

2019 - IID - MD4043 - eksamen 2
Eksamensdato: 2019-08-14

1

A previously healthy 55-year-old woman. Para 0. Menopause at age 48 years. Has used HRT (hormone replacement therapy) since the menopause; no postmenopausal bleeding. Over the last two months has noticed increasing pressure in her abdomen and frequent urination urge as well as problems with bowel emptying. Two years ago she had a gynaecological examination with cervical cytology screening which was normal. Her mother and an aunt (mother's sister) both underwent surgery for breast cancer in their fifties. A cousin (daughter of her mother's brother) was diagnosed with breast cancer at the age of 46 years. At gynaecological examination you palpate a large pelvic mass that is not very mobile.

What is the most probable diagnosis?

- A** Sigmoid diverticulitis
- B** Uterine sarcoma
- C** Rectal cancer
- D** Ovarian cancer

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2

The purpose of the Norwegian Cervical Cancer Screening Programme is to prevent cervical cancer by offering a screening test taken from the uterine cervix. What are the current recommendations from the Norwegian Cancer Registry?

- A** Cervical cytology every 3rd year for the age group 25-33 years and primary HPV test for the age group 25-69 years
- B** Cervical cytology every 3rd year for the age group 25-69 years and HPV test in addition if cytology is abnormal
- C** Cervical cytology every 3rd year for the age group 25-69 years
- D** Primary HPV test every 5th year for the age group 25-69 years

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3

A 44-year old woman has given birth to four children. She had slight problems with urinary incontinence during her last two pregnancies. This has gradually got worse over the last two years and means that she can no longer exercise.

What is the most important action you can do as her GP?

- A** Refer for a CT urinary tract scan
- B** Refer for cystoscopy
- C** Take a urine dipstick
- D** Perform a gynaecological examination

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4

A 45-year old woman attends your surgery in the countryside where you work as an intern. The nearest hospital is a 3-hour drive away. She complains that she no longer desires to have sex with her husband. This has become a problem in their marriage.

What is the most correct course of action?

- A** Recommend topical oestrogen treatment
- B** Explain that this is common for her age group and that the nearest sexologist is too far away to refer her for this
- C** Recommend an intrauterine hormonal device and a transdermal oestrogen patch
- D** Refer her to a sexologist; recommend that her husband also attends

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5

You suspect that a 23-year-old woman, who currently does not want children, has PCOS. You requisition TSH, prolactin and 17-OH progesterone. In addition to these tests, which combination of hormone tests will be the most useful in clarifying the diagnosis?

- A** Testosterone, SHBG and DHEAS
 - B** Testosterone, oestrogen and FSH
 - C** Testosterone, progesterone and LH
 - D** Testosterone, oestrogen and progesterone
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6

A 25-year-old woman has attacks of migraine that often start with vision disturbances. What type of contraceptive would be most suitable for her?

- A** Transdermal contraception (patch) (Evra®)
 - B** Mini-pill (Conludag®)
 - C** Progestin-only contraceptive pill containing desogestrel (among others Cerazette®)
 - D** Low dose combined oral contraceptive pill (oestrogen and progestogen)
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7

A young couple (both 27-years-old) come to see their GP because of an unfulfilled wish for a baby. The woman had an early miscarriage just about a year ago. Over the last couple of years the woman has gained almost 10 kg weight, and her BMI is now 30 kg/m². She says that she rarely has menstrual periods (3-4 times a year).

What should be your first action to help this couple?

- A** You suspect that she has PCOS (polycystic ovary syndrome), and prescribe Metformin tablets
 - B** You refer her to the gynaecologist for ovulation stimulation
 - C** You give both her and her husband dietary and lifestyle advice and give her an appointment to check her weight etc. in 3-4 months
 - D** You assess the couple as psychosocially and medically suitable for assisted reproduction therapy and refer them to the fertility clinic
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A 32-year old woman has been very bothered by urinary incontinence after she gave birth to her second child 4 months ago. She is still breastfeeding and her periods have not yet returned. She is not using any contraception, and may want more children. She leaks urine several times a day when she is exercising, when she plays with the oldest child and when she coughs or sneezes. The GP writes a reimbursable prescription for incontinence pads.

Which action is the most correct for the doctor to recommend now?

- A** Give her a prescription for topical oestrogens and anticholinergic drugs
 - B** Refer her for surgery because she has such a large leakage meaning she will have to have surgery anyway
 - C** Refer her for electrostimulation of the pelvic floor muscles
 - D** Encourage her to do pelvic floor exercises and prescribe topical oestrogens
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9

A 45-year-old woman attends your surgery as her GP because of irregular and, at times, heavy periods over the last six months. Prior to this, she has had regular monthly periods. She has followed the Norwegian Cervical Cancer Screening Programme, her last cytology test was taken 2 years ago and was reported to be normal. You perform a gynaecological examination and then find normal conditions at inspection of the cervix. You palpate a normally-sized uterus. You take an endometrial biopsy (Pipelle®) and histology reveals non-atypical endometrial hyperplasia. What is the first-line treatment for this type of patient?

- A** Progestin intrauterine contraceptive device
 - B** Curettage (abrasio) of the uterine cavity
 - C** Cyclical oral progestins
 - D** Combined hormonal treatment (progestin + oestrogen)
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10

A 37-year-old woman sees you as her GP. She is gravida 0, but now wants to have children. The patient underwent laparoscopic left-sided oophorectomy 5 years ago due to a 10 cm endometriosis cyst. Extensive endometriosis changes were found at the same time in the lesser pelvis. She has taken a combined contraceptive pill since the operation. A check-up with the gynaecologist 2 years ago revealed a 3 cm probable endometriosis cyst corresponding to the right ovary. She is asking for advice to get pregnant.

What is the most correct advice you can give?

- A** You tell the patient to stop taking the pill, and instead give her a progestin (e.g. Visanne® (dienogest)) and NSAIDs with a follow-up appointment in 6 months
 - B** You give the woman medical treatment with an ovulation inducing agent
 - C** You tell the patient to stop taking the pill and try to get pregnant spontaneously over the next 12 months, before referring for fertility investigation and treatment, if necessary
 - D** You refer the woman and her husband for fertility investigation and treatment
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11

A number of standard blood tests are taken at the first antenatal care check-up. One of these is screening for rubella antibodies.

You get the following results for one of your pregnant patients: IgM negative, IgG negative.

What is the most correct course of action?

- A** Recommend rubella vaccination in the postpartum period
 - B** Recommend prophylactic treatment with aciclovir
 - C** Recommend rubella vaccination as soon as possible
 - D** Recommend early ultrasound of the fetus
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12

You are the GP substitute. You are monitoring the antenatal care check-ups of a woman who is pregnant for the first time. In gestation week 32, you measure a long SFH (symphysis-fundus height). You refer her for ultrasound fetometry and are told the fetus has an estimated growth deviation of +25%. You perform a glucose tolerance test, with 75 g glucose orally.

The results are: Fasting glucose: 5.2 mmol/L After 2 hours: 11.5 mmol/L

What is the most correct way to manage this situation?

- A** Refer to the Obstetrics Department to assess the delivery method
 - B** Refer to a Specialist Department to start diabetes treatment
 - C** Provide dietary and lifestyle guidance and training in measuring blood glucose
 - D** Start treatment with metformin
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13

The patient is gravida 1, para 0, and is now pregnant in week 37. She has been for check-ups in the primary healthcare services and, so far, the pregnancy has been normal. Over the last few days she has felt less fetal movements, and today she has not felt any fetal kicking. Examination at the hospital concludes "no fetal heart beat".

What is the most important risk factor for intrauterine fetal death?

- A Knot on the umbilical cord
- B Growth restriction
- C Congenital malformations
- D Rhesus immunisation

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14

A woman in her 30s is gravida 1, para 0, and previously healthy. She is now admitted to the Obstetrics Ward with suspected preeclampsia in gestational week 30. Her GP had measured a blood pressure of 178/110 and found proteinuria 2+ with urine dipsticks. Repeated measurements gave an average blood pressure of 182/124, and proteinuria 3+ using urine dipsticks. The on-duty doctor decided that the blood pressure ought to be reduced using drugs.

Which drug should the doctor preferably choose initially?

