

**2018 - IID - MD4043 - Eksamen 3.**  
**Eksamensdato: 2018-12-17**

1

A 34-year old woman attends your GP surgery. She has had problems with obesity all her life. As part of her programme to lose weight she has started to exercise. But exercising is limited because she leaks urine and her underwear gets wet.

She has just been to see a private gynaecologist who has not found anything wrong at examination, and who strongly recommends that she loses weight before any further investigations for the urine leakage. The patient feels she is in a vicious circle. What is the most correct treatment to prescribe?

- A Local oestrogens
  - B Incontinence pads on a reimbursed prescription
  - C Anticholinergics on a reimbursed prescription
  - D Antidiuretic hormone prior to exercise
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2

A woman is a pregnant for the first time; she is in week 32, healthy and so far has had an uncomplicated pregnancy. She wants to be delivered by Caesarian section. You are her GP. What do you preferably say to her?

- A That Caesarian sections are only performed if there is a medical indication
  - B That she can go to a private hospital where the baby will be delivered as she wishes
  - C That the risks are lowest with an uncomplicated vaginal delivery for both the mother and child, and you motivate her to have this
  - D That she can decide herself how she will give birth
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3

A 32-year old woman attends her GP for her first pregnancy check-up.

Which blood samples are to be taken at this consultation according to the national clinical guideline for antenatal care?

- A Blood group antibody, HIV, Hepatitis B and C, Hb, CRP and leukocytes
  - B Blood group and blood group antibody, Hb, rubella, HIV, syphilis, as well as hepatitis B and C if indicated
  - C Blood group antibody, Hb, HIV, and hepatitis B and C
  - D Blood group and blood group antibody, Hb, CRP and leukocytes
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4

What characterises a frank breech?

- A The fetus has flexed hips and knees
  - B The fetus has extended hips and flexed knees
  - C The fetus has extended hips and knees
  - D The fetus has flexed hips and extended knees
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5

A 32-year old woman attends her first pregnancy check-up with her GP.

Which clinical examinations must be done at this consultation according to the National Guideline for Antenatal Care?

- A Height, weight, blood pressure, urine test and gynaecological examination, if indicated
  - B Height, weight and gynaecological examination, if indicated
  - C Body Mass Index, blood pressure and chlamydia test
  - D Body Mass Index, urine test and gynaecological examination, if indicated
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6

Below, you can see a photo of a pair of newborn twins.  
What is wrong with these twins?



- A** One of the twins has anaemia, the other has polycythemia
- B** One of the twins has severe birth asphyxia, the other has normal pH
- C** One is healthy, the other is dead
- D** One of the twins has severe jaundice, the other twin has normal bilirubin

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**7**

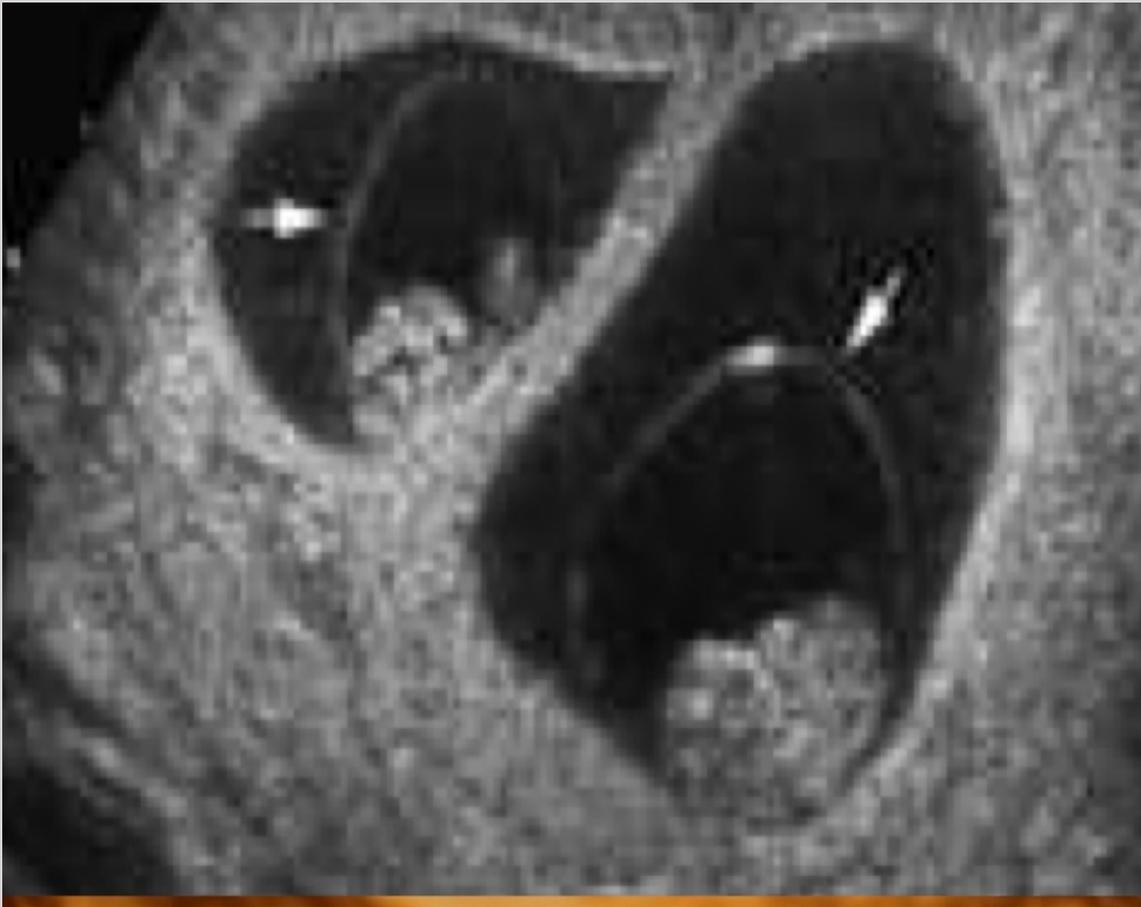
Shoulder dystocia is a feared obstetric complication.  
Which group of factors most increases the risk of shoulder dystocia?

- A** High BMI, large foetus and long labour
- B** BMI >40 in the mother and large foetus
- C** Mother is short with high BMI
- D** Previous shoulder dystocia, diabetes in the mother and large foetus

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**8**

Below you can see an ultrasound image from a pregnant woman.  
What does this image show?



- A** Twin pregnancy where the twin on the left has acrania (head is absent)
- B** Dichorionic diamniotic (DCDA) twins
- C** Monochorionic diamniotic (MCDA) twins
- D** Monozygotic twins

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**9**

What characterises an occiput posterior position of the head during a birth?

- A** Vaginal delivery is impossible if the fetus' back faces posteriorly (towards the mother's back)
- B** If occiput posterior is present with full cervical dilation, it is highly unlikely that the head will turn to the occiput anterior during the second stage of labour
- C** The birth often takes longer
- D** This is a common condition that occurs in about 15% of all births

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**10**

What is the most correct relationship between a twin pregnancy and time of delivery in regard to due date?

- A** Generally give birth around the due date
- B** Generally give birth as late premature
- C** The birth is generally induced in weeks 37-38
- D** Most often delivered by Caesarian in weeks 37-38

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11

A 21-year old woman comes to your surgery. She is concerned because she has had amenorrhea for almost 2 years. She is an ambitious and hard-working student. In addition she exercises for at least 1 hour 5 times a week. Her BMI is 17 kg/m<sup>2</sup> (normal weight: 18.5 - 24.9kg/m<sup>2</sup> ). She does not use contraception.

What is the most probable pathogenetic mechanism/hormone disturbance underlying her amenorrhea?

- A Hypogonadotropic hypogonadism, i.e. low gonadotropins (FSH and LH), and slightly low oestradiol
- B Hypergonadotropic hypogonadism, i.e. high gonadotropins (FSH and LH), and low oestradiol
- C Both urine and serum hCG (human chorionic gonadotropin) are positive
- D Normogonadotropic hypogonadism, i.e. normal gonadotropins (FSH and LH), and slightly low oestradiol

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12

What is saline infusion sonography (SIS) used for in a gynaecological examination?

- A To visualise endometriosis
- B To visualise the uterine cavity
- C To test whether the Fallopian tubes are open
- D To avoid metastases if endometrial cancer is suspected

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13

What is the treatment principle in ovarian cancer with metastases outside the ovaries?

- A Anti-estrogen therapy
- B Surgery + chemotherapy
- C Primary radiotherapy
- D Surgery + radiotherapy

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14

What is the most important reason for the decrease in the incidence of cervical cancer in Norway over the last 40-50 years?

- A HPV screening
- B HPV vaccination
- C Cervical cytology screening
- D Increasing use of contraceptive pills

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15

What are the most common histologic types of endometrial cancer?

- A Endometrioid adenocarcinoma.
- B Papillary serous adenocarcinoma.
- C Clear cell carcinoma.
- D Carcinosarcoma.

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16

What is the most common histologic type of vulvar cancer?

- A Malignant melanoma
  - B Basal cell carcinoma
  - C Adenocarcinoma
  - D Squamous cell carcinoma
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17

A 24-year old woman who is pregnant for the first time comes to you in a general practice in town. She cohabits with her partner, and has a planned pregnancy, her last period was 5 weeks ago. Over the last two days she has had some slight vaginal bleeding, but no pain. She is very worried that there is something wrong with the pregnancy. Urinary HCG (human chorionic gonadotropin) test is positive. As a GP in the town, what should you do?

- A Refer the patient to a fetal medicine clinic for an early ultrasound examination (about week 12).
  - B Perform a gynaecological examination with chlamydia testing and cytology from the cervix.
  - C Take quantitative HCG tests in serum with a 2-day interval.
  - D Refer her to a gynaecology specialist for ultrasound as an emergency examination.
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18

A 19-year old girl attends your surgery. She is worried because she has had total amenorrhea for a year. She is an ambitious and hard-working student. In addition, she exercises for at least 1 hour, 5 times a week. Her BMI is 16 (normal weight: 18.5-24.9). She does not use contraception. The girl is worried that she will not be able to have children later. The gynaecologist measures her s-AMH (Anti-Mullerian Hormone).

What is the most probable result for this girl, and how would you interpret the result?

- A s- AMH 20 pmol/L (normal)  
Interpretation: The girl has normal egg reserves and will have a good chance of becoming pregnant if her underlying condition is treated successfully
  - B s-AMH 70 pmol/L (high)  
Interpretation: The girl's AMH is 2-3 times higher than normal, and she has good ovarian reserves with a reasonable chance of becoming pregnant later in life
  - C s- AMH 10 pmol/L (normal) and positive pregnancy test  
Interpretation: The girl is already pregnant and there is therefore no need to worry about not being able to have children in the future
  - D s-AMH <1.1 pmol/L (low)  
Interpretation: Low/not detectable AMH indicates emptied egg reserves, and the girl's chances of becoming pregnant are unfortunately very low
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19

The patient is 38 years old, pregnant with her 3rd child in week 36. Her two previous children weighed 3,900 g and 4,500 g.

A glucose tolerance test was performed in week 24, and revealed fasting blood glucose of 5.0 mmol/L (ref.: 4.2 - 6.3 mmol/L) and a 2-hour glucose load gave 8.3 mmol/L (ref.: < 7.8 mmol/L). She was then given detailed dietary and lifestyle advice. She has only put on 7 kg during the pregnancy, and all HbA1c levels have been below 6.0%.

Today's fundal height measurement gives the same value as 3 weeks ago.

What is the most correct course of action for you as her GP?

- A You arrange a new check-up of the fundal height measurement in 1 week by the midwife
  - B You tell her it is normal that the child's head descends into the pelvic entrance with the 3rd child, and therefore the fundus is a little lower
  - C You refer her to the maternity outpatients clinic/foetometry
  - D You tell her that this child will probably not be as large as the previous babies because of the good glucose regulation
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**20**

Siri is pregnant for the first time in week 31. She is admitted to the Maternity Dept. with a blood pressure of 175/120, and urine proteins 4+. The urine appears concentrated. She has an intense headache and is restless. She asks what will happen next in the pregnancy. Which is the most correct information to give here?

