until recently he exercised for many hours per week. At the consultation he appears muscular. Blood test results from a few days back show:

Testosterone 2.8 nmol/L (reference range from 7.0-32.0 nmol/L), FSH 1.3 IE/L (ref: 2.0-12.0 IE/L), LH <1.0 IE/L (ref: 2.0-12.0 IE/L), SHBG 48 nmol/L (reference range 22-138 nmol/L).

What is the most likely diagnosis?

- A** Kallman syndrome (a type of congenital hypogonadotropic hypogonadism)
If there is congenital hypogonadism the patient would hardly be muscular as he would always have had low testosterone.
- B X** Abuse of anabolic steroids
Correct. The blood test results are typical of a person who has preciously been abusing anabolic steroids and where the pituitary-gonadal axis is still influenced by this abuse. After long-term abuse it may take several months before a normal pituitary function is restored.
- C** Prolactinoma
A prolactinoma with significantly increased prolactin levels could inhibit the gonadotropins and give low testosterone as for this patient. It may also mechanically influence the pituitary. Large prolactinomas in such a young patient are very rare, so abuse of anabolic steroids is much more likely here.
- D** Large pituitary tumour with destruction of normal pituitary tissue
This is not likely as it would hacc caused a gradual decrease in gonadotropins and testosterone. The patient therefore would have had symptoms with gradual onset over a longer time period. Large pituitary adenomas in such a young person are very rare, while doping is much more common than we think.

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71

A 42-year-old man has received 13 weeks of treatment with prednisolone because of subacute thyroiditis.

Before starting treatment free thyroxine was 41.2 (reference range 12.0-22.0) pmol/L and thyroid-stimulating hormone (TSH) was undetectable (<0.01 mIE/L) (reference range 0.27-4.20 mIE/L).

Prednisolone was decreased from the starting dose of 40 mg daily and discontinued 2 weeks before this check-up with you.

The patient now feels a little sluggish and tired. Free thyroxine (FT4) is now 11.1 pmol/L, TSH is 5.30 mIE/L, CRP has normalised and both anti-TPO (thyroid peroxidase) and TSH receptor antibodies are negative. The patient does not have enlargement of the thyroid gland. Blood pressure 125/75 mmHg, pulse 62/min regular.

Do you want to initiate further treatment? Possibly what?

A X You think that there is no need for further treatment at this time, but the thyroid blood tests should be checked in 2-4 weeks.

Correct answer. In subacute thyroiditis it is common with an initial hyperthyroid phase (due to leakage of the thyroid hormone) lasting 2-3 months, with gradually declining level of thyroxine, followed by a transient hypothyroid phase with mild symptoms.

In this patient the free T4 is only slightly lower than the lower reference limit and TSH is slightly higher than the upper reference limit, and the symptoms are mild. In the vast majority of patients with this condition, the thyroid blood tests normalise without any further treatment. In this patient the thyroid antibodies are negative as well, ie. there is no evidence for autoimmune thyroid disease.

B You think that the patients has hypothyroidism, which requires treatment, and you start Levaxin (levothyroxine).

Incorrect answer. In subacute thyroiditis it is common with an initial hyperthyroid phase (due to leakage of the thyroid hormone) lasting 2-3 months, with gradually declining level of thyroxine, followed by a transient hypothyroid phase with mild symptoms.

In this patient the free T4 is only slightly lower than the lower reference limit and TSH is slightly higher than the upper reference limit, and the symptoms are mild. In the vast majority of patients with this condition, the thyroid blood tests normalise without any further treatment. In this patient the thyroid antibodies are negative as well, ie. there is no evidence for autoimmune thyroid disease.

If, however, the TSH had been significantly higher, such as > 10 mIE/L, free T4 lower, and the patient had had pronounced symptoms of hypothyroidism, he could have been given thyroxine 50-100 micrograms daily for 6-8 weeks, and you could then try to discontinue thyroxine.

C You think that the illness is poorly controlled and restart the prednisolone treatment, but in a low dose: 5 mg daily.

Incorrect answer. In subacute thyroiditis it is common with an initial hyperthyroid phase (due to leakage of the thyroid hormone) lasting 2-3 months, with gradually declining level of thyroxine. Prednisolon is given in the first phase of inflammation, with leakage of thyroid hormone and hyperthyroidism. This phase is over in this patient, and it would be wrong to resume treatment with prednisolone.

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72

You meet a patient at the general practitioner's (GP) office, she is a 47-year-old woman. She is somewhat overweight, has previously given birth to two children, and is previously healthy. She explains that she has noticed a lump in the left breast. It is not tender on palpation. She has had it for 2-3 weeks. She wonders what this is and whether it is dangerous. There is nothing to remark upon on inspection. On examination, there is a palpable lump in the relevant area, 2-3 cm in diameter, and it is not easy to palpate its exact borders. It is uncertain whether there is an enlarged lymph node in the left axilla or not.

Which steps should you implement?