- A Enalapril (ACE inhibitor)
- B Labetalol (alpha-1-beta receptor antagonist)
- C Candesartan (angiotensin II receptor antagonist)
- D Spironolactone (aldosterone antagonist)

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15

What is a blastocyst?

- A The same as the yolk sac
- B Fertilised egg cell before it has divided for the first time
- C Early embryo differentiated into an inner cell mass surrounded by a cavity and bordered by the trophoblast cells
- D Undifferentiated cell mass (2-3 days after fertilisation), also called morula

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16

Monochorionic, diamniotic (MCDA) twin pregnancy only has one placenta and therefore there is an increased risk of serious complications.

Which kind(s) of serious complication(s) may occur in a MCDA pregnancy (which of the following statements is correct)?

- A Different intrauterine growth cannot happen in MCDA pregnancies because these twins share the same placenta and will therefore always be approximately the same size.
- B The Twin anemia-polycythemia sequence (anaemia in the one twin, polycythemia in the other). But this is just another name for the Twin-twin transfusion syndrome and is not a separate condition.
- C The Twin-twin transfusion syndrome. It is the only serious complication that is specific for this type of pregnancy.
- D The Twin-twin transfusion syndrome, the Twin anemia-polycythemia sequence (anaemia in the one twin, polycythemia in the other), and different intrauterine growth are three distinct complications, all of which are associated with MCDA pregnancies.

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17

Which operative delivery method is the most common in Norway?

- A Manual rotation
- B Forceps
- C Vacuum
- D Caesarian section

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18

What is the relationship between the alcohol percent in the mother and the alcohol percent in the placenta, in the fetus or a newborn breastfeeding baby?

- A Alcohol does not cross the placental barrier.
 - B Alcohol is concentrated in the placenta.
 - C The alcohol concentration in the fetus can be higher than or the same as in the mother.
 - D Neonates will have the same alcohol percent as the alcohol percent in the breast milk.
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19

Which infectious disease are pregnant women more predisposed to than non-pregnant women?

- A Malaria
 - B Syphilis
 - C Borrelia
 - D Rubella
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20

What is the most common cause of heavy bleeding that occurs 3 weeks after a vaginal delivery?

- A Undetected cervical tear
 - B Atonic uterus
 - C Retained products of conception
 - D Thrombocytopenia
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21

A 5-year-old boy attends the GP surgery together with his mother. His mother says that she is having problems getting the boy to sleep well, he is very active, highly resistant to transitions, he will only wear one specific pair of trousers, he easily gets into conflicts with other children and is clumsy. You suspect a neuropsychiatric disorder. What characterises this type of disorder?

- A Normal cognitive development, transient difficulties, known genetic predisposition
 - B Impaired cognitive development, genetic predisposition, often comorbid conditions
 - C Normal cognitive development, genetic predisposition, rarely comorbidity
 - D Impaired cognitive development, known biological cause, often comorbid conditions
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22

You are a doctor in general practice. A girl (14 years old) and her mother have an emergency appointment. The girl has previously been healthy, compliant and hard-working at school. The last six months she has been more irritable, will not eat dinner with the family, and her mother hears her exercising in her room in the evenings. The mother has not seen that the girl has vomited, but is concerned about a serious illness because of weight loss. The girl had menarche around 12 years of age, but has not had periods for the last 3 months. The patient herself says she is healthy, and that there is no danger if she loses weight as she has thick thighs. At examination you find: Height 160cm, weight 36 kg (BMI 14, 2 kg below the 2.5 percentile) BP 90/70, pulse 55, blood glucose 5, Hb 13. Apart from emaciation, she appears to be in good general health. What is the most probable diagnosis?

- A Anorexia nervosa
 - B Atypical anorexia nervosa
 - C Atypical bulimia nervosa
 - D Bulimia nervosa
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23

For some time, a 16-year-old girl has had problems functioning at school, she is absent a lot and describes periods with depressive symptoms. Clinically she does not appear depressed. She has also had episodes of self-harming over time. In addition, she, her parents and the school describe mood swings occurring over many years, and social problems with very intense friendships which she breaks off completely in response to conflicts. Is consideration of the diagnosis personality disorder relevant?

- A** It is relevant to consider investigation for personality disorder, and this must be viewed against a broad differential diagnostic evaluation.
- B** It is relevant to consider investigation for personality disorder because the problems have existed over a period of time.
- C** It is not relevant to consider a diagnosis of a personality disorder because the problems have only existed for a couple of years.
- D** It is not relevant to consider diagnosing or diagnose personality disorder in adolescents younger than 18.

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24

A 10-year-old girl attends your GP surgery together with her father. The last 3 weeks she has complained of headache every day. She won't go to school in the morning, and is tired in the afternoons. The days she can stay at home, she is fine. The headache normally passes after 5-10 minutes. She has previously been healthy with normal development. Her parents are separated, described as a good cooperation. Her little sister aged 5 has recently been diagnosed with diabetes mellitus type I. Her best friend moved to another school 3 months ago, and she has had problems fitting in socially since this. What is the most probable diagnosis?

- A** Diabetes mellitus type I
- B** Migraine
- C** Tension headache
- D** Depression

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25

Over the last year, a 17-year-old girl has increasingly stayed at home from school, stopped doing activities that she previously enjoyed, and avoided social contact with friends. The last two months she has only been at home and mostly stayed in her room. Her parents describe her as depressed, apathetic and they feel that she appears to see and hear things that aren't there. Which statement is the most correct?

- A** The schooling situation should be better adapted for the girl and she should be helped to return to school
- B** The girl appears severely depressed and should be investigated for bipolar disorder
- C** The girl appears severely depressed and one should recommend starting with SSRI
- D** The girl has possible positive and negative psychotic symptoms and should be investigated for a psychotic disorder

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26

Beatrice 17 years old has come to the GP surgery. She lives with her mother, father and two younger brothers. Since 10th grade in secondary school she has had a low mood and struggled with negative thoughts about herself. She did however get her 10th grade approved and has started at upper secondary school studying the subjects she wanted. She is enjoying school. She has a boyfriend and started taking the contraceptive pill in the spring of 10th grade, and uses a combination pill. She was prescribed this because of very strong period pain as well as wanting a contraceptive. She attends with her mother. She doesn't understand why she is so depressed. Her mood is low, everything feels difficult, nothing makes her happy and she has repeating negative thoughts. She does not have suicidal thoughts. She is somatically healthy and you do not find anything wrong after a physical examination. Blood tests taken for depression are normal. What is the first thing you must do?

- A** Refer her to the nearest BUP clinic
- B** Provide psychoeducation about risk factors for depression
- C** Help her change her behaviour by using cognitive behaviour therapy
- D** Start with drug treatment to be available for counselling

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27

As a GP you meet a 15-year-old boy. He has severe behavioural problems (Conduct disorder). His mother says that as a 6-year old he hit other children, terrorized their cat so much they had to give it away, and set fire to the neighbour's rubbish. Aged 13 he stole a car. He is now accused of selling drugs.

What is the prognosis in regard to his mental health, education and social situation as an adult?

- A** He has the poorest prognosis because causing fire is a sign of severe conduct disorder
- B** He has the poorest prognosis because his problems debuted early in childhood and have persisted
- C** He has the poorest prognosis because terrorizing the cat indicates a lack of empathy, so-called 'callous unemotional'
- D** He has the poorest prognosis because he has severe conduct disorder as a teenager

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28

A girl aged 17 attends your GP surgery. She has attacks that occur just about every week. These attacks can last 5-20 minutes and are accompanied by loss of memory. During attacks she does not react to contact, is remote, does not fall, but sometimes other people have observed that she has cramps in her arms. She has been thoroughly examined by a neurologist, and there is no evidence for a neurological disease. You know that she has had a turbulent childhood with an alcoholic mother and violent father. She moved into a foster home when she was 8, was raped by an older boy who was a neighbour when she was 14, and at times has been the object of serious bullying at school. She now lives in a bedsit, attends upper secondary school and works Saturdays in a bakery. Most attacks occur when she is at school, for example during exams or presentations. What is the most probable diagnosis?