- A** Prompt treatment with i.v. fluid and diuretics to trigger urine production is essential to stabilise the situation
- B** She should receive an infusion of magnesium to prevent convulsions, antihypertension treatment to stabilise her BP, and a Caesarian section a few hours after admission
- C** She should be kept in the department with strict bedrest and quiet so that a premature birth can be prevented, and the birth can then be induced at term
- D** Rest and quiet will normalise the blood pressure and urine findings, and she can therefore be discharged to home with a sick leave

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**21**

A 38 years old woman wants your advice for very heavy but regular periods. You have taken a smear for cervical cytology and an endometrial biopsy; these results are normal. At bimanual palpation the uterus is anteflexed, freely mobile and judged to be not palpatorily enlarged. What would be the first choice of treatment in this case?

- A** Embolisation
- B** Endometrial ablation
- C** Hormonal intra uterine device
- D** Contraceptive pill

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**22**

A 30-years old woman has previously had a deep vein thrombosis in her right leg. She used anticoagulants for a while, but now has stopped. She needs a contraceptive and you consider putting her on a progestogen-only pill (desogestrel). You look up in the WHO guidelines which give 4 levels of risks vs. benefits when using the different contraceptive agents. What will be the evaluation for prescribing progestogen pills for this woman?

- A** The risks exceed the benefits when using this method
- B** There is an unacceptable health risk when using this method
- C** Using this method has more benefits than risks
- D** No restrictions when using this method

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**23**

Understanding internal working models was an important development in attachment theory. What is this model?

- A** An internal working model is the parents' knowledge and understanding of how to provide care to one's child.
- B** An internal working model is the knowledge parents have acquired through their experiences with children, and which governs how they stimulate their own child
- C** An internal working model is a representation of early care experience that affects the child's expectations to parents, and the parents' expression of care to the child.
- D** An internal working model is the child's expectation of care from an attachment figure that they are born with and which is demonstrated by the child communicating from birth.

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**24**

A 16-year old girl has been given the diagnosis "Severe depressive episode without psychotic symptoms".

Which of the most typical symptoms (according to ICD-10) must be present to make this diagnosis?

- A** Tiredness, decreased energy/activity and decreased interest in things the person is normally interested in.
  - B** Tiredness, problems concentrating, loss of self-esteem and decreased energy/activity
  - C** Decreased energy/activity, feelings of guilt and sadness
  - D** Decreased interest in things the person is normally interested in, sadness, suicidal thoughts and loss of self-esteem.
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**25**

An 8-year old boy attends the doctor's surgery with his mother. He has stomach ache and has not been to school for 4 weeks. He was examined at the Paediatric Clinic 3 weeks ago, and the paediatrician concluded that there was no evidence for a somatic cause of the stomach pains. The mother relates that she and the boy's father have recently separated and are in conflict about visiting rights for the boy and his little sister who is 4 years old. The boy has recently changed school and has no friends where he now lives. You assess this to be a psychosomatic problem.

In this situation, what is the best help you can provide as the GP?

- A** Provide psychoeducation for the boy and mother on maintaining mechanisms. Contact the district nurse and any municipal educational and psychological counselling services for assistance with a gradual return to school over a couple of weeks. New check-up in 2-3 weeks.
  - B** Refer to the Paediatric Clinic for extended investigations because the stomach pains have persisted. New check-up in 3-4 weeks.
  - C** Refer to Child and Adolescent Mental Health Services for investigation and assessment of trauma treatment. Contact the District nurse and municipal educational and psychological counselling services, if available, for assistance with a gradual return to school over a couple of weeks. New check-up in 2-3 weeks.
  - D** Apply for carer benefits for the mother, initially for 4 weeks, so that she can be together with the boy the whole time; check the status of the stomach ache and other symptoms that occur. New check-up in 4 weeks.
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**26**

Six months ago a 15-year old girl witnessed a dramatic incident in which a person was shooting randomly close to her school killing 5 people and finally him self. One of those killed was the girl's younger sister. Now: she is very sad and anxious, stays at home most of the time with her parents and has not been to school since the shooting. She has problems with insomnia and nightmares, and problems concentrating.

As the girl's GP, what is the most important thing you can do to help her?

- A** Refer to the Child and Adolescent Mental Health Services for investigation and treatment
  - B** Start treatment with antidepressants, instruct her in sleep hygiene and give her a new appointment in 4-6 weeks
  - C** Start treatment with antidepressants, give her a sick note for school and a new appointment in 2-3 weeks
  - D** Weekly meetings for 1-2 months, then refer to the Child and Adolescent Mental Health Services if there is no improvement
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**27**

Per is ten years old. His teacher contacts you because you are the school doctor. He describes Per as precocious and odd without close friends. He seems happiest alone. He speaks adequately, but talks about others using numbers instead of names. For his age he has very advanced mathematical knowledge, but is struggling with concentration in class, and is struggling with his handwriting – he has been given a PC. If somebody jolts him he can become very angry.

What is the most important diagnostic criterion for the most probable psychiatric condition in this child?

- A** Motor clumsiness
- B** Deviating contact and social functioning
- C** High intelligence and special skills
- D** Difficulties in regulating emotions

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**28**

Compulsive disorder (obsessive-compulsive disorder - OCD) can occur in children, adolescents and adults.

What is the prevalence of this disorder in children and adolescents?

- A** Less than 0.5%
- B** 1-2%
- C** 3-4%
- D** More than 5%

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**29**

A 9-year old boy has a "difficult temperament" with a lot of anger. The following problems have developed since he was 7 years old: He gets up to a lot of mischief, boycotts school work, disregards rules, is restless, bullies others and often get into fights.

Which treatment has a documented effect on his condition?

- A** Psychodynamic therapy
- B** Parental training in behavioural regulation
- C** Stimulants acting on the central nervous system
- D** Neuroleptics

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**30**

In addition to increased mood, what cerebral effects does cannabis have?

- A** Slower respiration rate, poorer memory, planning and organisation ability.
- B** Slow motor responses, improved concentration, planning and organisation ability.
- C** Faster motor responses, improved memory, planning and organisation ability.
- D** Slow motor responses, poorer memory, planning and organisation ability.

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**31**

In your general practice, you see a 14-year old girl. During the appointment she says that she often feels so depressed that she cannot bear to be with her friends any more. Her life has become so difficult because of the "strange thoughts" as she calls them. She says that she thinks most surfaces and places outside her home are infectious; therefore she can't take home things she has used at school, and that she must first wash her hands and then have a shower and change her clothes when she comes home from school or a trip to town. She justifies this by saying she is afraid of being infected, because she can't know whether the person who recently sat in a chair or touched an object could have been sick and infectious. Neither can she eat unknown food because that could be dangerous. Deep inside she knows that these thoughts are exaggerated, but she cannot control them. What is the most probable explanation of her symptoms?

- A** The patient has an obsessive-compulsive disorder.
- B** The patient has an anxiety disorder.
- C** The patient is developing psychosis.
- D** The patient has depression with psychotic thoughts (depressive psychosis).

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**32**

A girl (15 years old) has been admitted to the somatic paediatric department, and the department is conducting a suicide risk assessment of the girl.

What are the most important areas to be mapped in this assessment?

- A** Psychiatric disorders in the family, actual medical history, actual suicidal thoughts/plans, family/care situation, protective factors and current psychiatric status
- B** Current psychiatric status, actual substance use, actual suicidal thoughts/plans, previous psychiatric disorders, review of risk factors and protective factors
- C** Actual medical history, actual suicidal thoughts/plans, review of risk factors, current psychiatric status, family/care situation and protective factors
- D** Actual medical history, actual suicidal thoughts/plans, actual substance use, previous psychiatric disorders, review of risk factors and protective factors

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**33**

Hyperbilirubinemia is a condition that we often see in the neonatal unit.

Which of these statements is correct in regard to a newborn infant?

- A** Conjugated bilirubin that is not excreted can be converted back to unconjugated bilirubin
- B** A newborn baby can have a significantly lower bilirubin production than an adult
- C** A newborn baby is visibly yellow only when bilirubin levels are higher than 200 micromol/L
- D** Unconjugated bilirubin cannot cross the blood-brain barrier

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**34**

You are a GP and are contacted by a 13-year old girl who is your patient. She arrives with her mother. The girl says that she was out with some friends the night before. There she met a 19-year old boy and went with him to his room. There he allegedly forced himself on her and had vaginal intercourse which resulted in genital bleeding.

The girl told her parents about this in the morning and they have come to your surgery. What will you do?

- A** You send the girl as an emergency to the nearest Paediatric Dept. for urgent evidence collection, documentation of injury and health care.
- B** You say that the girl and mother must first notify the child welfare services, and that you will send a note of concern there.
- C** A pelvic examination is performed, findings are documented and emergency contraception is provided. Afterwards, you ask them to contact the police.
- D** You say that the girl must first of all go to the police, and you recommend that the girl and her mother contact the Criminal Dept as soon as possible.

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**35**

You are the GP and examine a 2-year old boy who was born prematurely with a gestation age 30 weeks. The boy needed light respiratory assistance for 3 weeks in the neonate period. For the presenting medical history, the mother says that the boy has generally been healthy, but quickly becomes chesty when he plays with his dog or gets a cold. The mother says that the boy's sleep is often disturbed, and particularly in the morning he is bothered by a lot of coughing and mucous. Several family members have a known allergy, but the boy has not yet been tested.

What is the most probable diagnosis and what will you do now?

- A** The boy is most probably allergic and should be tested for allergy to animals
- B** The boy most probably has a viral infection and you start inhalation treatment
- C** The boy most probably has bronchopulmonary dysplasia (BPD) and you start inhalation treatment
- D** The boy most probably has asthma; you start treatment and refer for investigation for allergies

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**36**

You are the GP. Ole is 6 years old and attends his appointment with you with his mother. The mother says that Ole has a tight foreskin; it is not possible to retract the foreskin back over the head of the penis. Ole doesn't have any problems with this normally; he has not had any infections and the foreskin does not swell up when he urinates. What is the correct action?

- A** Put the mother's mind at rest that since Ole doesn't have any problems one can wait. In most cases, the foreskin eventually gets less tight.
  - B** Treat with corticosteroid ointment for a few weeks to soften the foreskin
  - C** Refer for surgery for tight foreskin (dorsal slit/circumcision)
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**37**

You are a GP. A mother and father come to you with their newborn baby (6 weeks old). They have recently noticed a lump in his right groin. The parents say that the lump is soft and can be pressed back. When you examine the child you cannot find anything wrong in the right groin. What is the correct action?

- A** Refer for ultrasound querying the presence of enlarged lymph nodes in the right groin
  - B** Refer for surgery for a suspected inguinal hernia
  - C** Reassure the parents that you cannot find anything wrong with the child
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**38**

Lina is 8 months old and was born after a normal pregnancy. Over the last few days she has had a cold with fever, but is still in general good health. The mother comes to your surgery as the girl's GP. At clinical examination your only finding is a low frequency, musical systolic murmur that has not been registered previously. In a sitting position the murmur becomes weaker and disappears almost completely when the girl stretches backwards. What is the most probable diagnosis?

- A** PDA
  - B** Pulmonary stenosis
  - C** VSD
  - D** Still's murmur
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**39**

You are working as a doctor in Paediatric emergency reception. A critically ill child arrives that is now one week old. The girl was born after a normal pregnancy and the paediatric examination on day 1 was completely normal.

Over the last few hours the girl has become increasingly ill with rapid respiration, and costal and subcostal retractions; she is peripherally cold with grey, pale skin and has a capillary refill time of 4 sec. You palpate an enlarged liver and find no femoral pulses. When you auscultate the child you hear a weak systolic murmur.

Which treatment must you start as emergency help?

- A** i.v drip with indomethacin
  - B** i.v. drip with prostaglandin
  - C** i.v drip with furosemide
  - D** i.v drip with dopamine
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40

The frequency of meningitis in children has dropped in recent years in a number of European countries. This is due to a number of reasons. What is the most important reason?