- A Order general blood tests to see if there is any pathology.
Ordering blood tests is clearly an incorrect answer here.
 - B X** Refer the patient to a breast diagnostic unit/outpatient clinic.
Because she is in the relevant age group for malignancy in the breast the best answer here is referral to a breast diagnostic unit in order to get imaging and invasive diagnostic procedures.
 - C Assess the patient in 2 weeks to see if the lump disappears.
This could be an acceptable answer, and is relevant where a cyst is suspected after palpation. Cysts normally disappear. The patient is in the age group where cysts are common, but she is also in an age group where malignant disease is possible.
 - D Try to aspirate fluid from the cyst.
If a cyst is suspected it would be acceptable to do a trial aspiration. This is usually done when a patient has had cysts earlier. But this is not done by the GP.
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73

A 27-year-old woman from a healthy family is at the general practitioner's (GP) office today. She gave birth to a child nine months ago. She has felt a lump in one of her breasts. She noticed it a few days ago. On palpation, there is a well defined tumour in the upper lateral quadrant in the right breast. The tumour is freely movable. There is no tenderness on palpation and no discoloration of the skin. What is the most probable diagnosis?

- A Breast cancer
She is from a healthy family, so you could assume that there is not an increased risk of breast cancer in the family. Because of her age it is unlikely that this patient has breast cancer.
 - B Breast abscess
There is no tenderness or redness, so no clear suspicion of infection. The child birth 9 months ago could point towards an abscess, but it might be a bit too late after the delivery now for this. (You have no information about breast feeding here)
 - C Cyst
A cyst could fit with the finding on palpation, but cysts are not common in this age group. For women in their 40's, on the other hand, cysts are common.
 - D X** Fibroadenoma
She is in the right age group, ie. the third decade (= in her 20's). The tumour is well-defined and freely movable. Most likely this is a fibroadenoma.
-

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74

The patient is a 33-year-old woman from a healthy family. She sees you, as her general practitioner (GP), because she has noticed a lump anteriorly and somewhat inferiorly on her neck. The lump moves when she swallows, and it is not tender. On palpation there might be enlarged lymph nodes laterally. Her thyroid blood tests are normal. What diagnosis is most likely?

- A Medial neck cyst/thyroglossal cyst
A medial neck cyst is possible, but these are commonly situated superiorly on the neck. This is not the best answer.
- B Parathyroid adenoma
Parathyroid adenomas are never palpable. This is an incorrect answer.
- C The lump is part of a goitre
Part of a goitre might be possible, but is more common in older patients. This is not the best answer.
- D X** Cancer of the thyroid gland
Cancer of the thyroid gland. The patient is female, she is relatively young and the tumour is most likely associated with the thyroid gland since it moves on swallowing. The possible enlarged lymph nodes might also point in the direction of cancer, and in that case cancer with lymph node metastasis. This is the best answer.

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75

Patients with cervical cancer are investigated with radiological imaging before treatment. What is the main intention of this investigation?

- A To assess pelvic lymph node metastasis
- B To assess the tumour volume
- C X** To distinguish early operable disease from advanced non-operable disease
This is the main intention, because patients in FIGO stage I (+IIA if limited vaginal extension) are operable, while patients in stage II+III+IV are usually non-operable.
- D To assess the CIN grade

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76

A 14-month-old boy comes to the emergency department with acute onset of pain in the right iliac fossa five hours ago. The pain lasts a few minutes before it subsides, then there is a 5-15 minute break before the pain comes back. The boy vomited 3 times and appears lethargic. There is no fever and a normal CRP. He is distinctly tender on palpation in the right iliac fossa, and the abdomen seems somewhat distended. Some jelly-like mucous comes from the rectum. Which imaging studies are the first choice?

- A Ultrasound of the abdomen + CT scan of the abdomen
- B Ultrasound of the abdomen + MRI of the abdomen
- C X** Ultrasound of the abdomen + abdominal x-ray
From the background history intussusception is suspected. Ultrasound of the abdomen is used to directly visualise the invagination, and an abdominal x-ray will estimate the degree of obstruction and is also used for differential diagnosis purposes.
- D Ultrasound of the abdomen + PET of the abdomen

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77

Symptoms of ovarian cancer are often noticed only when the disease has broken through the surface of the ovary and into the abdominal cavity or other organs. How should one assess this using imaging preoperatively?

- A PET of the pelvis + transvaginal ultrasound
- B MRI of the pelvis + transvaginal ultrasound
- C Transabdominal ultrasound
- D X** CT scan of the thorax/abdomen/pelvis
The imaging modality and type must cover the upper parts of the abdomen because of the tendency for peritoneal metastasis and metastasis to other abdominal organs, and an ultrasound scan of the abdomen is not sensitive enough for this. In addition, the thorax should be investigated for possible metastases.

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78

A 72-year-old man is investigated because of the first incidence of macroscopic haematuria. An ultrasound scan taken in conjunction with non-specific abdominal pain two years ago showed a 5 cm thin-walled cyst without septae in the lower pole of the left kidney. Cystoscopy performed now is normal.

Which further plan is the most appropriate?

- A No further investigation is necessary. The haematuria is most likely caused by the kidney cyst, and this is a benign condition.
- B Ultrasound scan as an outpatient in 3 months to see if the cyst has changed
- C Urography to find any potential pathology in the kidneys and urinary tracts
- D X** Three-phase CT scan of the kidneys and urinary tracts, to find any potential pathology in the kidneys and urinary tracts
Simple cysts do not usually cause macroscopic haematuria and the patient should be investigated with the standard haematuria investigation which is a three-phase CT scan of the kidneys and urinary tracts

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79

A 26-year-old man goes to the emergency room because of pain in the scrotum. The pain came on gradually over the past 2-3 days, but has increased in severity for the last 24 hours. On clinical examination there is clearly redness and swelling, and pain on attempted palpation of the testicles. CRP 80 (normally < 5).