- A** Personality disorder
- B** Dissociative disorder
- C** Post traumatic stress disorder (PTSD)
- D** Epilepsy

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29

You are a GP, and one day a woman and her 4-year-old son come to your office. She says that she and her son have been living in a Crisis Centre for 2 weeks after her husband had been violent towards her. She says that the boy was asleep in his room during the violent episodes, and probably heard nothing. You notice that the boy appears uneasy, his mood switches from being angry and commanding to his mother to sorry and wanting help from her with the toys. The mother's attempts to help increases his anger and frustration, and she cannot help him regulate this effectively. Is the child's behaviour alarming? Why or why not?

- A** No, the child appears to have normal reactions for his age, and the mother is convinced that he has not seen any violence towards her.
- B** Yes, rapid emotional changes in the child, his commands to his mother and the mother's problems regulating his feelings can indicate a disorganised attachment.
- C** It is impossible to draw any conclusions based on these observations. Before you can make an assessment, you must have more information and see the mother and son together on several occasions.
- D** Yes, the boys aggressive behaviour indicates that he has witnessed the violence towards his mother, and can also indicate that he too has been the victim of violence from his father.

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30

A mother attends your GP surgery with her 5-year-old son. She is very concerned about her son's situation in the nursery school. She experiences him as a very clever, smart boy; she mentions that he knows more about outer space than she does, and that he has already taught himself to read. She says that he functions well at home, he is a very good boy, involved doing his own things and requires little activation by his parents. She says that as a family they like to have their routines, and rarely have visitors in their home. She says he can become very difficult when they have to go out, because he is busy with his activity. Moreover, the nursery school have notified concerns about a lot of anger and conflicts if he doesn't get to do what he wants, and he doesn't play with the other children. The boy reads a book while the mother is talking. He doesn't take part in the conversation, and does not make eye contact. He suddenly talks loudly about the mini planet Pluto. Which diagnosis would you want to investigate further?

- A** Attachment disorder
 - B** Separation anxiety
 - C** Autism spectrum disorder
 - D** Behavioural disorder
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31

Muhammed is 8 years old and previously healthy. He attends Paediatrics Outpatients with his mother and father. He has been referred by their GP who has taken general blood tests including tests for coeliac disease, stool culture/PCR, lactose gene test, and Calprotectin in faeces all of which are normal. The family are from Irak, they speak good Norwegian and are happy to be in Norway. The father and 4 siblings are healthy. The mother has a sensitive stomach and has been treated for a stomach ulcer. Since the 1st grade, Muhammed has had recurring stomach pains in the lower abdomen during the day, generally after dinner; but he also has to run to the toilet during dinner. The stomach pains often improve after defaecation. He has a lot of flatulence and his parents says that it has a strong smell. He doesn't go to the toilet at school and his mother says that his bowel movements are loose and explosive with several movements a day, even though he himself says a little embarrassed that they are 'normal'. At examination you find he has good general health and normal weight. Abdominal sounds are lively. He has palpation tenderness in the left fossa, no definite masses. What do you do?

- A** Refer the boy for gastroscopy or urea breath test for Helicobacter pylori diagnosis.
 - B** Refer him for gastro- and colonoscopy for inflammatory gastrointestinal disease.
 - C** No action as you consider the boy's problems to be non-specific. Ask the parents to contact the GP again if they get worse.
 - D** Start treatment for suspected chronic constipation with pseudodiarrhea
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32

At the routine newborn assessment of a baby the day after birth, you find a systolic murmur without radiation. There is a normal-sized liver and normal inguinal pulse. The child has normal oxygen saturation at routine screening using pulsoxymetry. The child otherwise appears to be healthy and return home is planned for the next day.

What is your next step in regard to the murmur?

- A** Check the murmur the next day and wait with a referral to a Paediatric Cardiologist
 - B** Further follow-up is not necessary as pulsoxymetry screening is normal
 - C** Refer to Paediatric Cardiology Outpatients for follow-up in the coming days.
 - D** Refer to the Paediatric Cardiologist for check-up the same day
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33

You work as a doctor at the Child and Mother Clinic. Little Peter and his mother attend for a routine 6-week check-up. He is eating well, and putting on weight nicely, and appears happy and satisfied. His examination is normal apart from yellow skin and sclera. His mother says that he was even more yellow in the first week after birth.

What is the correct action in this situation?

- A** Call the nearest Paediatric Department for control blood tests the same day
 - B** Instruct the mother to expose Peter to as much sunlight as possible
 - C** Agree with the mother that she will contact you again if Peter becomes apathetic and will not eat
 - D** Send a written referral to the nearest Paediatric Outpatients
 - E** Instruct the mother to replace two meals a day with breastmilk substitute
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34

Vaccination against mumps is recommended by WHO for children in all countries. Why?

- A** Because mumps in pregnant women in the first trimester can result in malformation of the fetus
 - B** Because unvaccinated children have an increased risk of pneumonia in the post mumps phase
 - C** Because mumps can cause acute paralysis in children during epidemics
 - D** Because mumps is an unpleasant viral infection that can result in male infertility
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35

A 15-year old boy comes to your surgery. From his records you find that he had food allergy (egg and melk) as an infant, and infection-induced asthma as a small child. Last time you saw him was when he was 3 years old. For the last two years, the boy has had a runny nose and itchy eyes in the summer, has problems breathing when exercising and particularly when he plays football on grass. Spirometry reveals a reversible airflow obstruction compatible with asthma, based on an FEV1 increase of more than 12% after ventolin. You also take a skin prick test against pollen, grass and mugwort which reveals a 7 mm reaction to grass.

What is the correct diagnosis and the correct treatment?

*SLIT= sublingual immunotherapy

- A** The boy has exercise-induced asthma. He should take asthma medicines (beta-2 agonist) at exercise during the summer months.
 - B** The boy has asthma triggered by grass allergy. He should take antihistamines in addition to asthma medication during the summer months, and SLIT with Grazax (Phleum pratense) daily for at least 3 years should be considered.
 - C** The boy has asthma, but the results of the prick test do not indicate grass allergy. He should start asthma medicines and use antihistamines during the grass season, but SLIT is not indicated.
 - D** The boy has asthma triggered by grass allergy. He should take asthma medicine and then he doesn't need allergy medicine.
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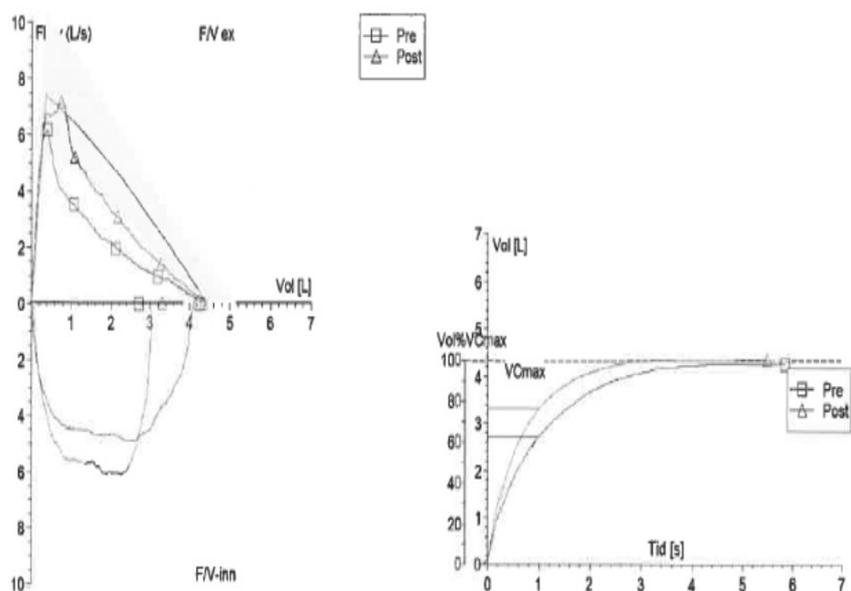
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36

A 15-year-old boy had egg allergy and asthma as a child. He has not used medication for the last 10 years. In the summer he found it increasingly difficult to breathe and was admitted with an acute attack of asthma. He is attending for diagnostic investigation before discharge.

What is the conclusion based on this spirometry?