- A Inclusion of conjugate vaccines against *Haemophilus influenzae* and meningococci in the national vaccination programmes
- B Fewer pneumococci (unknown cause), and inclusion of vaccine against meningococci in the national vaccination programmes
- C Inclusion of conjugate vaccines against meningococci and pneumococci in the national vaccination programmes
- D Inclusion of conjugate vaccines against pneumococci and *Haemophilus influenzae* in the national vaccination programmes

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41

What are the most common food allergies in children under 3 years of age?

- A Cod and egg
- B Nuts and shellfish
- C Wheat and soya
- D Egg and milk

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42

10-month old Jørgen has a high fever. The doctor demonstrates purulent otitis media in the left ear. Which treatment should the doctor recommend?

- A Amoxicillin and paracetamol
- B Erythromycin and paracetamol
- C Phenoxymethylpenicillin and paracetamol
- D Plenty of fluids and paracetamol

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43

Karoline (7 months old) has previously been healthy with no tendency to atopy. She has a fever, nasal congestion and problems breathing, and the last 24 hours she has been listless and will not feed. When examined at the hospital she is pale, has a respiration rate 65/minute with sub- and intercostal retractions. Capillary refill time < 2 seconds and pulse 140/minute. Oxygen saturation 90%. Crackling can be heard over both lungs on both sides with prolonged expiration. Blood tests reveal:

Blood test	Result	Ref. range
CRP	43 mg/L	< 5 mg/L
Hb	10.8 g/dL	10.8 – 13.5 g/dL
Leukocytes	$7.8 \times 10^9$	$4.0 - 20.0 \times 10^9/L$
pH	7.30	7.35 – 7.45
pCO <sub>2</sub>	7.35 – 7.45	4.5 – 6.0
BE	-6	-3 - +3

She is given fluids and oxygen. Which other treatment should she have?

- A Saline nasal drops, saline or beta-2 agonist inhalation
- B Penicillin, saline or racemic adrenaline inhalation
- C Steroids, penicillin, saline or racemic adrenaline inhalation
- D Saline nasal drops, saline or racemic adrenaline inhalation

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44

Why is the relationship between the number of chest compressions and ventilations different for newborn infants (3:1) and adults (30:2) at resuscitation in connection with cardiac arrest?

- A The residual volume of the lungs in newborn infants is poorly developed
- B 100% oxygen will harm a newborn infant
- C Newborn normally have a higher heart rate than adults.
- D The cause of cardiac arrest in newborns is normally hypoxia.

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Eva (15 years) has asthma and uses an inhalation medication with a combination of long-acting beta-2-agonist and glucocorticoid twice daily. She has previously reacted to peanuts, hazelnuts and fish/seafood with a rash and stomach ache. Eva attends your surgery now because she has a slight problem breathing shortly after eating crisps and the packet stated that it could contain traces of peanuts. The medical secretary calls you urgently to the waiting room because she has become worse. When you get there, her lips are blue, she has great difficulty breathing and she appears to be losing consciousness. You ask the medical secretary to get the oxygen cylinder. Which medical treatment should you give Eva first?

- A Antihistamine intramuscularly
- B Adrenaline intramuscularly
- C Glucocorticoid intramuscularly
- D Beta-2-agonist as inhalation

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46

A 2-year old boy comes to check his heart condition. Clinical examination reveals a grade 3/6 high frequency ejection systolic murmur at the upper right sternal edge radiating to the carotid vessels. What is the most probable diagnosis?

- A Ventricular septal defect
- B Pulmonary stenosis
- C Aortic stenosis
- D Aortic insufficiency
- E Mitral stenosis

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47

A 6-year old girl was referred to the department for suspected sexual abuse by an uncle. The girl has told her teacher that "my uncle put his finger in my wee wee hole (vulva/vagina)". It is unclear when this was supposed to have happened.

You examine the girl and find that everything is normal, including examination of the genital organs and anus. You note in particular that the hymen is sharp-edged and without signs of damage.

Later that evening the police call, and ask for preliminary information on the results of the examination. You have a written exemption from the duty of confidentiality from the parents. What do you say to the police?

- A That everything looks normal. This does not exclude sexual abuse, but it does exclude abuse with penetration of the vagina.
- B That everything looks normal, and it is completely improbable that the girl has been the victim of sexual abuse.
- C That everything looks normal, but this does not exclude that the girl has been the victim of sexual abuse.
- D That everything looks normal so the girl's statement is probably an expression of her childish imagination.

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48

A 3-year old girl with watery stools several times a day for 3 days has been admitted to hospital due to dehydration. She does not have a fever.

What is the most probable cause of the diarrhoea?

- A Viral infection
- B Ulcerative colitis
- C Bacterial infection
- D Malabsorption

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49

What does investigation of red reflex in the neonate give particular information about?

- A The refractive system and retina
- B The neonate's vision at close hold
- C The size of the pupils and reaction to light
- D Squinting (strabismus)

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A girl is referred from the health centre because her growth has dropped from the 50th percentile at 4 years of age to the 10th percentile at 6 years of age. She has previously had problems with constipation, and now has problems with stomach pains. Her mother's height is 167 cm and her father's height is 180 cm.

Which assessment of this growth pattern is most correct?

- A The growth pattern is pathologic and must be investigated to determine any underlying chronic disease.
- B The girl's current height lies within the normal variation of the mid-parental height, and does not need to be investigated further.
- C Classic growth hormone deficiency could give this growth pattern, and the girl should therefore be investigated further.
- D The growth normally varies from year to year, and the girl's height should therefore be checked annually.

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51

During the autumn and winter (last six months), a 5-year old boy with atopic eczema has had 3 long-term respiratory infections with symptoms from the lower respiratory tract for more than 3 weeks. The first 2-3 days of each infection, he has had a slight fever and runny nose. Afterwards he has been fever-free, but has had a cough, mucous in the lower airways, cough with phlegm vomiting at night, heavy breathing and sometimes wheezing. He feels it is more difficult to breathe when he is outside playing. The boy attends your health centre with his mother. He has not had a fever or runny nose the last week, and has been to nursery school.

What should you do with him at your surgery?

- A Clinical examination; take a blood sample for CRP analysis and consider a course of antibiotics if CRP >50.
- B Clinical examination; take a sample of nasal secretion for analysis for a panel of respiratory viruses to elucidate the agent.
- C Clinical examination; spirometry investigation at the health centre, then consider a short course of peroral steroids if the spirometry is abnormal.
- D Clinical examination; inquire about family diseases, start inhalation treatment with a short-acting Beta2-agonist; follow-up in 6 weeks.

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52

For which age group does a rotavirus infection most frequently result in hospital admission?

- A 4 - 10 years
  - B 3 months - 2 years
  - C 2 - 4 years
  - D >10 years
- 

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53

Mother is in her second pregnancy, blood type O Rhesus +. The pregnancy has been normal. The birth occurs spontaneously at term without complications. Birth weight 3,410 g. When 12 hours old, the staff notice that the baby appears yellow. Bilirubin is 259  $\mu\text{mol/L}$  (Light-treatment threshold at this timepoint is 120  $\mu\text{mol/L}$ , exchange transfusion threshold is 450  $\mu\text{mol/L}$ ). General health is good.

What is the most probable condition?

- A Neonatal GBS sepsis
  - B ABO incompatibility
  - C Physiological neonatal jaundice
  - D Rhesus incompatibility
- 

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54

During the autumn, 12-year old Siri has appeared very tired, but she has gone to school and played handball. Her mother has previously had a lot of migraine and a cousin has epilepsy. The parents take the girl to the doctor's because of headache and vomiting in the morning over the last 2-3 days. At examination at the health centre, she appears pale and quiet. BP 100/60, pulse 78/minute. There are no definite pathological findings at clinical examination, but the doctor is uncertain whether there are blurred papillary margins in the left eye.

Which diagnosis should be suspected and what should the doctor do?

- A Congenital AV malformation; refer for cerebral MRI
  - B Migraine; prescription for ibuprofen and an appointment for follow-up
  - C Brain tumour in the posterior cranial fossa; admission to hospital
  - D Subarachnoid haemorrhage; admission to hospital
- 

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55

A previously healthy young student aged 20 attends your surgery for the second time due to symptoms from her bladder. A week ago you gave the patient a 3-day course of Selexid for what you interpreted as an uncomplicated urinary tract infection. She felt better immediately after starting the course, but the frequent urination and burning has returned. What do you do now?

- A You assume that Selexid was not the correct antibiotic and switch to Ciproxin, which is a wide spectrum antibiotic. You give 500mg x 2 for 5 days.
  - B You test with a urine dipstick and send urine for bacteriological investigation. Switch the antibiotic to Bactrim 2 tbl x2 for 1 week.
  - C Because the treatment had an effect on the patient's symptoms you consider that the treatment duration was too short. You give her a new prescription for Selexid, this time for a 1-week course of treatment.
  - D You test with a urine dipstick and send urine for bacteriological investigation. You await the results of urine culture before prescribing antibiotics. Because the patient has recurring infections, you refer her for cystoscopy.
- 

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56

What is the first-choice of treatment for an MS patient with urge and mild incontinence?

- A Botox injection into the bladder
  - B Anticholinergics
  - C BCG injection into the bladder
  - D Alpha-reductase inhibitor
- 

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57

One of your GP patients has now had kidney stones for the second time. The stone has been analysed and is a calcium oxalate stone. The patient wonders whether you have any good advice to avoid the formation of new stones. What do you recommend?

- A With calcium oxalate stones it is important to acidify the urine. This can be done by drinking orange juice every day.
- B The patient should drink at least 2 litres per day.
- C With calcium oxalate stones, the patient should not eat rhubarb or red meat.
- D The patient should reduce the intake of milk and cheese because the stone is made primarily of calcium.

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58

For several years, you have had a woman with MS as your patient at your GP surgery. She has now been investigated for problems with urge incontinence and slight leakage. Which two investigations are the most relevant?

- A cystoscopy and urodynamics
- B cystoscopy and urodynamics if the patient has residual urine
- C cystoscopy and three-phase CT of the urinary tract
- D cystoscopy and measurement of residual urine

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59

Which symptoms or findings must you as the GP be particularly aware of in a patient whom you presume has an episode of kidney stones?

- A macrohaematuria
- B palpation tenderness in the costovertebral angle
- C fever
- D severe pain

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60

Kidney or ureter stones can pass spontaneously. How large must a stone be for it to most probably need removal by surgery?

- A 7mm
- B 5mm
- C 10mm
- D 12mm

---

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61

In overactive bladder or urge incontinence which is not treated successfully with medication or bladder exercises, botox treatment can be an option. Which statement is correct?

- A The treatment gives lower reservoir capacity.
- B Botox is contraindicated in neurogenic bladder dysfunctions.
- C Clostridium botulinum toxin is a potent toxin that paralyses the bladder muscles.
- D The treatment gives permanent paralysis of the bladder muscles.

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62

Which of the statements about prostate cancer is correct?

- A Prostate cancer only affects men older than 60.
- B Prostate cancer is the most common form of cancer in men in Norway.
- C PSA is always elevated in prostate cancer.
- D Tissue samples are taken assisted by MRI.

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**63**

A previously healthy man aged 35 comes for a health check-up in connection with a new job. You perform a urine dipstick test which shows +2 for blood. The patient has an uncle with kidney stones. What should you do?

- A** Order CT urinary tract and cystoscopy.
- B** Order CT for the stone.
- C** Check the urine with a new urine dipstick test in 2-3 weeks.
- D** Check the prostate-specific antibody (PSA), perform a digital rectal examination (DRE) and serology for sexually transferable diseases (STD).

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**64**

A 62-year old woman was admitted as an emergency 8 days after an uncomplicated Robot hysterectomy for benign myomas. She has pain in her right flank and nausea. She has cold sweats and chills, and is pale. Pulse: 120/min, blood pressure (BP) 80/50, and Temp 39.8°C. Blood tests reveal normal creatinine and electrolytes, elevated infection parameters and a haemoglobin (Hb) of 12.6 (pre-op Hb was 15.2). Emergency ultrasound of the abdomen reveal right-sided hydronephrosis and hydroureter as well as moderate amounts of free fluid in the pelvic cavity. The time is 22:00. How should the patient be treated?