Which imaging modality is best suited to investigate this problem?

- A CT scan of the scrotum
- B X** Ultrasound scan of the scrotum
An ultrasound scan is always the first choice when investigating scrotal disease
- C X-ray of the scrotum
- D MRI of the scrotum

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80

What is the main intention with the first phase of a three-phase CT scan taken to investigate haematuria?

- A To find kidney tumours
- B To find tumours in other locations than the kidneys or urinary tracts
- C X** To find concretions in the kidneys or urinary tracts
The first phase is pre-contrast, and the main intention is to look for concretions in the urinary tracts which can cause haematuria (but also to have images without contrast to compare with the two other phases)
- D To find tumours in the collecting system and ureter

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81

A 69-year-old man was investigated with an ultrasound scan of the kidneys and urinary tracts because of mild renal impairment (eGFR 50 (> 61 mL/min/1.73 m²)) and microscopic haematuria (1+ on urine strip/dipstick test). The ultrasound scan showed: "Normally sized kidneys with normal echogenicity, a cyst without septae, diameter 4 cm, in the right kidney. Dilated left renal pelvis and proximal ureter. Enlarged prostate gland. 50 ml residual urine after bladder emptying."

What is most worrisome about this answer?

- A Residual urine
Some residual urine, because of an slightly enlarged prostate gland
- B X** Dilated left renal pelvis
Unilateral dilated renal pelvis (hydronephrosis) is suspicious of obstruction in the collecting system on the left side. When there is microscopic haematuria in addition this patient should be investigated with tree-phase CT scan to rule out malignancy.
- C Enlarged prostate gland
Not an uncommon finding in older men
- D The cyst in the right kidney
A kidney cyst without septae. A common finding. Benign.

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82

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

What is the most likely explanation for this finding?

A X Physiological enlargement in puberty

Not an uncommon finding, and here this is more likely than an adenoma or lymphocytic hypophysitis. Rathke's cleft cyst would not give a protrusion superiorly of the pituitary, but would be a cyst in the middle parts of the pituitary.

B Lymphocytic hypophysitis

C "Rathke's Cleft" cyst

D Pituitary adenoma

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83

X-ray of the thorax is the most common X-ray investigation in children.

How large is the dose of radiation in such an investigation?

A 50 mSv (corresponds to 10 x annual background radiation in Norway)

B 5 mSv (the same as the annual background radiation in Norway)

C X 0.05 mSv (corresponds to the dose from cosmic radiation in a plane flying from Norway to New York)

Correct answer: A CT scan of the thorax would give approximately 2 mSv. We see changes in the blood at approximately 1 Sv.

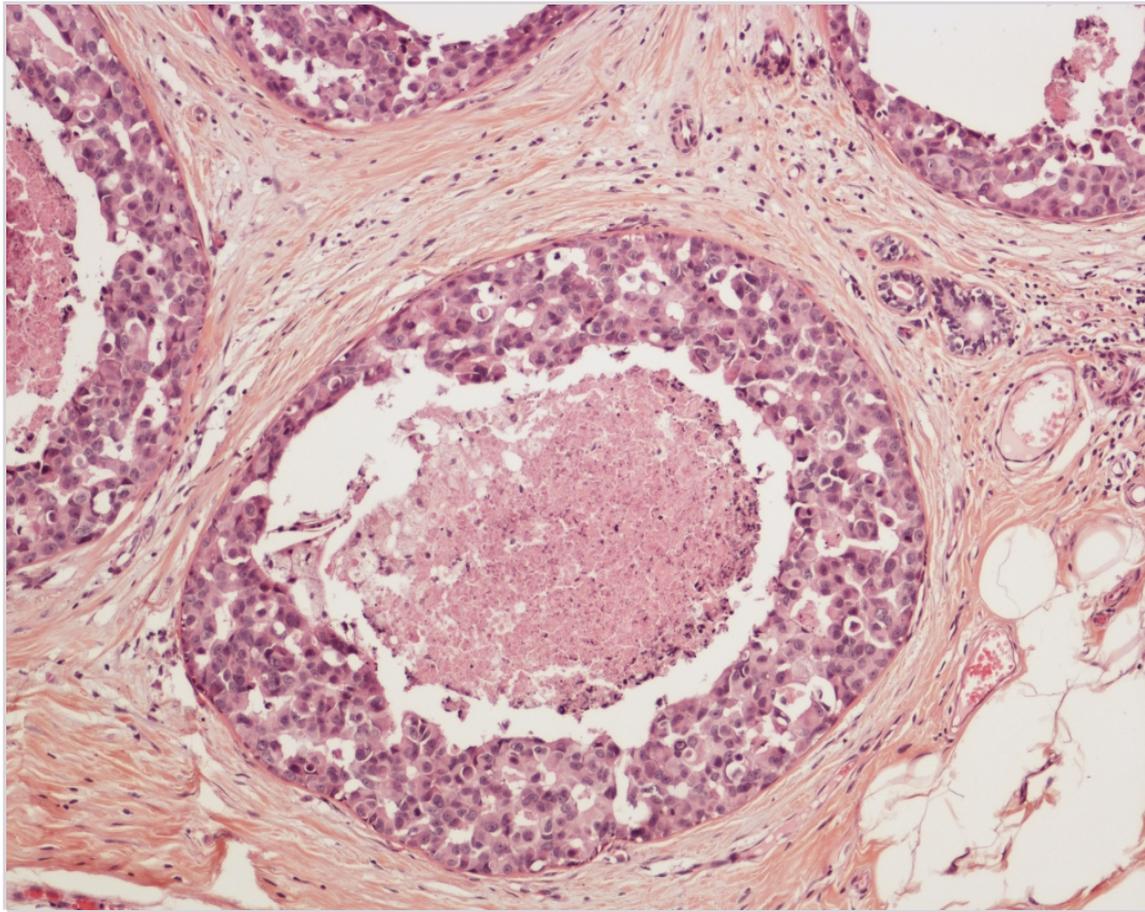
D 0.00005 mSv (a thousandth of the cosmic radiation in a plane flying from Norway to New York)