Spirometri Flowvolum-prepost



Flowvolum-prepost

		Pred	Pre	%(Pre/Pred)	Post	%(Post/Pred)	%Endr(Post/Pre)
VC MAX	L	4.41	4.26	96	4.34	98	2
FVC	L	4.44	4.26	96	4.34	98	2
FEV1	L	3.67	2.71	74	3.30	90	22
FEV1%M	%	83.50	63.71	76	76.03	91	19
IC_F	L	2.83	2.20	78	2.67	94	21
PEF	L/s	7.41	6.19	84	7.14	96	15
MMEF	L/s	4.11	1.76	43	2.70	66	54
MEF50	L/s	4.53	1.97	44	3.07	68	56
Substans					Ventoline		
Dose					0.4mg		
Nivådato			18.09.18		18.09.18		
Nivåtid			12:08		13:05		

- A Spirometry demonstrates airflow obstruction compatible with asthma because all the measurements of lung function increase after ventoline inhalation.
 - B Spirometry demonstrates a reversible airflow obstruction compatible with asthma with a 22% increase in FEV1 after ventoline
 - C The spirometry result is uncertain in regard to an asthma diagnosis as the lung function is originally as high as 96% (FVC)
 - D The spirometry result is uncertain in regard to an asthma diagnosis as there is only a 2% increase in lung capacity (FVC)
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37

You see a 4-month old boy at the Medical Practice. He has loose stools, and a dry itchy rash in his face, on his arms and on his chest. His father has asthma, his older brother has pollen allergy. He is solely breast-fed, and his mother has no dietary restrictions.

You perform a prick test with the following results: Histamine: 4 mm, egg protein: 5.5 mm, milk: 7.5 mm.

What is the correct diagnosis and action?

- A The diagnosis is not definite until we have tested for specific IgE in serum. Await these results therefore before making a conclusion.
 - B The child has egg and milk allergy. The mother must stop eating milk and eggs and the child should be given an appointment for follow-up in 1 month.
 - C The child has milk and egg allergy. The child is referred to a specialist and the parents are informed about dietary restrictions regarding egg and milk for the mother.
 - D The prick test is negative and the atopic eczema is not due to allergy.
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38

The fifth disease in childhood (erythema infectiosum) is triggered by:

- A Parvovirus B19
 - B Echovirus
 - C Rubella virus
 - D Human herpes virus type 6
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39

You have just started specialisation (LIS1) in surgery at a local hospital. A 6-month-old boy is admitted with strong stomach pain that comes in waves. When he has an attack, he cries unconsolably and pulls his legs up to his stomach. He appears lethargic and weak. His nappy contains bloody, mucous-rich stools that are similar to redcurrant jelly. He has been started on i.v. fluids. What is the next correct step?

- A You suspect inflammatory gastrointestinal disease and send the child home with a referral to the paediatrician for elective investigations
 - B You suspect invagination and refer him for ultrasound of the abdomen
 - C You suspect gastroenteritis and ask the on-duty paediatrician to take over further treatment of the patient
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You are the on-call doctor. A 3-week-old boy is brought in by his parents. Over the last day the boy has vomited frequently. This is projectile vomiting which is milk-coloured. After vomiting the boy is immediately hungry again. He does not appear to be in pain. What is the correct action?

- A You suspect constipation and recommend Microlax
 - B You suspect gastroenteritis; you send him home and recommend copious fluid intake
 - C You suspect pyloric stenosis and refer him to the nearest Surgical Department
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41

A five-and-a-half-year-old girl who would normally weigh about 20 kg is admitted with diarrhoea and vomiting which has lasted a couple of days. At admission she is lethargic, slightly pale and her parents can't get her to drink very much. She has urinated less than normal, and has slightly sunken eyes. Capillary refill time is about 3 seconds. Her weight at admission is 19 kilos; clinically the findings are compatible with about 5% dehydration.

If you want to replace the lost fluids and in addition give necessary maintenance fluid over 24 hours, how much fluid will you give her in total?

- A** 3,500 ml
- B** 3,000 ml
- C** 2,500 ml
- D** 2,000 ml

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42

An intellectual developmental impairment/cognitive function impairment is most often due to injury/change in the immature brain. In which time period do we most often find the cause?

- A** Postnatal
- B** Unknown time point
- C** Prenatal
- D** Perinatal

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43

Having a few hypopigmented areas on the skin is normal, but the presence of many on a patient could be associated with a specific syndrome. Which of the following syndromes is the patient most likely to have?

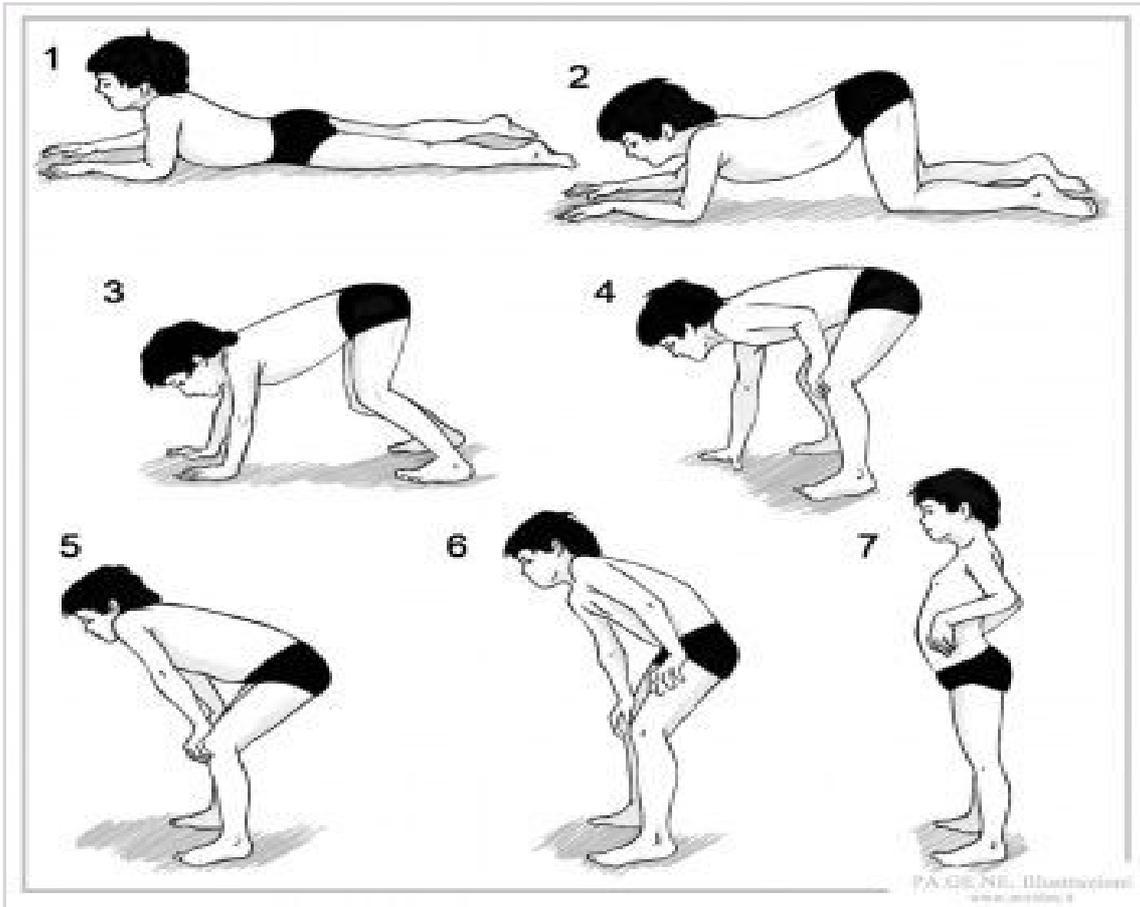


- A Neurofibromatosis Type 2
- B Tuberous sclerosis
- C Sturge-Weber
- D Neurofibromatosis Type 1

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44

The parents of a 4-year-old boy are concerned because he falls more often than before. When he gets up from the floor, he looks like the picture below. He has normal reflexes in his extremities. Which of the four following investigations would you perform first?



- A EEG
- B MRI brain
- C Neurography
- D Blood tests with CK (creatine kinase)

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45

A 16-week-old boy has a fever and strained respiration with a fast rate, retractions and wheezing/prolonged exhalation. His general health is moderately affected and he is admitted to the hospital where they find normal oxygen saturation. Which treatment would you recommend?