- A** The patient should be given intravenous antibiotics and emergency surgery for insertion of a JJ stent in the right ureter.
- B** The patient should be taken directly to the operating theatre for exploratory laparotomy due to probable postoperative bleeding; possibly with an abscess.
- C** The patient should be given intravenous antibiotics and referred for emergency insertion of a nephrostomy tube.
- D** The patient should be given intravenous antibiotics and ultrasound-guided drainage of a possible abscess in the pelvic cavity.

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**65**

A 22-year old woman attends for a repeat prescription for contraceptive pills. She feels well, exercises regularly and works in a nursery school. You measure her blood pressure to be BP 160/100. What should you do?

- A** Ask her to come back in a few days to take a new blood pressure measurement and blood and urine samples.
- B** Give her an appointment in a few days for 24-hour blood pressure measurement.
- C** Contact the local hospital for admission and further investigations.
- D** Start treatment with a calcium antagonist, Adalat Oros 30 mg x 1 and give her an appointment for check-up in 1 week.

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**66**

In nephrotic syndrome there is always a primary or secondary glomerular disease. In which glomerular disease is it important to look for an unrecognised cancer?

- A** Minimal change nephropathy
- B** Membranous nephropathy
- C** Diabetic nephropathy
- D** IgA nephropathy

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**67**

IgA nephropathy can sometimes develop to chronic progressive kidney disease. Which clinical finding/sign best signals that the disease is progressing to a more serious phase?

- A** Increasing proteinuria.
- B** More dysmorphic erythrocytes are observed at urine microscopy.
- C** Oedema
- D** Episodes with macroscopic haematuria.

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68

Morten (52 years of age) has diabetes, hypertension, cardiac failure and impaired renal function eGFR 42 ml/min/1.73 m<sup>2</sup> (>60 ml/min/1.73 m<sup>2</sup>) and albuminuria with albumin/creatinine ratio 60 mg/mmol (<3 mg/mmol). At examination, his BP is 128/73 mmHg, and he has very slight ankle oedema. The patient is being treated with a number of drugs including an ACE inhibitor.

The patient wonders whether his impaired kidney function will affect his risk of cardiovascular disease in the future and whether the albuminuria means anything.

Which of the following statements is the most correct?

- A Chronic kidney failure and albuminuria are two independent risk factors for cardiovascular disease.
- B Chronic kidney failure increases the risk of cardiovascular events and albuminuria has no additional effect.
- C Chronic kidney failure increases the risk of cardiovascular events but not for stroke.
- D Chronic kidney failure is only associated with an increased risk of cardiovascular disease when eGFR<15 ml/min/1.73m<sup>2</sup> (>60ml/min/1.73 m<sup>2</sup>).

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69

Kåre (44 years old) has had chronic kidney disease for 5 years. A biopsy has not been taken, but it is suspected that he has hypertensive kidney injury. He has now been admitted due to severe pneumonia, and there has been a gradual increase in s-creatinine over the last week - 160 umol/L increasing to currently 480 umol/L (normal range: 50-100 umol/L). Serum potassium has also increased from 5.3 mmol/L to 5.9 mmol/L (normal range: 3.5-5.5 mol/L) at the last ordinary sample taken this morning.

Kåre has slightly increasing dyspnoea during the evening, and you therefore take a sample for blood gasses which reveals relatively unchanged values for oxygen and carbon dioxide (pO<sub>2</sub> 9.2 (normal range: 11-13), and pCO<sub>2</sub> 7.1 (normal range: 4.5-6.0)). The results show however that serum potassium has increased to 6.9mmol/L.

What should you do now?

- A Correct his acidosis by giving bicarbonate supplement so that more potassium is transported into the cells.
- B Check the blood test results by sending a new sample to the laboratory.
- C Refer for groin catheterisation and prepare to start haemodialysis within the next few hours.
- D Take an ECG, start glucose-insulin i.v. infusion and check serum potassium in 2 hours.

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70

An 86-year old woman was found lying on the floor in her bathroom with right-side peripheral paralysis. She had been lying on the floor for about a day before her daughter came by and found her. In A&E she is awake, but has reduced sensitivity and movement in her right upper and lower limbs. A month ago she had been for her annual check-up with her GP who had found slightly elevated blood pressure, atrial fibrillation, normal blood and urine tests, including normal eGFR. She is taking an anticoagulant (Marevan) because of the atrial fibrillation, and 1 tablet NSAIDS (Voltaren) a day due to arthritis.

You find BP 105/64 mmHg. S-creatinine 246 µmol/L (45 - 90 µmol/L). Urine dipstick reveals 4+ for blood and 1+ for leukocytes and albumin.

What is the most probable cause of the acute renal damage?

- A Acute renal damage due to rhabdomyolysis and dehydration
- B Acute renal damage due to use of NSAID
- C Embolism in the kidneys due to atrial fibrillation
- D Acute renal damage due to renal haemorrhage

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71

A 65-year old woman has chronic kidney disease due to nephrosclerosis. Her kidney function has gradually gotten worse and the last measurement gave eGFR 18 ml/min/1.73m<sup>2</sup>. At the last check-up Hgb was measured at 8.9 g/dl versus 9.4 (11.7 - 15.3 g/dL) 6 months ago. You perform an anaemia screening and find that it is a normocytic normochromic anaemia. What is probably the most important cause of her anaemia?

- A B12 deficiency
  - B Haemolysis
  - C Iron deficiency
  - D Erythropoietin deficiency
- 

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72

A 60-year old woman with cardiac failure and normal kidney function (eGFR > 90 ml/min) has started diuretic treatment with a loop diuretic (Furosemide) 40 mg in the morning and evening. She notices this is effective with good diuresis after taking each tablet. Some weeks later she feels less well, and notices pronounced muscle weakness, but it is easier to breathe. Her blood pressure is measured at 135/80mmHg. Which of the following is the most probable reason for her muscle weakness.

- A Hypernatremia
  - B Hypokalemia
  - C Hyperkalemia
  - D Hyponatremia
- 

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73

A 78-year old woman is admitted after being found lying in the bathroom in her flat. She is fully conscious, but her right-side limbs are paralysed, and she has therefore not been able to raise herself up off the floor. She has had access to water from a tap low down on the wall. She has lain there for 2 days. At admission she is anuric with serum creatinine of 500 micromol/L. Her blood pressure is normal and she does not feel thirsty. The woman is now being monitored due to oliguric kidney failure. You must prescribe fluid treatment for the next 24 hours.

**How will you do this?**

- A Indicate a desired volume of fluid and specify the types of fluids (e.g. 1,000 ml NaCl i.v. and by mouth about 1,000 ml water)
  - B Indicate a desired fluid balance and specify the types of fluids (e.g. 2,000 ml, use alternating Ringer's and Na-bicarbonate 167 mmol/L)
  - C Indicate a desired fluid balance generally indicated as +, - or 0 balance depending on urine production, perspiration, medication fluids and other infusions, peroral intake, loss as diarrhoea or via drains, etc. (e.g. +2,000 ml)
  - D Indicate a desired volume of fluid to be administered (e.g. 2,000 ml)
- 

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74

A 35-year old man has just been diagnosed with hypertension by his GP; average blood pressure measured is 152/97. He is somewhat overweight, weighs 98 kg and is 178 cm tall, corresponding to BMI 31. He does not smoke and appears otherwise healthy. What is the most correct first course of action?

- A Refer him for investigation for secondary hypertension
  - B Start lifestyle interventions and map cardiovascular risk; new check-up in about 3 weeks
  - C Start antihypertensive treatment with calcium antagonist; new check-up in about 3 weeks
  - D Start antihypertensive treatment with an ACE inhibitor or angiotensin 2-antagonist; new check-up in about 3 weeks
- 

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75

Sverre is 35 years old and has had diabetes mellitus type 1 for 5 years which is well-controlled. Recently, he has felt tired and had a tendency to faint when he stands up from sitting. Even though he has not made any changes to his insulin regimen or lifestyle, he has more frequent and more serious attacks of hypoglycaemia than before.

What is the most probable cause of these changes?

- A Secondary adrenal insufficiency
- B Hypothyroidism
- C Malabsorption
- D Primary adrenal insufficiency (Addison's disease)

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76

A previously healthy 31-year old woman is pregnant with her first child. From week 8-9 of the pregnancy she has had increasing palpitations, feels hot and sweats, in addition to increasing nausea. You are her GP. When you examine her, her blood pressure is 110/55, pulse 74 regular, indications of finger tremors, slightly clammy skin. No struma, no palpation tenderness over the thyroid gland.

Blood test results:

	Patient	Reference range
Serum Human Choriogonadotropin (HCG)	83 000 IE/L	Non-pregnant < 3IE/L
C-reactive protein	3 mg/dl	< 5 mg/L
Free thyroxine (FT4)	30.2 pmol/L	12.0 - 22.0 pmol/L
Thyroid Stimulating Hormone (TSH)	<0.01 mIE/L	0.27 - 4.20 mIE/L
Anti-TPO (Anti-thyroid peroxidase)	25 kU/L	Negative < 35 kU/L Positive ≥ 35 kU/L
TSH receptor antibody (Anti-TSH receptor, TRAS)	< 1.0 IU/L	Negative < 1.0 IU/L Positive ≥ 1.0 IU/L

Which treatment should she have?

- A Start with an antithyroid drug (Neo-Mercazole or Propyltiouracil) at a low dose.
- B Give a beta-blocker at low dose, but not an antithyroid drug (Neo-Mercazole or Propyltiouracil).
- C No treatment, but appointment for check-up of metabolism in 2 weeks.

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77

A 35-year old previously healthy man contacts his GP because over the last 4-5 days he has had sweats and palpitations, and influenza symptoms. At examination his skin is clammy, his lungs are normal, blood pressure 130/ 65, pulse 85 regular, and he has extreme palpation tenderness over his thyroid gland. Blood test results:

	Patient	Reference range
Haemoglobin in blood	14.1 g/dL	13.4 - 17.0 g/dL
C-reactive protein	78 mg/dL	< 5 mg/L
Leukocytes	13.5 x 10 <sup>9</sup> /L	3.7 - 10.0 x 10 <sup>9</sup> /L
Free thyroxine (FT4)	55 pmol/L	12.0 - 22.0 pmol/L
Thyroid stimulating hormone (TSH)	<0.01 mIU/L	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

What is the most probable diagnosis?

- A Subacute thyroiditis
  - B Graves' disease (autoimmune hyperthyroidism)
  - C Toxic adenoma in the thyroid gland
- 

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**78**

A 60-year old man has an appointment with you because of episodes with sweating, palpitations and anxiety. You measure his blood pressure which is considerably elevated. You refer him for CT of the adrenals which reveals a tumour on the left side. You also order blood tests. What do you expect the results of the blood tests to show in this patient?

- A High cortisol, low ACTH
  - B high levels of metanephrine and normetanephrine (catecholamines)
  - C high cortisol high ACTH
  - D high aldosterone, low renin
- 

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**79**

A 60-year old woman has an appointment with you because of episodes of sweating which have increased in recent months. Together with this she also has palpitations and anxiety. You measure her blood pressure which is considerably elevated. You now refer her for CT of the adrenals and blood tests. CT reveals a left-side tumour, while the blood results are compatible with pheochromocytoma. The patient has previously been healthy. How would you treat this patient?

- A Treatment of the blood pressure with beta-blockers and supplementation with other blood pressure-lowering drugs if no effect.
  - B Pre-treat with alpha-blockers for about 2 weeks and then surgery
  - C Treat the blood pressure with alpha-blockers and follow the patient with 6-monthly check-ups
  - D Immediate surgery to remove the tumour
- 

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**80**

A 65-year old woman comes to her GP because of acute back pain that started after a fall on the ice. Previously she has had a fracture of her forearm in connection with a small trauma. She visits her GP wondering whether she can have osteoporosis. She uses a proton pump inhibitor for dyspepsia problems, otherwise she has previously been healthy. Physical examination reveals a height loss of 6 cm.

What treatment would you give this patient in addition to calcium and vitamin D supplements?