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84

A 54-year-old woman has a possible tumour in her right breast. On mammography calcifications were seen in the lesion. The picture shows a section of the tumour (HES; 100x). The diagnosis is ductal carcinoma in situ (DCIS).

Which description is consistent with this diagnosis?



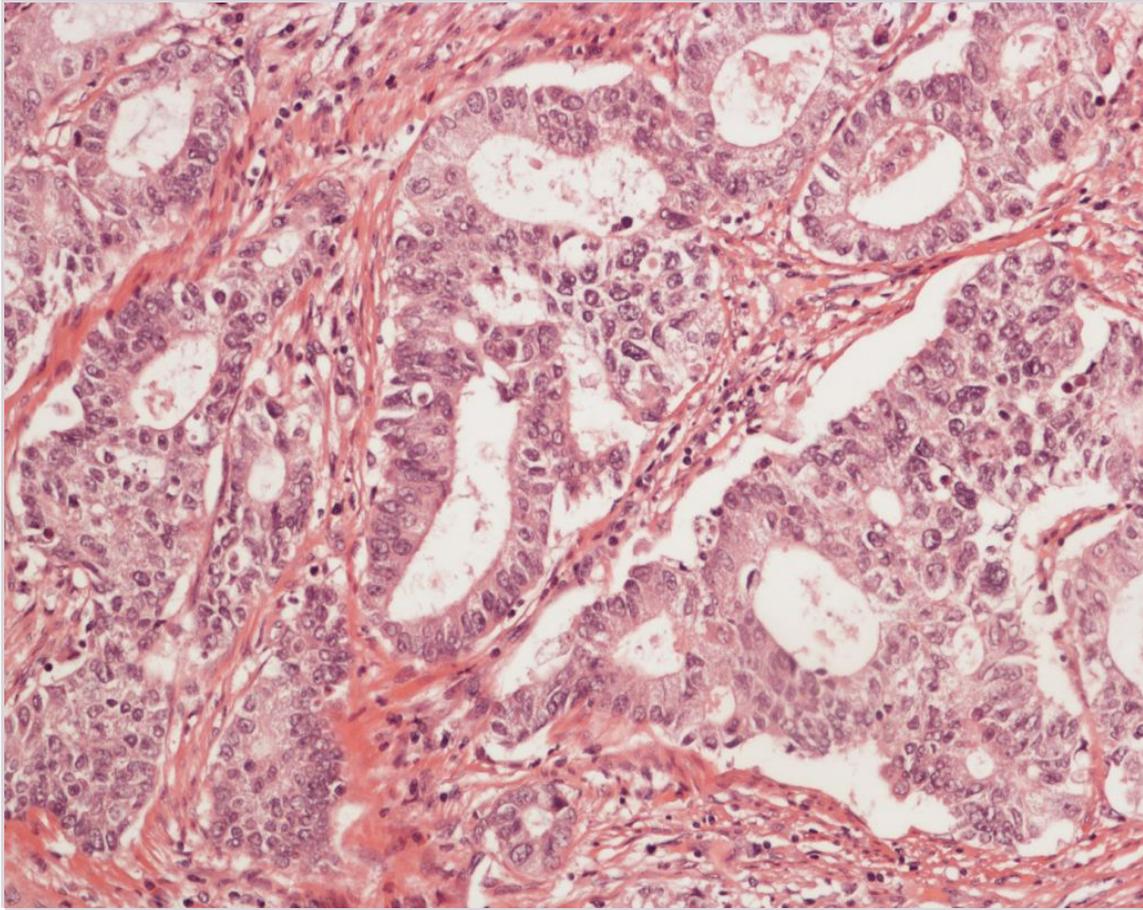
- A X** Intraductal proliferation of large, atypical epithelial cells with considerable variation in nuclear size and shape, mitoses and central necrosis. Disruption of the basement membrane is not seen.
The picture shows a considerably dilated milk duct covered by an atypic ductal epithelium which is several cell layers thick. There is significant atypia (large nuclei, mitoses) and central necrosis. The tissue outside of this structure is not altered and lies in a circular pattern as it usually does around normal ducts. No signs of a disrupted basement membrane and no infiltration of the bordering stroma. In other words, this is a lesion in situ.
- B** Widespread, diffuse invasive growth of small, relatively similar, atypical epithelial cells making up rows or strings between the collagen fibres in the stroma.
This description fits better with invasive lobular carcinoma
- C** Irregular glandular structures consisting of atypical epithelial cells. Myoepithelial cells are not seen, and there are only a few mitoses.
This description fits better with invasiv ductal carcinoma

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85

A 60-year-old woman had an hysterectomy because of post-menopausal bleeding. The picture shows a histological section of the myometrium (HE, 200x enlargement).