- A A course of prednisolone
- B Saline inhalation
- C Inhalation with a beta-2 agonist
- D A course of phenoxymethylpenicillin

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46

The teacher of a 10-year-old boy calls you (you are his GP). You have recently referred him to BUP because of suspected ADHD. The boy has got into a fight and hit another boy in the class. The teacher tells the boy that he will have to speak to his parents about this. The boy then started to cry and asked him not to do that. He is supposed to have said that he was afraid his father "would beat him".

The teacher asks for advice on how to deal with this situation.

- A** You recommend that the teacher contacts the boy's parents and informs them about his difficult behaviour.
- B** You recommend that the teacher contacts the Child Protection Services the same day.
- C** You say you will give the boy an appointment for a consultation in 3 weeks.
- D** You tell the teacher that he must remind BUP about the referral.

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47

A 2-week old boy, born at term with an uncomplicated delivery and postnatal stay, has gradually slept more and eaten less over the last few days. On the day of admission, his condition worsens acutely, with pronounced floppiness and poorer skin colour. In the Emergency Ward, the doctor finds a hypotonic patient with low blood pressure, very rapid heart beat and poor peripheral circulation. He has no fever, and the doctor hears no murmurs over the heart, and normal breath sounds over the lungs. ECG reveals sinus rhythm, rate 230/min (reference 110-160), with pointed T-waves

Blood tests reveal the following:

CRP <5 mg/L (Ref: <5 mg/L)
Leukocytes $12 \times 10^9/L$ (Ref: 6-18 $\times 10^9/L$)
Hb 17 g/dL (Ref: 13.5 – 21.4 g/dL)
pH 7.22 (Ref: 7.35 – 7.4)
pCO₂ 4.1 kPa (Ref: 4.5 - 6.0 kPa)
BE -15 mmol/L (Ref: +/- 3mmol/L)
stand. HCO₃ 17 mmol/L (Ref: 21-27 mmol/L)
Na 109 mmol/L (Ref: 137 – 145 mmol/L)
K 8.4 mmol/L (Ref: 3.6 – 4.6 mmol/L)

Which diagnosis can best explain the hyperkalemia in this patient?

- A** Decompensated left-sided cardiac failure with tachycardia and acidosis-related hyperkalemia
- B** Septic shock with hypovolemia, tachycardia and acidosis-related hyperkalemia due to group B streptococci
- C** Severe hypovolemia due to poor food intake, false K values due to difficulty taking blood samples
- D** Congenital lack of adrenal enzymes with severe hypotension, salt loss and K retention in the kidneys

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48

In your job as a GP, you see a 3-year-old girl in your surgery. The parents say that they think she has become paler over the last 2 months. She is otherwise in good form, and has normal natural functions. She has previously been healthy with normal growth and development; she takes no medication. At clinical examination she is pale, with normal throat, heart/lungs/abdomen. No glandular swellings. Afebrile.

Blood tests give the following results:

Test	Value	Ref. range
Hb	6.8 g/dL	10.5-13.1 g/dL
MCV	52 fL	75-87 fL
MCH	16 pg	23.9-34.1 pg
Tot. leukocytes	$5.0 \times 10^9/L$	$3.7-14.7 \times 10^9/L$
Granulocytes	$2.9 \times 10^9/L$	$1.7-7.1 \times 10^9/L$
Thrombocytes	$290 \times 10^9/L$	$228-435 \times 10^9/L$
CRP	<5 mg/L	< 5 mg/L
Creatinine	30 $\mu\text{mol/L}$	23-37 $\mu\text{mol/L}$
Bilirubin	10 $\mu\text{mol/L}$	<16 $\mu\text{mol/L}$

What is the most probable diagnosis?

- A Acute leukaemia
- B Haemolytic uraemic syndrome
- C Iron deficiency anaemia
- D Infection-induced anaemia

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49

At the Medical Centre where you work as a GP, you see a 4-year-old girl with her father. He says that she has been pale and very listless for some time. At clinical examination you find she has a temperature of 38.1 and poor general health. At organ examination of the abdomen, you palpate a mass in the upper right quadrant. You take informative blood tests which are presented below. You suspect that the child has an underlying blood disease. Which disease is the most probable?

Test:	Result:	Reference range:
CRP	15 mg/L	<5 mg/L
Hb	8.3 g/dL	10.5-13.1 g/dL
Thrombocytes	$126 \times 10^9/L$	$228-435 \times 10^9/L$
Leukocytes	$82.5 \times 10^9/L$	$3.7-14.7 \times 10^9/L$

- A Acute lymphoblastic leukaemia
- B Acute myeloid leukaemia
- C Chronic myeloid leukaemia
- D Chronic lymphoblastic leukaemia

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50

You are a GP, and a 5-year-old child that has been unwell collapses in the waiting room. You go to the child and find the child unconscious and not breathing normally, and diagnose cardiac arrest. You make sure the airways are open and give five effective rescue breaths and start CPR with which rhythm?

- A 10:2
- B 15:2
- C 3:1
- D 30:2

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51

A 48-year-old man is admitted with strong, intermittent flank pain. CT of the urinary tract reveals an 8 mm concrement in the left ureter just distally where the vessels cross over, and moderate hydronephrosis. The patient is afebrile with stable circulation. The following day he continues to have pain but no fever.

What is the best treatment?

- A** Percutaneous nephrolithotomy (PCNL)
 - B** Ureterorenoscopy with stone removal
 - C** Acute left nephrostomy insertion.
 - D** Extracorporeal shockwave (ESWL)
-

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52

In the Emergency Dept you see a 71-year old man who is admitted with acute urine retention of almost 1,000 mL. He has had problems with LUTS (lower urinary tract symptoms) for a long time. His heart and lungs are healthy, and he takes no regular medication. Blood tests on admission reveal normal results for creatinine, electrolytes and haemoglobin. PSA is elevated at 8.5 mcg/mL (reference range PSA <3.8 mcg/mL).

How should this patient be managed further?

- A** Relieve with a permanent catheter and check PSA after about 4 weeks
 - B** The patient should be investigated as soon as possible for prostate cancer using ultrasound/ biopsy
 - C** The patient should be investigated for LUTS using a bladder diary and flow measurements
 - D** The patient should have cystoscopy as soon as possible to exclude uretral restriction
-

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53

The majority of kidney injuries are blunt traumas that cause haematomas, lacerations and, in serious cases, injury to the collecting duct system and calyces. Most kidney injuries can be treated conservatively. Which care level should be offered to patients with kidney injury grade 3-5?

- A** Continuous monitoring on a ward at the nearest treating hospital.
 - B** A hospital with access to radiological embolisation of the bleed source.
 - C** Conservative treatment in a hospital with access to blood transfusion and 24-hour on-call surgeon.
 - D** Continuous monitoring in an intensive care ward with trauma expertise.
-

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54

The physiology of normal erection requires a functioning parasympathetic nerve system and a functioning neurovascular bundle that surrounds the prostate gland. Which compound is important for conversion to cGMP and smooth muscle relaxation in the penile sponge-like tissues?

- A** Arginine
 - B** Acetylcholine
 - C** Oxygen
 - D** Nitric oxide
-

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55

A previously healthy 35-year-old patient comes to the Emergency Dept at 03.30. When you see the patient, CT has demonstrated an obstructing 1 cm stone in the ureteropelvic transition of the left kidney with moderate hydronephrosis. The pain comes in waves and is intense; he is lethargic and very tired as he has been awake all night with the pain in his flank. CRP is 150 (norm.: <5), leukocytes 17 (norm.: $4.1-9.8 \times 10^9/L$), creatinine 180 (norm.: 60-105 $\mu\text{mol/L}$), and he has a temperature of 39 degrees. His circulation and respiration are stable. What do you do?

- A** Take a urine sample for culture, start on antibiotics and plan to perform a nephrostomy on the left side as emergency care.
- B** Contact the on-call doctor in the Intensive Care Dept. and recommend that the patient is given i.v. antibiotics and is monitored there.
- C** Register the patient for surgery and then contact the on-call Urologist.
- D** Register the patient for insertion of a JJ stent on the left side.

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56

A 25-year-old man comes to the GP surgery where you have just started as the substitute after specialty training. He has severe pain in his scrotum which started an hour ago. The pain started suddenly when he went to turn over in the sofa. He has had a similar episode before, but then the pain disappeared quickly by itself. The scrotum is not red or swollen and he does not have a fever. What is your first course of action?