- A denosumab (Prolia) s.c. every 6 months
  - B Alendronic acid perorally once a week
  - C Oestrogen/gestagen
  - D zoledronic acid (aclasta) i.v.
- 

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**81**

A 65-year old woman comes to her GP because of acute back pain that started after a fall on the ice. Previously she has had a fracture of her forearm in connection with a small trauma 4 years ago. She has had treatment with Calcigran forte and Alendronic acid after the break. X-ray of the spinal column reveals two compression fractures. Bone density measurement reveals persistent pronounced osteoporosis.

What treatment is now indicated for this patient?

- A Zoledronic acid (Aclasta)
  - B Teriparatide (parathyroid hormone analogue)
  - C Continued Alendronic acid
  - D Denosumab (Prolia)
- 

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82

While being investigated for osteoporosis, a 65-year old man is shown to have high calcium and low phosphate, normal kidney function. He has also recently had a kidney stone. Otherwise his general health is good. What is the most probable reason for his hypercalcemia?

- A Familial hypocalciuric hypercalcemia
- B Primary hyperparathyroidism
- C Myelomatosis
- D Tertiary hyperparathyroidism

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83

A 55-year old woman has been shown to have hypercalcemia at a routine check-up. Her serum level of active vitamin D (1,25 vit D) was elevated, while the serum level of parathyroid hormone was normal.

Which of these conditions explain this pattern?

- A Primary hyperparathyroidism
- B Myelomatosis
- C Sarcoidosis
- D Vitamin D intoxication

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84

A 45-year old woman has an appointment with you, her GP, because she is afraid of getting a serious disease in her breasts. She examines herself sporadically, and is a little unsure of whether this is good enough. She wants a doctor to examine her.

**How do you examine this woman?**

- A You ask the patient to pull up her clothes on the upper part of her body. You examine both breasts and the relevant lymph nodes which are the supraclavicular, infraclavicular and axillary nodes.
- B You ask the patient to undress the upper part of her body. After visual inspection, you examine both breasts and the relevant lymph nodes which are the supraclavicular, infraclavicular and axillary nodes.
- C You ask the patient to undress the upper part of her body. After visual inspection, you examine both breasts and the relevant lymph nodes which are the neck, supraclavicular, infraclavicular and axillary nodes.
- D GPs have too little experience with clinical examination of the breasts; so the patient is referred to a breast surgeon.

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85

You are a doctor in the surgical department and see a patient in the out-patients' clinic. This is a 40-year old woman who has been diagnosed with breast cancer. She has had a mammography, ultrasound of the breasts and axilla, and a tissue biopsy has been taken from the tumour. The tumour is reported to measure a good 5 cm. In addition, the axillary lymph nodes have a pathological appearance. You know this patient is to be assessed for chemotherapy before surgery.

**Which investigations should you suggest?**

- A You contact the oncologist and suggest referring the patient for PET CT of the head, spine, thorax, abdomen and pelvis to detect metastases.
- B You contact the oncologist and suggest referring the patient for X-ray of the lungs and ultrasound of the liver to detect metastases.
- C You contact the oncologist and suggest referring the patient for CT of the spine/thorax/abdomen and pelvis, as well as bone scintigraphy to detect metastases.
- D You contact the oncologist and suggest referring the patient for CT of the spine/thorax/abdomen/pelvis to detect metastases.

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86

Bente (36 years old) has macroscopic haematuria and flank pain/discomfort on the left side. During investigation of haematuria, a 3-phase CT is performed comprising a precontrast phase, parenchymal phase and excretory phase.

**Which conditions that cause haematuria are best diagnosed in the pre-contrast phase?**

- A Infection
  - B Concrement
  - C Urothelial tumour
  - D Tumour in the renal parenchyma
- 

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87

A premature baby boy born in week 28 has problems breathing. Because of his prematurity, RDS (respiratory distress syndrome) is suspected. This is also called hyaline membrane disease or surfactant deficiency.

**What would be the typical appearance of an X-ray of the thorax?**

- A Prominent and marked bronchovascular structures
  - B Normal air-containing spaces in both lungs, sharp cardiac and diaphragm contours
  - C Coarse reticular lung densities (paving stone pattern) in both lungs
  - D Somewhat grey lungs bilaterally, with general fine granular pulmonary densities
- 

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88

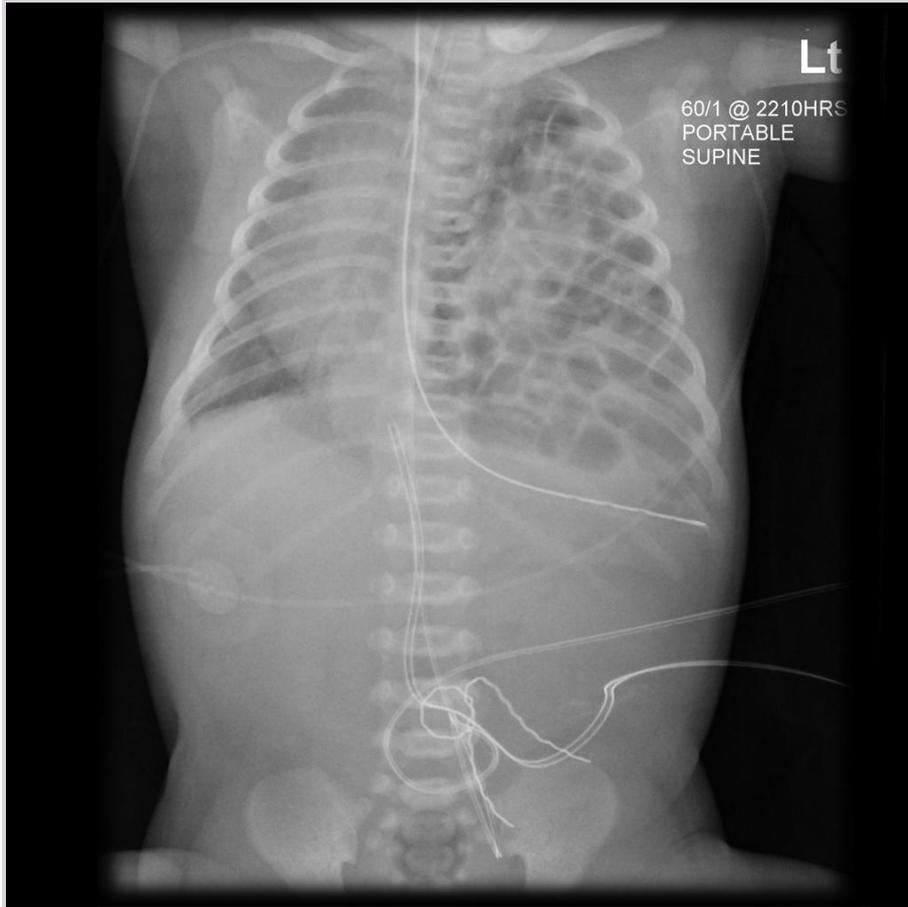
Lars (36 years old) has been diagnosed with proteinuria and haematuria. In addition, his face and legs are swollen. Clinical results indicate a glomerulonephritis.

**How is this diagnosis confirmed using imaging techniques?**

- A Diffusion restriction with diffusion MRI
  - B Imaging techniques are not useful.
  - C High uptake with PET (FDG)
  - D Increased echogenicity with ultrasound
- 

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89



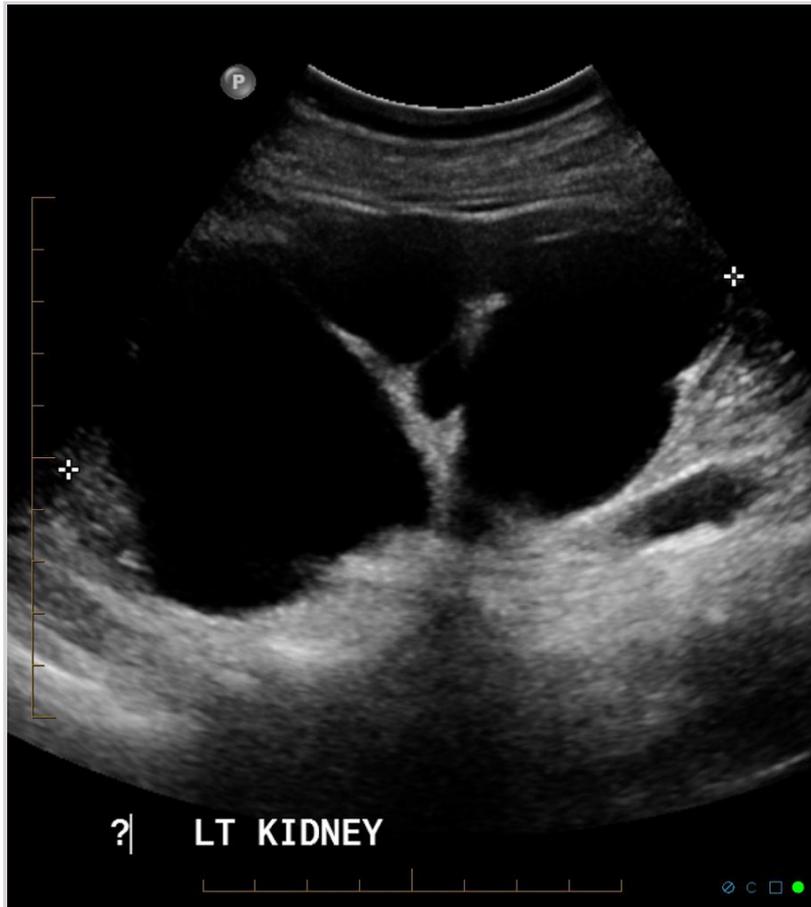
Case courtesy of A.Prof Frank Gaillard, Radiopaedia.org, rID: 6351

A newborn baby became rapidly cyanotic with severely laboured respiration. First an X-ray was taken and, based on this, treatment was initiated. Later, an X-ray of the thorax abdomen was taken, see attached image.

**Which is the most probable condition based on the X-ray of the thorax and abdomen?**

- A Bronchopulmonary dysplasia
- B Diaphragmatic hernia
- C Transient tachypnea of the newborn
- D Meconium aspiration

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Case courtesy of Dr Chris O'Donnell, Radiopaedia.org, rID: 16638

A 65-year old man comes to A&E with strong colic pain in his left flank radiating to the groin. You take a quick presenting history and find out that he has known primary hyperparathyroidism, and has had problems with recurring urinary tract stones. The pain started 3 hours ago, and his general health is poor. You then quickly assess his vital signs and find a pulse of 108, BP 95/70, respiration rate 22, temperature 39.0. The on-call radiologist performs an ultrasound of the left kidney, see the attached image.

**How should this patient be treated?**

- A Ureterorenoscopy with stone crushing must be performed and antibiotic treatment started with cloxacillin + gentamicin i.v.
- B A nephrostomy should be performed and the patient started on antibiotics with ampicillin and gentamicin i.v.
- C ESWL should be performed and antibiotic treatment started with ciprofloxacin + gentamicin i.v.
- D A JJ stent should be inserted and antibiotic treatment started with cefotaxim + gentamicin i.v.

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**91**

Premature babies born before week 32 are routinely examined using ultrasound of the head after the birth.

**What does one primarily want to exclude/demonstrate and for which ultrasound is very suitable?**

- A Brain haemorrhage
- B Hypoxic-ischemic encephalopathy
- C Hydrocephalus
- D Cerebral palsy

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92

Bente (36 years old) has macroscopic haematuria and flank pain/discomfort on the left side. During investigations for haematuria, a 3-phase CT is performed comprised of a precontrast phase, parenchymal phase and excretory phase.

**Which conditions that cause haematuria are best diagnosed in the parenchymal phase?**

- A Tumour in the renal parenchyma
- B Urothelial tumour
- C Concrement
- D Nephritis

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93

A 4-year old boy has been diagnosed with a nephroblastoma (Wilm's tumour) originating in the right kidney. Before starting treatment with chemotherapy and surgery, the paediatrician must investigate the scope of the disease (stage). Supplementary CT of the thorax and abdomen is ordered. We assume that the effective child dose for a CT thorax is 3 mSv and for a CT abdomen 4 mSv.

**What is the radiation exposure time period that is equivalent to background radiation in Norway?**

- A 1.5 months
- B 15 years
- C 1.5 days
- D 1.5 years

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94

Metastases from prostate cancer can spread hematogenously.