What is the diagnosis?



A Metastasis from a squamous cell carcinoma

B Atypical endometrial hyperplasia

C X Endometrioid adenocarcinoma

Endometrioid adenocarcinoma is correct. The picture is of the myometrium and shows fused glands with atypic epithelium. In adenomyosis there is usually endometrial stroma around the glands, no atypia and no fused (cribriform) glands as in the picture. In hyperplasia the glands are situated in the endometrium, not in the myometrium. Squamous cell carcinoma is not correct, as this tumour has the same morphology as an adenocarcinoma.

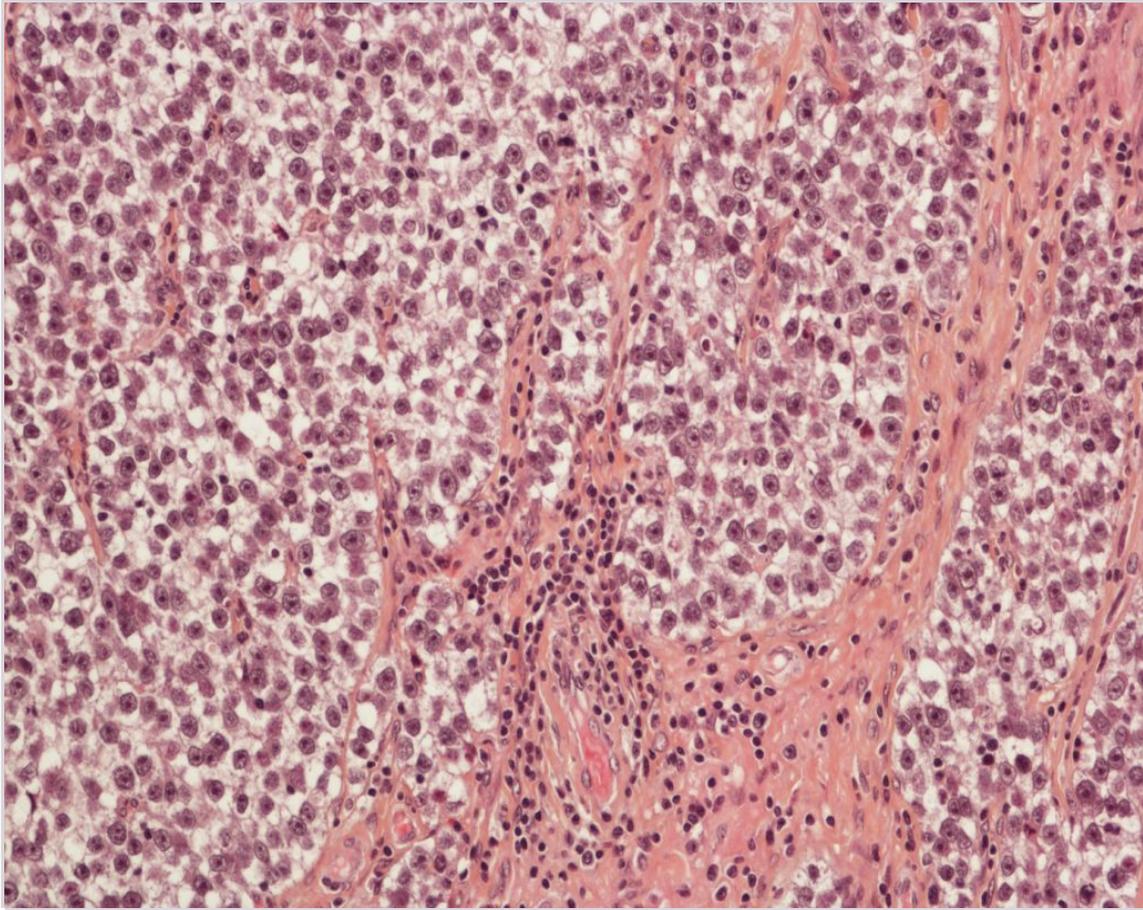
D Adenomyosis

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86

A 30-year-old man goes through a surgical procedure because of a testicular tumour. The cut surface is macroscopically homogenous. Below you see a picture of the tumour (HE, 200x enlargement)

What is the diagnosis?



A Inflammation

B X Seminoma

Seminoma is correct. The picture shows sheets of large tumour cells with clear cytoplasm and defined cell borders. There are fibrous bindings and lymphocytes between the tumour sheets. Teratomas are heterogeneous macroscopically and microscopically, and the squamous cell carcinomas have a different morphology.

C Squamous cell carcinoma

D Teratoma

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87

A pregnant woman close to term is admitted due to influenza symptoms and fever. After a short time she develops contractions, and gives birth to a lifeless baby that is resuscitated but dies a short time after birth. The foetal surface of the placenta is greenish and discoloured, and at microscopic investigation of the lungs on autopsy of the baby, granulocytes are found to be present in the alveoli.

What will be the most probable findings at microscopic examination of the placenta?