- A** Order ultrasound of the scrotum as emergency help and call the on-call surgeon.
- B** Check using urine dipsticks, infection parameters and palpate the testicles.
- C** Order ultrasound of the scrotum and ask the patient to come back for a check-up the same day as the ultrasound.
- D** Perform ultrasound at the GP surgery.

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57

You are the District Medical Officer and see a 52-year-old patient who has increasing swelling of the left testicle over the last weeks. He has managed the pain well using Paracetamol. No fever, heat or redness.

Urine dipsticks are negative.

What do you do?

- A** Start on antibiotics after taking a urine sample for Uricult.
- B** Send him for ultrasound of the testis within one to two weeks at the nearest Radiology Dept.
- C** Send him with a helicopter to the nearest hospital with a suspected testicular torsion.
- D** Make an appointment for the next day at your office for further investigations.

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58

A young girl aged 17 comes back to your GP surgery. For the last year she has had one boyfriend. During the year she has had 3 appointments for cystitis that has been effectively treated with a 3-day course of Selexid. She has now come as an emergency appointment and the cystitis is back. She wants a more thorough investigation. What do you do?

- A** You explain that many young women get recurring infections when they are sexually active and that this will normally pass by itself over time. You send a sample for bacteriology culture. You prescribe a 3-day course of Selexid.
- B** Because this is the patient's 4th visit, you refer her for urological investigation with cystoscopy and urodynamic tests.
- C** You give a new 3-day course of Selexid, and refer for cystoscopy.
- D** You explain that many young women get recurring infections when they are sexually active and that this will normally pass by itself over time. You send a sample for bacteriology culture and refer her for cystoscopy because the problems have been going on for so long.

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59

To confirm a diagnosis of prostatic cancer, it is necessary to take biopsies via the rectum. This is performed under a local anaesthetic in the Urology Outpatients Clinic. Which statement about this procedure is correct?

- A** Two to three ultrasound-guided tissue samples are taken from the area where the suspected tumour was palpated at rectal palpation.
 - B** Targeted biopsies taken using MRI findings give more significant and fewer insignificant tumours.
 - C** Normally 20 systematic biopsies are taken using ultrasound to ensure that the entire prostate is carefully examined.
 - D** The procedure is mostly performed as day surgery under spinal anaesthetic with transperineal access to avoid infections.
-

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60

A 78-year old man has had increasing micturition problems in the form of poor pressure and feels that his bladder does not empty completely. There is no nocturia or pollakisuria. He has had insulin-dependent diabetes mellitus for 35 years. PSA 3.6 ng/mL (normal range men >69 years: 0-6.5 ng/mL, creatinine 175 micromol/L (60-100 micromol/L).

Which of the following investigative procedures is the best for the first part of investigations?

- A** Urethracystoscopy, uroflowmetry and DRE of the prostate
 - B** Urethracystoscopy, uroflowmetry, and ultrasound of the urinary tract
 - C** Urethracystoscopy, DRE and ultrasound of the urinary tract
 - D** Urethracystoscopy, 3-phase CT of the urinary tract and digital rectal examination (DRE) of the prostate
-

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61

Kåre Hansen (48 years of age) comes to the doctor's office for a consultation because the health nurse at his company has registered that he has high blood pressure. He is healthy, but feels somewhat stressed because the company he works for is having financial problems. He uses no medication, is a non-smoker, BMI 27. You measure his blood pressure at 155/92 average, based on 3 standardized measurements during the course of the consultation. You do a standard work-up and find, among other things, the following:

Hb 15.8 g/dL (ref: 13.5-17.5)

Fasting glucose 6.3mmol/L (ref: 3.5 -5.7)

HDL cholesterol 0.9 mmol/L (ref: 0.80 – 1.90)

Creatinine 68 umol/L, (ref: 50-100)

Urine dipstick negative.

Which of the following actions is the most correct?

- A** Start treatment with Lisinopril 10mg x 1 (ACE inhibitor)
 - B** Follow-up appointment in 3-6 weeks, and start with Norvax 5mg x 1 (calcium blocker), if necessary
 - C** Start treatment with Selozoc 100mg x 1 (beta blocker)
 - D** No antihypertensive treatment now, but follow-up in 6 months
-

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62

Kristian (74 years of age) is admitted with high fever and suspected pneumonia after lying sick at home for 4 days. He has been treated with penicillin tablets the past two days but has not improved. The patient has no known previous illnesses, is not on regular medication, had normal blood tests when he visited his GP 6 months ago. In the acute admissions ward, treatment is started with Rocephin 2gr x1 iv (3rd generation cephalosporin). The next morning, the blood tests show:

Hb (g/dL) 16.9 (ref: 13.5-17.5)

Leukocytes ($\times 10^9/L$) 13 (ref: 3.5-10)

Thrombocytes ($\times 10^9/L$) 230 (ref: 150-350)

CRP (mg/L) 169 (ref: <5)

Na (mmol/L) 149 (ref: 136-145)

K (mmol/L) 4.1 (ref: 3.5-4.8)

Creatinine (micromol/L) 180 (ref: 50-100)

His general condition has not improved, and urine production is falling to 20mL/hour.

Which of the following recommendations for investigations and treatment is most correct when also trying to avoid unnecessary investigations?

- A** Order 3-4 litres NaCl 0.9% i.v. during the next 24 hours
- B** Order ultrasound of the urinary tract, kidney biopsy, and switch to a different antibiotic that is less toxic to kidney
- C** Order urine microscopy, u-Na, u-osmolarity, and switch to a different antibiotic that is less toxic to kidneys
- D** Order ultrasound of the urinary tract, and prescribe 3-4 litres of Ringer's acetate i.v. during the next 24 hours
- E** Order ultrasound of the urinary tract, urine microscopy, u-Na, u-osmolarity, and order 3-4 litres of Ringer's acetate i.v. over the next 24 hours.

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63

Astrid (37) receives chronic peritoneal dialysis (PD) treatment for kidney failure. 4 times a day she introduces 2 litres dialysis fluid into her abdomen, and after 4 hours she empties it out before repeating the process.

How does PD treatment work?

- A** Waste products diffuse across the peritoneal membrane to equalise the concentration differences and are thereafter removed from the body when the dialysis fluid is withdrawn.
- B** Waste products form complexes with the glucose molecules in the dialysis fluid and are removed when the dialysis fluid is withdrawn.
- C** Waste products diffuse across the peritoneal membrane due to concentration differences and, in addition, waste products are pulled through the membrane when the fluid is withdrawn because of the high glucose concentration in the dialysis fluid
- D** Waste products are withdrawn from the abdomen when the PD fluid is emptied after 4 hours

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64

What is the most important cause of anaemia in chronic kidney disease stage 4 (eGFR 15-29 mL/min)?

- A** Iron deficiency due to decreased absorption from the intestines
- B** Lack of production of erythropoiesis stimulating hormone
- C** Iron deficiency due to bleeding tendency
- D** Decreased survival time of erythrocytes

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65

An 82-year-old woman has chronic obstructive pulmonary disease (COPD), diabetes mellitus type 2 and end stage renal disease (ESRD).

She lives together with her husband who has dementia, and manages the home with help from the home care services.

She is overweight (body mass index BMI >35) and the travel time to the nearest dialysis centre is 2 hours each way.

Both she and her family are strongly motivated for dialysis treatment.

Which treatment option would be best for her?

- A** Haemodialysis (HD)
 - B** Haemodialysis (HD) at the hospital because peritoneal dialysis (PD) is contraindicated in diabetes mellitus.
 - C** Home haemodialysis (HHD)
 - D** Peritoneal dialysis (PD)
 - E** Conservative treatment (no dialysis)
-

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66

A 70-year-old man had a renal transplant 10 years ago. Uses Sandimmun (Cyclosporin A), CellCept (Mycophenolate) and Prednisolone as immunosuppressants. He has slightly reduced function of the transplanted kidney (creatinine 130 $\mu\text{mol/L}$). He lives a long way from the hospital and sees his GP due to severe pain and swelling at the front of his left foot. Tried paracetamol without effect. The GP suspects gout.

What would be the best treatment the GP can give?