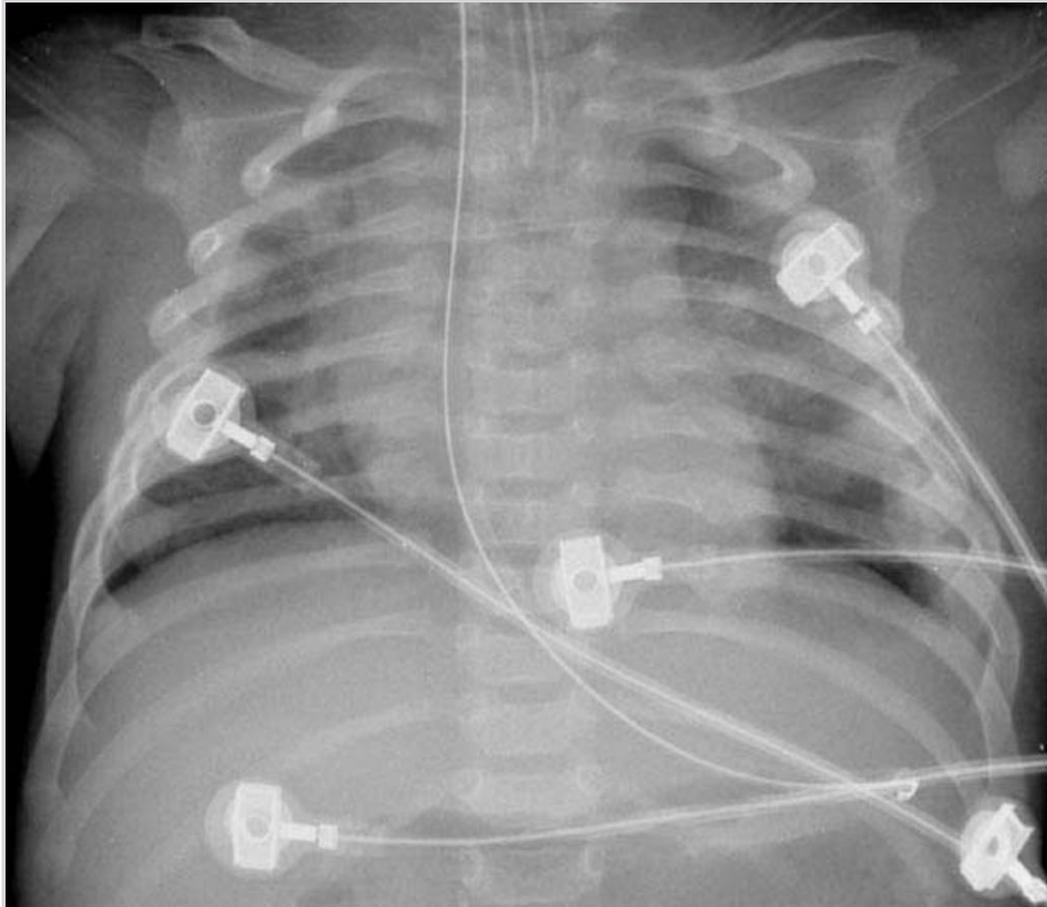
**Which imaging modality is the most important for demonstrating this?**

- A Scintigraphy
- B CT
- C MRI
- D PET-CT with FDG

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95



Case courtesy of Radiopaedia.org, rID: 11675

You are doing foundation training at a small district hospital and you are on duty when a 2-year old boy arrives with his father. The boy is listless and inactive, and you get the impression that he has severe pain in his right hemithorax; he also points vaguely to his navel. The boy has previously been healthy and both the pregnancy and birth were normal. He is allergic to penicillin, citrus fruits and egg. You try to conduct a clinical examination of the boy who gives very poor contact and does not cooperate well. The father tries to reassure him, but the boy responds poorly. As part of investigations, an X-ray of the thorax is taken, see the attached image

**How do you further manage this boy?**

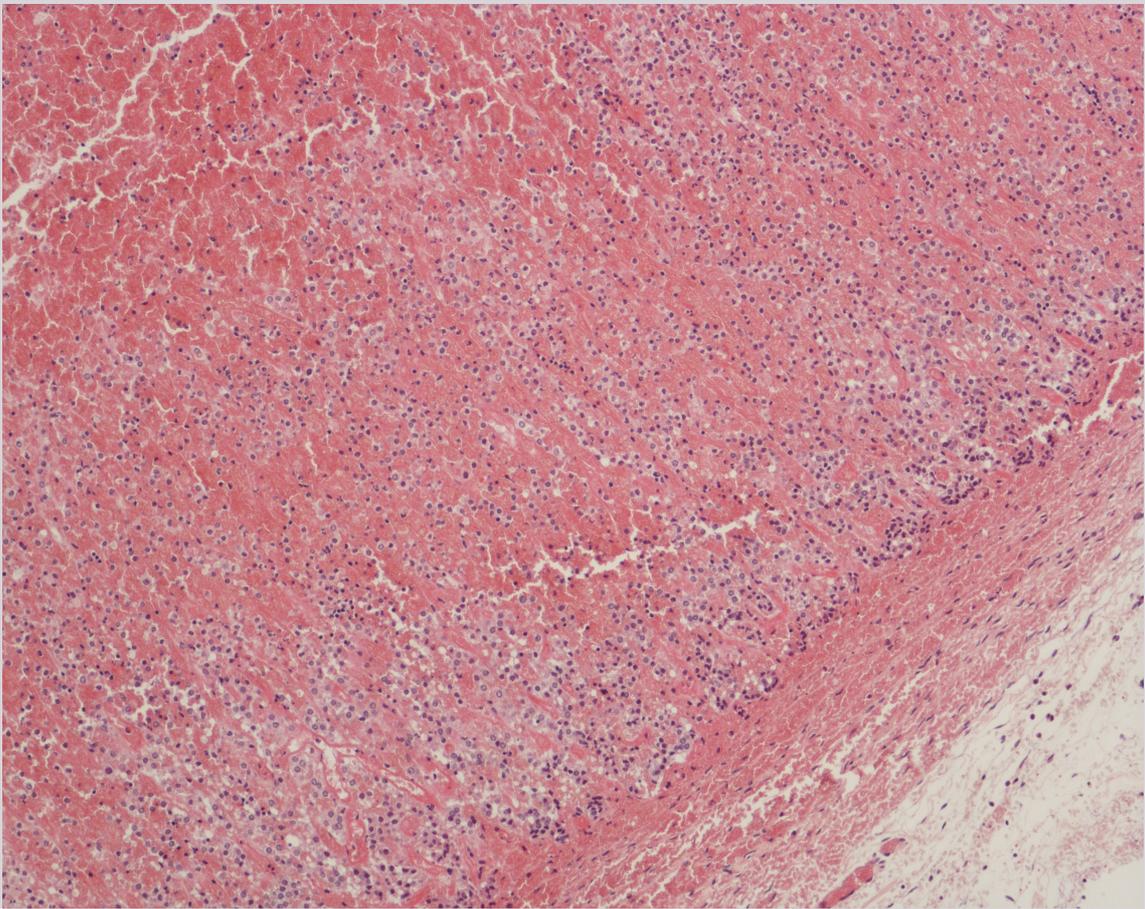
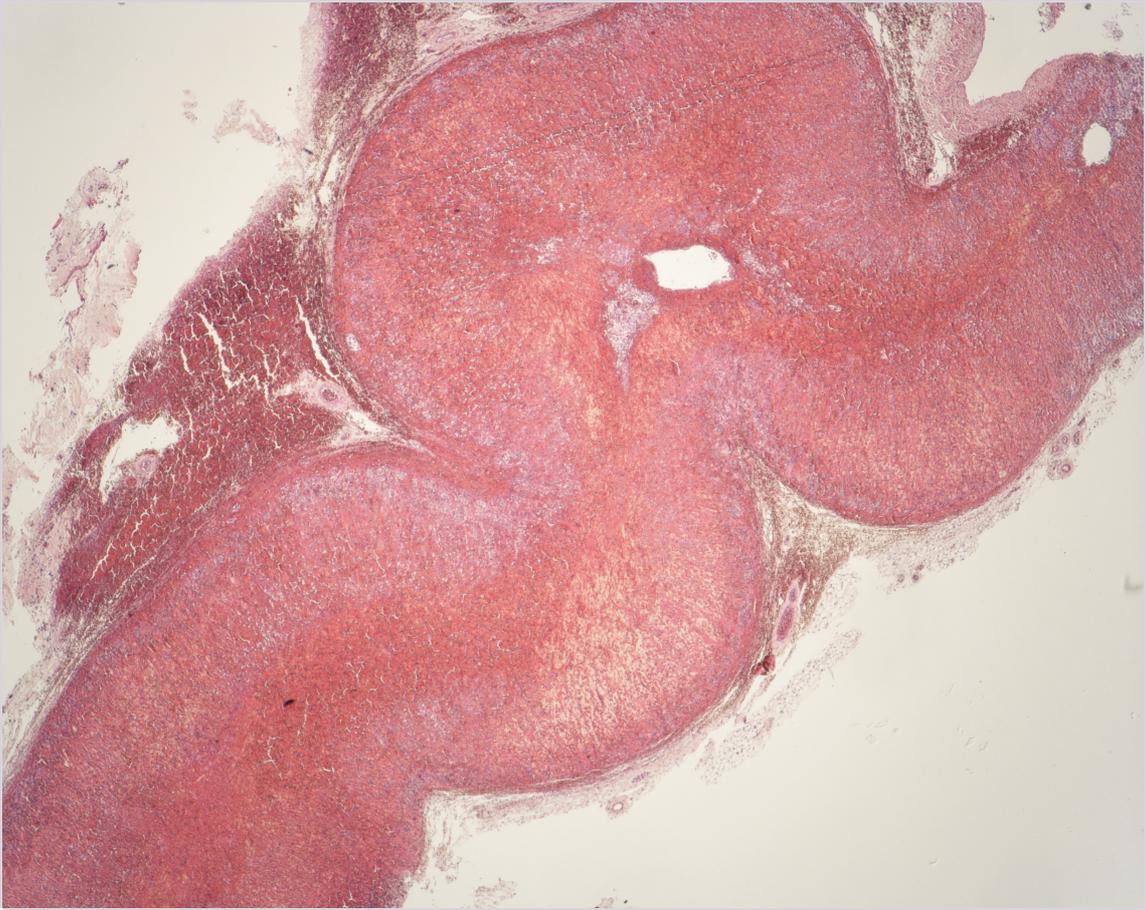
- A You admit the boy to the Paediatric Dept, contact the Specialist Registrar and notify the Child Welfare Services.
- B You order extensive biochemical investigation including ionised Ca, albumin, phosphates, ALP, s-PTH, 25OH-Vit D, and ceruloplasmin, and refer the boy to the Paediatric Medical Outpatients Clinic.
- C You order extensive biochemical investigations including CRP, SR, IgA, IgM, IgG, IgE, specific IgE against citrus, nuts, birch and other known allergens and then refer the boy to the Paediatric Medical Outpatient Clinic.
- D You admit the child to the Paediatric Dept. and start treatment with i.v. erythromycin.

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96

The images present sections from the adrenals (hematoxylin, eosin and saffron (HES) staining, x100 and x400 magnification).