A Major infarctions

B X Chorioamnionitis

Serious chorioamnionitis with foetal reaction means that granulocytes can enter the amniotic cavity. The amniotic fluid diffuse passively into the foetal lungs during pregnancy and carry the granulocytes with it. Especially if there is a serious infection, the foetus may become hypoxic which in turn triggers a forced inspiration with additional risk of inhalation of the granulocytes.

C Extensive haemorrhages

D Velamentous umbilical cord insertion

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88

The thyroid gland may be affected by several types of cancer. What are the two most common subtypes?

- A Poorly differentiated carcinoma and papillary carcinoma
 - B Papillary carcinoma and medullary carcinoma
 - C Follicular carcinoma and angiosarcoma
 - D X** Papillary carcinoma and follicular carcinoma
These are the two most common subtypes.
-

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89

A young woman has been diagnosed with a tumour in the true (lesser) pelvis. The tumour is located next to the uterus. It is roundish oval in shape with its greatest diameter being approximately 13 cm. Before it is sent to the pathologist the tumour is cut through. The tumour is compact with a white, swirly and homogenous cut surface.

What is the most likely diagnosis?

- A X** Fibroma
The description fits best with a fibroma
 - B Teratoma
 - C Adenocarcinoma
 - D Lymphoma
-

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90

A 52-year-old woman contacts you because of irregular vaginal bleeding. She tells you that she stopped menstruating when she was 50 years old. How will you deal with this situation?

- A Take a cytological sample from the cervix.
 - B Give her a prescription of progestins to stop the bleeding.
 - C Comfort her and tell her that it is common with some bleeding for the first years post-menopause.
 - D X** Refer her to a gynaecologist for further assessment.
All post-menopausal women with vaginal bleeding should be referred for further assessment, since a post-menopausal bleed could be caused by endometrial cancer.
-

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91

Which type of tumour in the adrenal glands have its origin from chromaffin cells?

- A Neuroblastoma
 - B Adenocarcinoma
 - C X** Pheochromocytoma
This is the correct answer.
 - D Adenoma
-

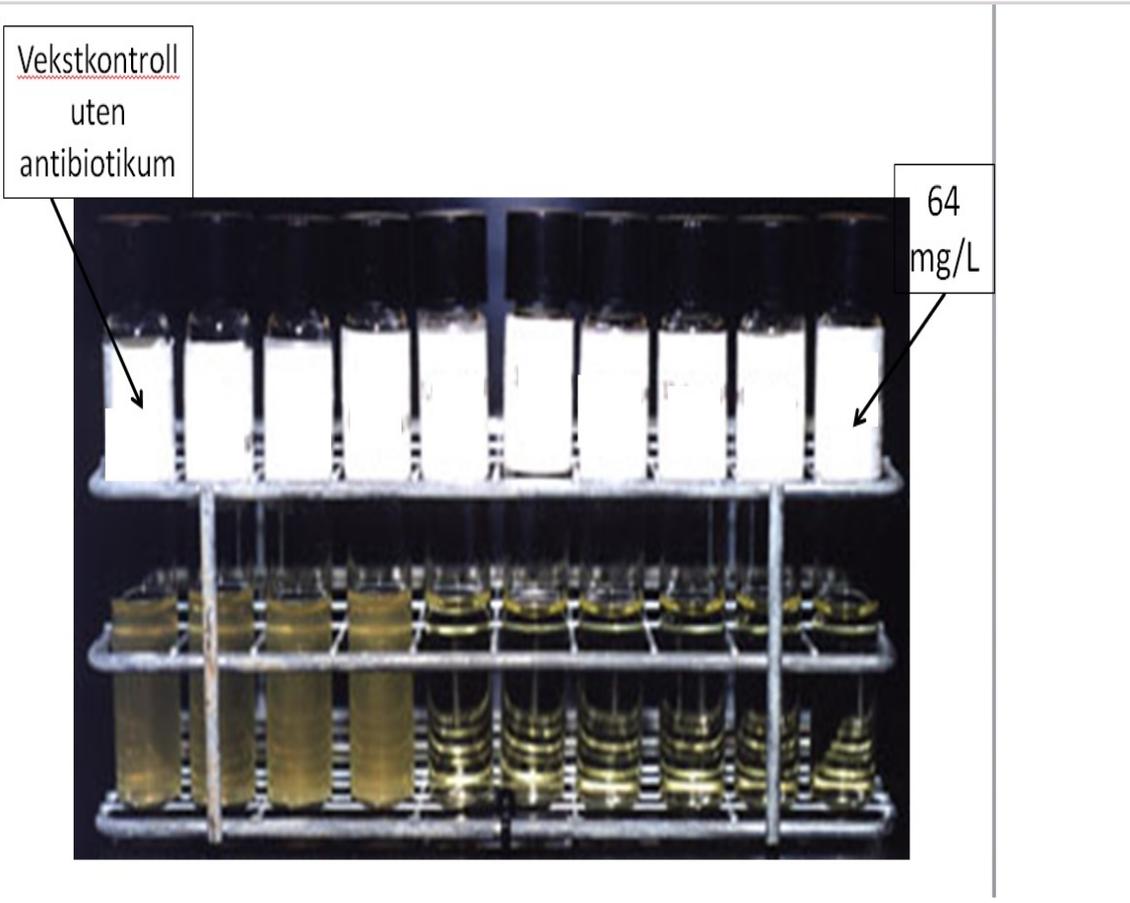
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92

A dilution series of an antibiotic in a liquid nutrient medium/broth is inoculated with a standardised amount of E.coli bacteria. After incubation at 37 degrees C for 24 hours the result is ready to be interpreted.