- A** Allupurinol
 - B** Temporary increase in prednisolone
 - C** Colchicine
 - D** NSAID (non-steroidal anti-inflammatory drug)
-

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67

A 52-year-old man contacts you because he has developed swelling in both legs, right up to the knees, and he has put on 5 kilos. Blood pressure is 135/80 mmHg, s-creatinine is 79 $\mu\text{mol/L}$ (60-105).

Urine dipstick shows: Blood: Neg. Albumin: +++++. Leukocytes: Negative. Glucose: Negative.

What is the most likely diagnosis?

- A** Nephritic syndrome
 - B** Heart failure
 - C** Deep vein thrombosis (DVT)
 - D** Nephrotic syndrome
-

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68

Karl (42 years old) has polycystic kidney disease and eventually received a transplant last year after having haemodialysis for 4 years (a lot of HLA antibodies). Renal function is average with s-creatinine around 180 $\mu\text{mol/L}$. He arrives at the Minor Injuries Clinic in a taxi because of acute pain at the top of his stomach/low down in his chest. Blood tests reveal the following: Hb 11.5 g/dL (ref. 13.4-17.0 g/dL), s-creatinine 195 $\mu\text{mol/L}$ (ref. 60-105 $\mu\text{mol/L}$), s-troponin 75 ng/L (ref. <14 ng/L).

What is the most probable diagnosis?

- A** Uremic pericarditis.
 - B** Bleeding in a cyst in the retained kidney.
 - C** Rupture of a cyst in the retained kidney.
 - D** Acute heart attack.
-

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69

A 55-year old man with chronic renal failure due to polycystic kidney disease attends for a check-up with you at the health centre. He is well and is working full-time. On 3 different occasions you have measured a BP of 160/100; 150/90; and 153/97.

Lab: Creatinine 120 $\mu\text{mol/L}$ (60-105 $\mu\text{mol/L}$), eGFR 58 mL/min/1.73m² (>60 mL/min/1.73m²), Albumin 41 g/L (36-45 g/L), potassium 4.3 mmol/L (3.5-4.4 mmol/L). Urine test strip: +blood, ++albumin, albumin/creatinine ratio 53 mg/mmol (<3 mg/mmol).

How should you treat this patient?

- A You give him an angiotensin-receptor blocker and an appointment for follow-up in 10 days.
- B You give him a calcium blocker and an appointment for follow-up in 10 days.
- C You give him a thiazide diuretic and an appointment for follow-up in 10 days.
- D You give him a combination medicine with a calcium blocker and an angiotensin-receptor blocker and an appointment for follow-up in 10 days.

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70

What is meant by renal function?

- A Renal function is the quantity of plasma in mL that is filtered in the kidneys per minute
- B Renal function is the quantity of plasma in mL that is filtered by each glomerulus per minute
- C Renal function is the quantity of urine in mL that appears in the bladder per minute
- D Renal function is the quantity of blood in mL that perfuses the kidneys per minute

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71

A 59-year old man who is overweight and has a history of hypertension has a standard peroral glucose load (82.5 g glucose monohydrate) with the following results for p-glucose:

- Fasting sample (baseline sample): 7.9 mmol/L
- Sample 2 h after glucose intake: 10.8 mmol/L

The reference range for p-glucose in fasting samples is 4.2-6.3 mmol/L.

Which condition is most compatible with this finding?

- A Neither diabetes mellitus nor impaired glucose tolerance
- B Diabetes mellitus
- C Impaired fasting glucose (IFG)
- D Impaired glucose tolerance

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72

Man, 58 years of age, with type 2 diabetes, works as a bus driver. He had a small cardiac infarction 2 years ago. He follows the dietary advice about limiting intake of carbohydrates, and is physically active 3 days a week. He uses Metformin tabl, total 2 times a day. Nonetheless his diabetes is not adequately regulated, with HbA1c 75 mmol/mol (corresponds to 9%), and as his GP you consider there may be a need for an additional antidiabetic drug.

Which of the following medicines are least beneficial and should therefore not be given to this patient?

- A DDP4 inhibitor
- B SGLT2 inhibitor
- C GLP1 analogue
- D Sulfonylurea

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73

A 30-year-old woman goes to her GP because of increasing tiredness, diarrhoea and weight loss over the last few months. She feels her skin color is darker than usual at this time of year (Nov). Her GP measures a low blood pressure. What is the most probable diagnosis?

- A hypothyroidism
- B diabetes type 1
- C coeliac disease
- D primary adrenal failure (Addison's disease)

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74

A previously healthy 55-year-old man has been diagnosed with hypercalcemia. Other blood tests show low PTH; 25(OH) vitamin D is satisfactory while 1,25 vitamin D (active vitamin D) is elevated. He feels healthy.

Which of these conditions can explain the blood test results?

- A renal failure
- B sarcoidosis
- C myelomatosis
- D primary hyperparathyroidism

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75

A 57-year-old man has hyperthyroidism with free thyroxine (FT4) 26.2 pmol/L (reference range 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) <0.01 mIU/L (ref. 0.24-3.78 mIU/L). Thyrotropin receptor antibody (TSH receptor antibody) is 1.0 (ref. <1.5 IU/L). There is no goitre or nodules at palpation of the gland. Scintigraphy reveals strong uptake in the lower left pole and no uptake in the remaining part of the gland. He has angina pectoris. What treatment would you recommend?

- A Surgery and non-selective beta-blocker
- B Radioactive iodine and non-selective beta-blocker
- C Radioactive iodine and steroids (prednisolone)
- D Thyrostatics and non-selective beta-blocker

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76

A 32-year-old woman has free thyroxine (FT4) 29.2 pmol/L (reference range 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) <0.01 mIU/L (ref. 0.24-3.78 mIU/L). Thyrotropin receptor antibody (TSH receptor antibody) is 3.9 (ref. <1.5 IU/L). She is pregnant in week 20. She has a little heat intolerance, otherwise few symptoms. How would you treat her?

- A Thyrostatics
- B Thyrostatics and beta-blocker
- C Radioactive iodine
- D Thyrostatics and levothyroxine

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77

A man aged 39 has had type 1 diabetes for 21 years, and has diabetic retinopathy. He is being treated for hypertension. He smokes 10 cigarettes/day. His father had cardiovascular disease in his 50s. The patient's HbA1c is 8.0% (64 mmol/mol; ref 28-40). Fasting s-cholesterol 5.3 mmol/L (ref. 3.3-6.9), LDL cholesterol 3.1 mmol/L (ref. 1.5-5.1). HDL cholesterol 1.19 mmol/L (ref. 1.00-2.70), triglycerides 1.09 mmol/L (ref. 0.45-2.60).

Should this patient start cholesterol-lowering treatment now, or should he wait?

- A He doesn't need cholesterol-lowering treatment now, but it should be started when total s-cholesterol >6.9 mmol/L.
- B He does not need cholesterol-lowering treatment now, but should start if he gets angina pectoris.
- C He should start with cholesterol-lowering treatment.
- D He doesn't need cholesterol-lowering treatment now, but it should be started when HbA1c >8.5% (69 mmol/mol).

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78

You are the GP for a 73-year-old man who has had type 2 diabetes for 8 years. He has reduced renal function with eGFR 36 ml/min/1.73 m². What is the target HbA1c for this patient?

- A HbA1c between 53-64 mmol/mol (7.0-8.0%)
- B HbA1c about 48 mmol/mol (6.5%)
- C HbA1c around 53 mmol/mol (7%)
- D HbA1c between 64-75 mmol/mol (8.0-9.0%)

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79

A 49-year-old woman has pituitary failure after surgery for a pituitary adenoma. She is substituted with cortisone, growth hormone and thyroxine, taking Levaxin (levothyroxine) 100 microg daily. Medication-fasting tests taken at 3 months after starting with Levaxin (analysed using two different methods) show free thyroxine (FT4) 14.2 and 14.7 pmol/L (reference range 11.6-19.1 pmol/L) and thyroid stimulating hormone (TSH) 0.10-0.12 mIE/L (ref. 0.24-3.78 mIE/L). She feels well.

What could be the explanation for the very low TSH when FT4 is within the reference range?