**Which condition is most compatible with the findings in the images?**



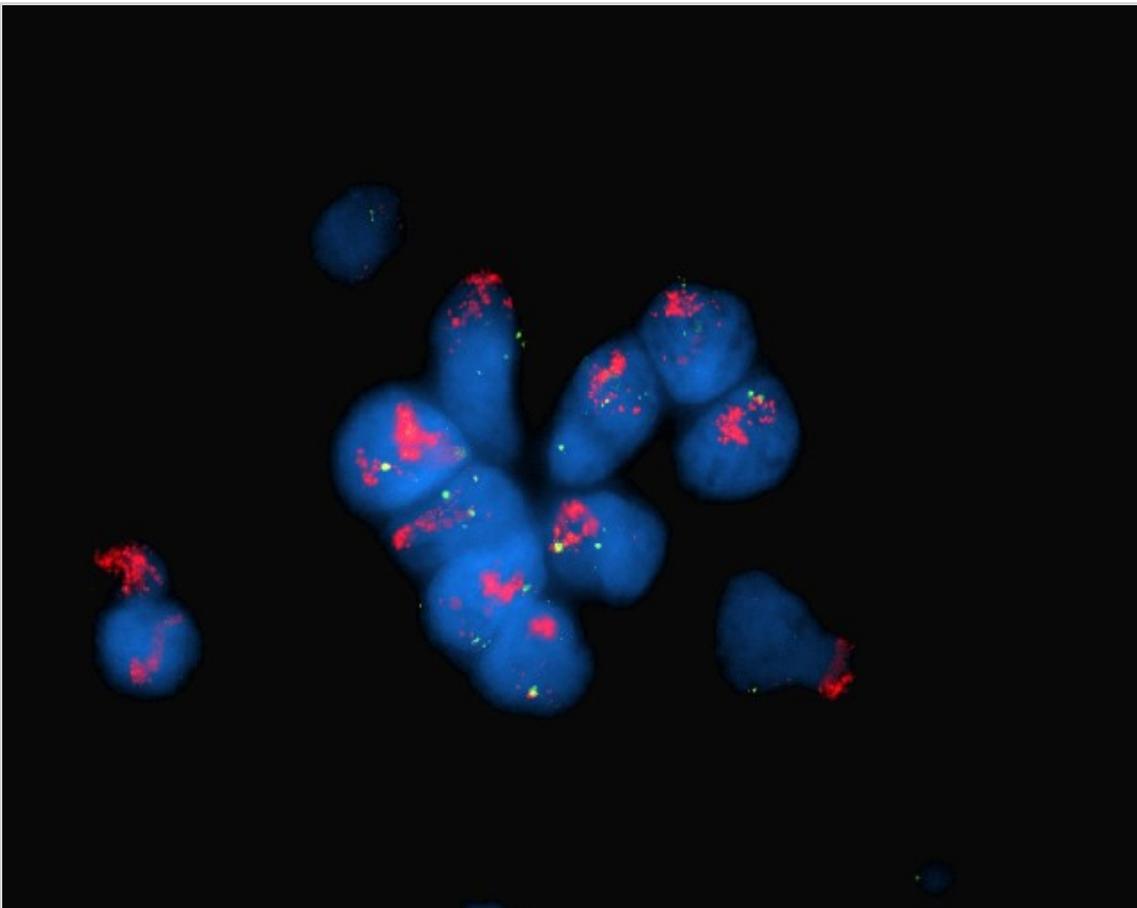
- A** Adrenal with acute adrenal failure triggered by sudden discontinuation of treatment with corticosteroids.
- B** Adrenal with acute adrenal failure as part of DIC (disseminated intravascular coagulopathy): Waterhouse-Friderichsen syndrome.
- C** Adrenal with chronic adrenal failure: Addison's disease.

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**97**

A 50-year old woman felt a lump in her right breast. A biopsy was taken and fluorescence in situ hybridisation (FISH) was performed to investigate the HER2 gene, as shown on the image below. The HER2 gene is labelled with red fluorescence and the chromosome 17 centromere is labelled with green fluorescence.

Based on the image and what you know about HER2, which statement is correct?



- A** The image shows that the HER2 protein is overexpressed in the tumour cells
- B** The image shows that there are repeated mutations in the HER2 gene
- C** HER2 protein overexpression is most often due to a point mutation
- D** The image shows that the HER2 gene is amplified in the tumour cells

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98

Tumours in the ovaries originate in different types of tissue and, of the malignant tumours, serous cystadenocarcinomas are the most frequent.

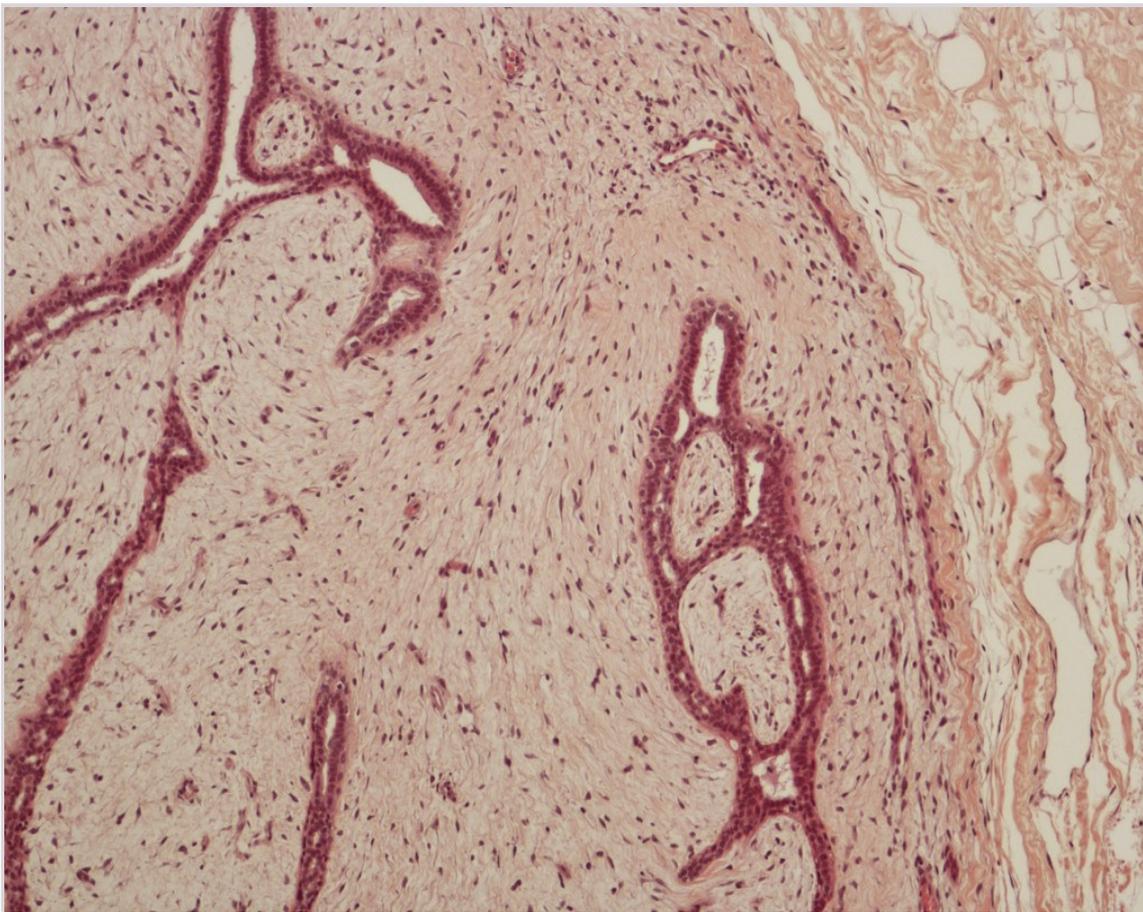
**In which type of cells do these tumours originate?**

- A Sex-cord stromal cells
- B Epithelial cells
- C Germ cells
- D Connective tissue cells

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99

A 24-year old woman has a 5 cm diameter tumour in her right breast. This is removed surgically and the image shows a hematoxylin-erythrosin-saffron (HES) stained histology section from the tumour (x400).



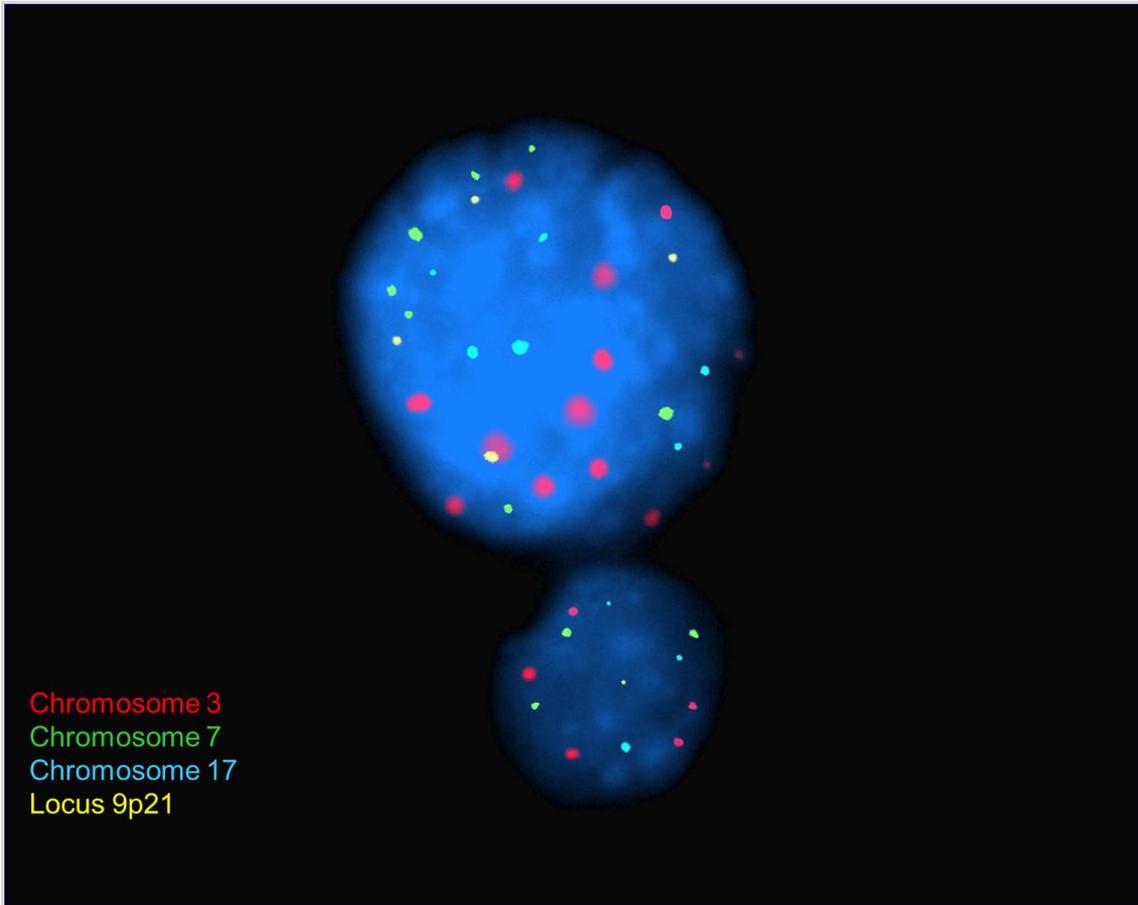
**Which diagnosis is the most compatible with the findings in the image?**

- A Infiltrating carcinoma
- B Fibroadenoma
- C Ductal carcinoma in situ (DCIS)
- D Lobular carcinoma in situ (LCIS)

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100

A 62-year old man who has previously undergone surgery for bladder cancer, has a cystoscopy in connection with his cancer check-up. Cells from the irrigation fluid from the bladder cystoscopy are examined using fluorescence in situ hybridisation (FISH) with probes for chromosome 17, chromosome 3, chromosome 7 and locus 9p21. The image shows two cell nuclei from the sample after hybridisation with the four probes.