What is the interpretation of the analysis?

(Textbox in the picture: "Growth control without antibiotic")



- A** MBC for the antibiotic is 2 mg/L
After 24 hours of incubation the MIC (Minimum Inhibitory Concentration) is read. After the MIC reading, in order to decide the MBC (Minimum Bactericidal Concentration), quantitative subcultures from the tubes with no bacterial growth are made to determine the bacterial count. This is done to see if a goal of 99,9% bactericidal effect is obtained by the antibiotic compared to the primary inoculate.
- B X** MIC for the antibiotic is 2 mg/L
The tube with no visible growth is 2 mg/L (6th tube from the right), while in the next tube (7th tube from the right) with 1 mg/L there is some cloudiness (= growth).
- C** The E.coli is resistant to the antibiotic
- D** The MIC for the antibiotic is 8 mg/L
The highest antibiotic concentration is 64 mg/L (in the tube to the far right) and a two-fold dilution series was done. The tube with the lowest antibiotic concentration without bacterial growth is 2 mg/L.

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93

Which statement is correct regarding dipslide agar culture?

- A** Only primary and secondary pathogenic species will grow on dipslide agar culture.
Very many bacterial species might grow on the dipslide agar culture.
- B X** After incubation at 37 degrees C in the doctor's office, positive cultures can be sent for identification and resistance determination
- C** The method is suitable for, and has a high sensitivity for, detecting anaerobic bacteria.
- D** The agar can be sent in the mail directly after testing and the receiving laboratory has to culture the test immediately
The principle is incubation first, then assessment the next day of bacterial amount and identification.

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94

There are several different methods for determining the bacterial sensitivity to antibiotics. Which method is used in this picture?



- A X** Agar gradient diffusion test
Agar gradient diffusion (often called Etest) is based on the principle of an antibiotic diffusing out from a strip in a gradient and then reading the intersection between the bacterial growth and the given antibiotic concentration on the strip
- B** Agar diffusion test
Agar diffusion is based on the principle of an antibiotic diffusing out from a reservoir (patch or disc) and the measured resistance zones correspond with pre-defined levels of sensitivity.
- C** MBC-determination
MBC is done with broth dilution. This method gives the lowest antibiotic concentration which kills the bacteria
- D** Agar dilution
The dilution method means investigating if the bacteria grow in different and defined concentrations of the antibiotic (that is, different antibiotic concentrations are incorporated in the agar)
-

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95

Which fungal species is only seen as an imported disease in Norway?

- A** Trichophyton rubrum
Most common cause of dermatophyte skin infection
- B X** Histoplasma capsulatum
Not endemic in Norway/Scandinavia. Infection may occur when staying in geographically localised areas in several continents, including North and South America.
- C** Aspergillus fumigatus
Most common cause of invasive fungal disease
- D** Cryptococcus neoformans
Rare cause of invasive infection, most commonly seen in immunocompromised patients. Some domestic infection is seen.
-

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96

A young Norwegian man recently had unprotected sex in Thailand and now fears that he has symptoms of HIV infection. What are the most common symptoms of acute HIV infection, and that you will ask the patient about?

- A Skin rash and stomach pain
 - B X** Fever and enlarged lymph nodes
Most patients with acute HIV infection have fever and swollen lymph nodes. Abdominal pain and joint pain are rare symptoms. Weight loss and nausea are symptoms of late-stage HIV infection.
 - C Weight loss and nausea
 - D Joint pain and night sweats
-

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97

A 45-year-old man with rheumatoid arthritis is starting treatment with rituximab (anti-CD20 antibody). You explain to him that he has an increased risk of getting hypogammaglobulinaemia (low levels of IgG) and that he therefore is more prone to infections. Which infections is he primarily more exposed to?

- A Urinary tract infections
 - B X** Respiratory tract infections
These patients get recurrent respiratory tract infections (otitis, sinusitis and pneumonia) with Pneumococci and H.influenza.
 - C Meningitis
 - D Skin and soft tissue infections
-

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98

A young man has been traveling abroad and had unprotected sex with a prostitute four weeks ago. He wants an HIV-test and also want to know when this possibly becomes positive. What information do you give the patient about the HIV-test (Combo test)?

- A It is positive only after 3 months
 - B It is positive within 1 week and almost always within 3 weeks
 - C It is always positive within the first 2 weeks
 - D X** It is usually positive within 3-4 weeks and almost always within 6 weeks
The combo test combines detection of the HIV p24-antigen and HIV antibody, and is usually positive within 3-4 weeks.
-

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99

A woman, who is pregnant in the 1st trimester, comes to your doctor's office and tells you that she has frequent urination and burning during urination. You interpret this as a urinary tract infection and decide to start with an antibiotic. Which antibiotic should you choose?