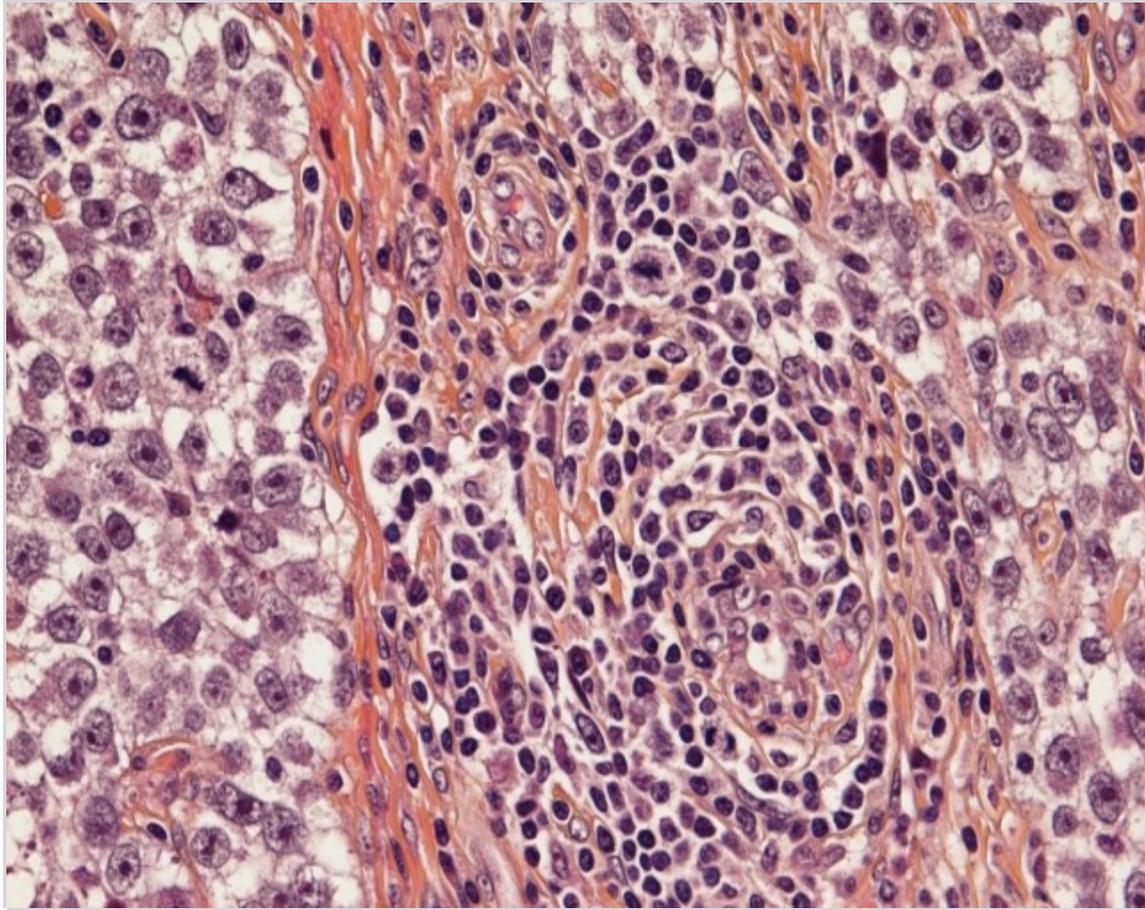
Which answer is most compatible with the findings in the image?

- A Change in the number of copies, compatible with recurrence of urothelial carcinoma
- B Inflammatory cells, compatible with cystitis
- C Normal urothelial cells
- D Reactive changes in the urothelial cells, compatible with effect of treatment

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101

Around 300 new cases of testicular cancer are diagnosed every year in Norway, and about 50% of the patients are younger than 32. Almost 95% of the cases can be classified as seminomas or non-seminomas. The image shows a hematoxylin-erythrosin-saffron (HES) stained histology section from a testicular tumour (x400).



Which diagnosis is most compatible with the findings in the image?

- A Choriocarcinoma
- B Seminoma
- C Teratoma
- D Chronic inflammation

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102

As a foundation doctor at a hospital you see a 2-year old child who is admitted after having been diagnosed with a tumour in one of his kidneys.

What would you consider to be the most probable type of tumour?

- A Nephroblastoma
- B Embryonal carcinoma
- C Sacrococcygeal teratoma
- D Neuroblastoma

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103

A woman in her 30s has had increased urge to urinate and dysuria over the last 3-4 days. Clinical examination revealed no flank pain or tenderness. Urine analysis did not demonstrate glucose, protein or blood, but was nitrite positive with numerous leukocytes. Serum creatinine was normal.

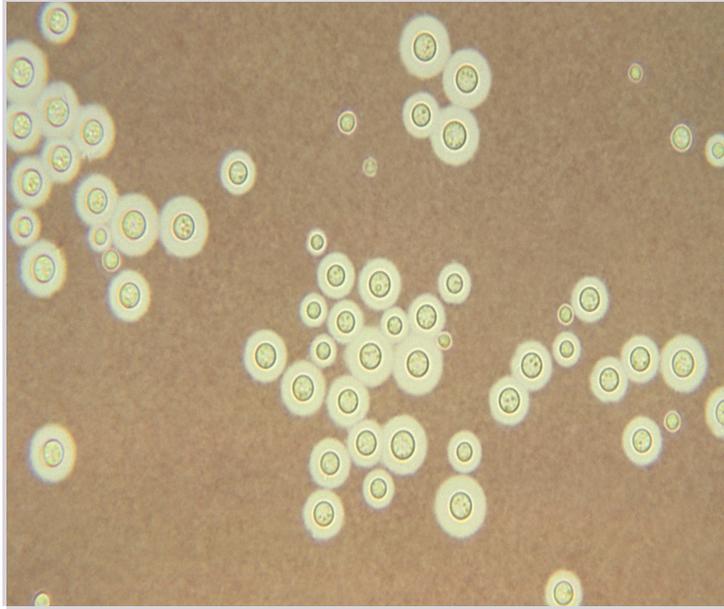
Which of the following diagnoses is the most probable?

- A IgA nephropathy
- B Kidney stones
- C Interstitial cystitis
- D Acute cystitis

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104

A 43 year old man is admitted with a serious infection. Investigations reveal a positive HIV test, and his condition is eventually classified as AIDS. Microscopy of an India ink specimen of spinal fluid (1000x magnification) reveals large round cells with very large capsule (see image below). Antigen test of the spinal fluid for the agent in question is also positive. Which microbiological agent is this?



- A Haemophilus influenzae
- B Neisseria meningitidis
- C Herpes simplex virus
- D Cryptococcus neoformans

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105

Which species of fungus is the most common cause of invasive fungal infections in Norway?

- A Histoplasma capsulatum
- B Trichophyton rubrum
- C Cryptococcus neoformans
- D Aspergillus fumigatus
- E Candida albicans

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106

A man who has just returned from a hunting safari in South Africa comes to your office with a fever (39.5 degrees) and headache. He has some swollen lymph nodes in the neck and a general maculopapulous rash. You find some black crusts (scabs) on both legs with a red ring round. The patient believes these are from tick bites when he was on safari. What is the most probable diagnosis?

- A Malaria
- B Ring worm (fungal infection)
- C Dengue fever
- D Rickettsiosis

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107

A woman who is pregnant in the first trimester comes to your surgery and says she has to urinate frequently and it burns when she urinates. Urine dipstick reveals pyuria. You interpret this as a urinary tract infection and decide to start her on a course of antibiotics. Which antibiotic should you choose?

- A Ciprofloxacin (Ciproxin) tablets
  - B Trimethoprim/sulfamethoxazole (Bactrim) tablets
  - C Amoxicillin (Imacillin) tablets
  - D Mecillinam (Selexid) tablets
- 

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108

You are working as the District Medical Officer and want to try to limit the number of new HIV cases in the municipality through an information campaign. Which risk groups should you preferably direct your campaign at as most of the new cases will occur in these groups?

- A Female prostitutes and immigrants from Asia
  - B Men who have sex with men and drug addicts who inject
  - C People with a compromised immune system and drug addicts who inject
  - D Men who have sex with men and immigrants from Africa
- 

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109

A patient who has a severely suppressed immune system with high dose corticosteroids is admitted with breathing problems and fever. X-ray of the thorax reveals no infiltrates. Which investigation should you do next?

- A High resolution CT (HRCT) of the thorax to detect a lung infection
  - B CT of the pulmonary arteries to detect a pulmonary embolism
  - C US urinary tract to detect a urinary tract infection
  - D CT head to detect a brain abscess
- 

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110

When kidney function is impaired a number of analgesics must be used with particular care. The dose must often be reduced, and dose escalation must be done with care.

**However, this is not the case for the widely used analgesic paracetamol. Why not?**

- A Because the therapeutic window of paracetamol is so wide that dose adjustments are not necessary
  - B Because a variable and significant part of an administered dose of paracetamol is excreted via the kidneys
  - C Because the toxic metabolite NAPQI is produced in low and non-dangerous concentrations in impaired renal function
  - D Because paracetamol is almost exclusively conjugated to inactive metabolites in the liver
- 

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111

Therapy options in hyperthyroidism include antithyroid drugs, radioactive iodine therapy and surgery. Which other drug group is often used in the symptomatic treatment of hyperthyroidism?

- A Non-selective beta-blockers
  - B Alpha-blockers
  - C Combined alpha- and beta-blockers
  - D Selective beta-blockers
- 

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112

One clinically important difference between angiotensin receptor blockers and ACE inhibitors is that the angiotensin receptor blockers have a lower risk of dry cough and angioneurotic oedema. This is linked to the biological effects of bradykinin.

**What mechanism is involved?**

- A Angiotensin receptor blockers inhibit bradykinin by blocking bradykinin receptors
- B ACE inhibitors inhibit breakdown of bradykinin via ACE
- C ACE inhibitors increase synthesis of bradykinin
- D ACE inhibitors increase activation of bradykinin in plasma

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113

A 27-year old woman with epilepsy has an appointment with her treating neurologist and says that she is pregnant. Her last period was 7 weeks ago. She takes levetiracetam and lamotrigin and has had no episodes with seizures for several years. Repeated serum concentration measurements over the last few years have shown levels of both drugs in the middle of the reference range. The neurologist orders new blood tests which reveal levels of both levetiracetam and lamotrigin about 40% lower than previous measurements. The neurologist knows the patient to be very conscientious and has all reason to believe that she takes her medicines regularly, which she also confirms when asked about this.

**What is the most probable explanation of the drop in serum concentration?**

- A Decreased absorption due to reduced gastrointestinal motility
- B Increased volume of distribution via an increase in body fat
- C Increased elimination of drugs via the kidneys
- D Dilution effect due to fluid retention in the body (increased "total body water")

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114

A number of drugs can increase the QT interval on ECG and trigger a special form of ventricular tachycardia, torsades de pointes. This arrhythmia can progress to ventricular fibrillation and result in death.

**Which of the antibiotics below are associated with this adverse effect?**

- A Erythromycin
- B Phenoxyethylpenicillin
- C Gentamicin
- D Dicloxacillin

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115

You are the GP for a 57-year old man who has recently been investigated for high blood pressure. You have diagnosed moderate essential hypertension and, based on his total cardiovascular risk profile, have found indication for antihypertensive treatment. He is otherwise quite healthy, but has Raynaud's syndrome, an idiopathic condition with episodic painful circulatory failure in the fingers and toes, which can be quite troublesome. It is now time to choose the antihypertensive drug.

**Of the various categories of blood pressure-lowering drugs, one type could be particularly useful for this patient, which one?**

- A Beta-blockers (e.g. metoprolol)
- B Calcium blockers (e.g. nifedipine)
- C Thiazide diuretics (e.g. hydrochlorothiazide)
- D ACE inhibitors (e.g. lisinopril)

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116

Morphine is commonly a first-choice treatment for patients with opioid-requiring acute pain. However, in patients with renal failure, use of morphine can pose problems.

**Which of the following alternatives would be the best in this case?**

- A Refrain from giving opioid analgetics
- B Pethidine
- C Codeine
- D Oxycodone

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117

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

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

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

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

**Which antihypertensive drugs are the most appropriate for this patient?**

- A ACE inhibitor and calcium antagonist
- B ACE inhibitor and thiazide
- C Calcium antagonist and thiazide
- D ACE inhibitor and beta-blocker

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118

You diagnose hypertension in a patient, and consider starting drug therapy. Some drugs can cause hypertension as an adverse effect.

**Which drug group is particularly associated with this effect?**

- A Opioid analgesics
- B Aminoglycosides
- C NSAIDs
- D Dopaminergic antiparkinson agents

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**119**

Biological availability or bioavailability is a central pharmacological variable that determines for example whether a drug can be given orally.

**What is the definition of this term?**

- A** The fraction of an ingested dose of the active substance that passes unmetabolised through the portal vein.
- B** The fraction of an ingested dose of the active substance that is absorbed from the intestines.
- C** The fraction of an ingested dose of the active substance that appears in the systemic circulation.
- D** The fraction of an ingested dose of the active substance that is not bound to albumin or other plasma proteins.

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