- A Amoxicillin (Imacillin)
 - B X** Pivmecillinam (Selexid)
Pivmecillinam (Selexid) is safe to give during pregnancy and covers relatively widely. Amoxicillin is also safe, but here there is considerable risk of resistance (40% of E. coli in urine are resistant to amoxicillin). Trimethoprim should not be used in the 1st trimester. Ciprofloxacin is contraindicated during pregnancy.
 - C Trimethoprim (Trimetoprim)
 - D Ciprofloxacin (Ciproxin)
-

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100

A 30-year-old woman has been on holiday in Thailand. 5 days after returning home, she gets a high fever (40 °C), severe headache, especially retro-orbitally, and has intense muscle and joint pain. She has developed a maculopapular rash on the trunk the last day before she sees you. She says she got several mosquito bites at midday while she was on a shopping spree in town. What is the most likely diagnosis?

- A Malaria
 - B X** Dengue fever
Retro-orbital pain and intense muscle and joint pain is typical of Dengue fever
 - C Rickettsiosis
 - D Typhoid fever
-

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101

Adrenergic receptors include several subtypes that have different tissue distribution and mediate various effects. Receptor subtypes can be blocked selectively, for example by providing a drug that blocks the beta₁-receptors.

Which of the effects listed below do you expect when blocking this receptor subtype?

- A X** Reduced heart rate
Beta-blockers reduce the heart rate
 - B Bronchial dilation
On the contrary, beta-blockers cause bronchial constriction, which may be dangerous in obstructive airways disease.
 - C Peripheral vasodilatation
On the contrary, beta-blockers give peripheral vasoconstriction.
 - D Tremor
On the contrary, beta blockers are used therapeutically for tremor.
-

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102

Thyreostatic medications of the thioamide type (eg. Carbimazole) are used in the treatment of hyperthyroidism.

Which feared side-effect is associated with the use of this class of drugs?

- A X** Agranulocytosis
Potentially fatal agranulocytosis is a known and feared side-effect of this class of drugs, and it is important to inform patients about this so they quickly seek help when experiencing the appropriate symptoms.
 - B Parkinsonism
 - C Prolonged QT-interval
 - D Central pontine myelinolysis
-

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103

Elderly patients treated with ACE-inhibitors often use other drugs simultaneously. NSAIDs, metformin, warfarin and loop-diuretics are other drugs that are commonly used by the elderly.

Which of these drugs will it be particularly problematic to use concomitantly with an ACE-inhibitor in this patient group?

- A X** An NSAID
Should not be combined as this significantly increases the risk of acute renal failure. NSAIDs will also counteract the therapeutic effect of ACE-inhibitors both in heart failure treatment and anti-hypertensive treatment.
 - B Loop-diuretic
Common combination, suited for combination
 - C Warfarin
Common combination, no particular challenges
 - D Metformin
Common combination, even if there is a possible increased risk of lactic acidosis, especially for patients who already have reduced kidney function.
-

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104

A woman with bipolar disorder, who for several years have been treated with lamotrigine, comes to a routine outpatient check-up. She says that she is pregnant in the 4th month. A blood sample is analysed for serum concentration of lamotrigine. Although the lamotrigine dose is the same as before, the serum concentration is now much lower than in previous tests, only about 10% of what was measured in the last test before pregnancy.

What is the most likely explanation for this?

- A Increased cytochrome P450 activity because of pregnancy, and thus faster lamotrigine metabolism
Firstly, lamotrigine is not metabolised by CYP enzymes, but UGT enzymes, and secondly, this would not give a concentration drop of 90% (typically 40-60%).
- B Dilution effect because of fluid retention (increased "total body water")
Fluid retention give som dilutional effect, but should not give such a large decrease in concentration.
- C The patient probably takes a food supplement which reduces the lamotrigine metabolism
Most food supplements taken by pregnant women do either nothing, or inhibit CYP enzymes, and thus would increase the concentration, not decrease it. Moreover lamotrigine is not metabolised by CYP, but by UGT.
- D X The patient does not take lamotrigine regularly anymore
This is the only alternative that explains the 90% decrease in concentration.

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105

Alpha₁-antagonists (alpha-adrenergic blockers) have an anti-hypertensive effect, but is not considered as a first-line therapy for medical anti-hypertensive treatment.

Which of the below conditions may constitute an additional indication for this drug group?

- A Ventricular extrasystoles (VES)
Alpha1-blockers have no therapeutic effect in this condition
- B Tachycardia
Alpha₁-blockers have little effect on heart rate
- C Orthostatism
Alpha1-blockers commonly give orthostatism as a side-effect because of powerful peripheral vasodilatation.
- D X Benign prostatic hyperplasia
Alpha₁-blockers relax smooth muscle tissue in the prostate gland and improves drainage

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106

The Women's Health Initiative (WHI) study, which was published in 2002, is considered by many as the definitive safety study on hormone replacement therapy (HRT) after menopause. WHI found that HRT increased the risk of a variety of diseases or conditions, but reduced the risk for others.

Mention two diseases or conditions that WHI has shown that HRT may protect against.

- A Dementia and colon cancer
- B Dementia and osteoporosis
- C Osteoporosis and endometrial cancer
- D X Colon cancer and osteoporosis
Correct answer

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107

All NSAIDs (except low-dose aspirin) may have adverse cardiovascular effects by causing increase in blood pressure and deterioration of heart failure. Most NSAIDs also lead to an increased risk of thromboembolic heart disease.

Which of the following NSAIDs is not associated with an increased risk of such thromboembolism?

- A Diclofenac
- B Celecoxib
- C Ibuprofen
- D X Naproxen
Correct answer

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