- A She has secondary hypothyroidism
- B She is overdosed with Levaxin
- C Interfering antibodies give a false normal FT4
- D Interfering antibodies give a false low TSH

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80

A woman aged 66 sees her GP because of skeletal pain and reduced general health. She had a vertebral fracture 1 year ago, and osteoporosis was diagnosed by bone density measurement. After this she started on treatment with Alendronate, once a week tablet, and Calcigran forte. She is now referred for X-ray of the spinal column which reveals three new compression fractures without known trauma. Bone density measurement shows a T-score of -4.1 SD in the lumbar column, -3.5 in the femoral neck and -2.5 in total hip. Bone density has decreased since the last measurement. Blood samples show significantly elevated calcium, suppressed PTH, satisfactory level of 25(OH) vitamin D, normal kidney function.

What diagnosis do you suspect?

- A myelomatosis
- B secondary hyperparathyroidism
- C sarcoidosis
- D primary hyperparathyroidism

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81

A 54-year-old man has been referred to a outpatient clinic at the hospital due to a demonstrated testosterone deficiency. Supplementary blood tests shows prolactin 18,700 mIE/l (ref. 61-314), and MRI pituitary reveals a large adenoma that reaches to and lifts the optic chiasma.

What treatment should primarily be chosen?

- A Treatment with a dopamine agonist
- B Treatment with a somatostatin analogue
- C Treatment with a dopamine antagonist
- D Pituitary surgery

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82

A 58-year-old woman had been diagnosed with breast cancer in her left breast. Because the tumour is not locally advanced, it is decided to remove it with a curative objective. She is scheduled for surgery that involves breast conservation and sentinel node diagnostics.

Why should we perform sentinel node diagnostics in this patient?

- A Axilla dissection must be performed at surgery for breast cancer, and spread to the sentinel lymph node(s) provides a lot of information about the future prognosis.
- B If there is spread to the sentinel lymph node(s), breast-conserving surgery is not sufficient. Then the entire breast must be removed.
- C If one finds metastases to the sentinel lymph node(s), an axilla dissection should be performed.
- D If metastases are found in the sentinel lymph node(s), the patient should have a non-curative (palliative) objective for further treatment

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83

You are the GP for a 64-year-old female patient who attends with a palpable tumour on the neck. It is a single tumour at the front of the throat, about 2 cm in diameter; apart from that you do not palpate any enlarged lymph nodes. You suspect that the tumour is located in the thyroid. Blood tests reveal an apparently normal thyroid function. You wish to characterise the tumour in more detail. Which imaging method will be most appropriate to refer the patient to?

- A CT
 - B MRI
 - C X-ray
 - D Ultrasound
-

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84

A 48-year-old woman sees you in the GP surgery. She has found a lump in her right breast. After taking the history you examine her and find it necessary to refer her for further investigations. The patient wants to know which investigations she will have.

What do you explain to her?

- A You will refer her to the Breast Diagnostics Centre. First, she will have a mammography, MRI and ultrasound of both breasts and axilla, and a tissue sample will be taken from the lump and perhaps lymph nodes. Further management depends on the results of these investigations.
 - B You will refer her to the Breast Diagnostics Centre. First, she will be examined by a surgeon and then she will be referred for mammography and ultrasound of both breasts and axilla. After this, a tissue sample will be taken from the lump and perhaps lymph nodes. Further management depends on the findings from these examinations.
 - C You will refer her to the Breast Diagnostics Centre. First, she will have a mammography and MRI of both breasts. After this, she will probably have ultrasound of both breasts and axilla, and a tissue sample will be taken from the lump and perhaps lymph nodes. Then she will have a PET to decide on further management.
 - D You will refer her to the Breast Diagnostics Centre. First, she will have a mammography of both breasts. After this, she will probably have ultrasound of both breasts and axilla, and a tissue sample will be taken from the lump and perhaps lymph nodes. Further management depends on the findings from these examinations.
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85

You have the evening on-duty shift in the Surgical Dept, and are called to evaluate a 36-year old woman who underwent thyroidectomy earlier that day. She was operated for a papillary thyroid carcinoma originating in the left lobe of the thyroid. The carcinoma was 4.5 cm in diameter, and a total thyroidectomy was performed. The woman is sitting leaning forward in the bed; she is pale and gasping for breath. You observe a bluish swelling in the midline of her throat, jugular and intercostal retractions and the onset of peripheral cyanosis. Her breathing is deep and laboured with a rate of about 30 per min, and you hear harsh inspiratory stridor. Scope reveals a pulse of 152. The nurse states that the woman has had a normal postoperative course until 10 minutes ago. Then she began to feel unwell and her breathing has gradually become more laboured.

How should you manage this patient?

- A The woman should be transferred to the operating theatre for laryngoscopy with cordopexy and complete arytenoidectomy as treatment for probable bilateral vocal cord paralysis.
 - B The woman should be immediately transferred to the operating theatre for evacuation of a probable postoperative haematoma. In very acute cases, one must open the sutures there and then.
 - C The woman should be transferred to Intensive Care for treatment of probable sepsis with antibiotics and fluids.
 - D The woman should be transferred to the Medical Dept. for treatment of a probable hypercalcemic crisis after damage to the parathyroid gland.
-

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86

A 70-year old woman has been diagnosed with a tumour in the right kidney. It is decided to take a biopsy of this.

Which imaging modality is most frequently used as guidance?

- A MRI
- B Ultrasound
- C CT
- D X-ray

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87

You suspect an aortic arch anomaly corresponding to a the right-sided aortic arch in a newborn baby. An X-ray of the thorax is taken.

Would you expect to be able to locate the aortic arch on the thoracic X-ray?

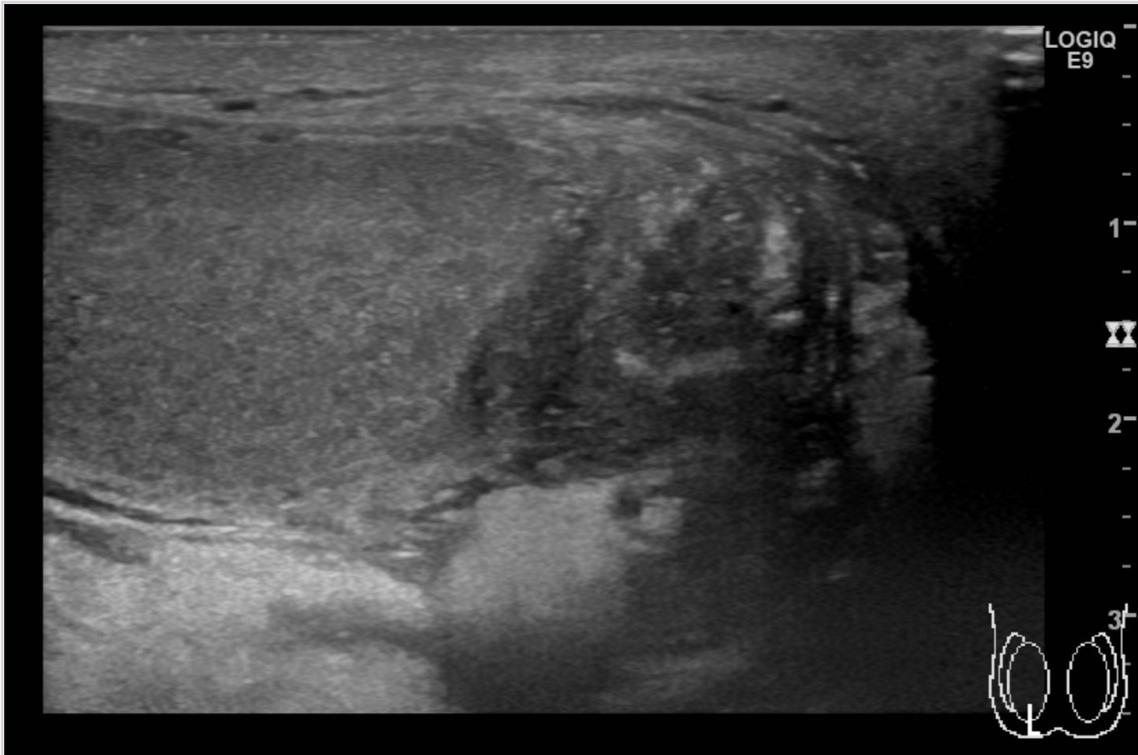
- A Yes, as one can in adults.
- B No, the thymus fills the upper mediastinum.
- C No, it is too small.
- D Yes, it can be seen on X-ray a short time after birth.

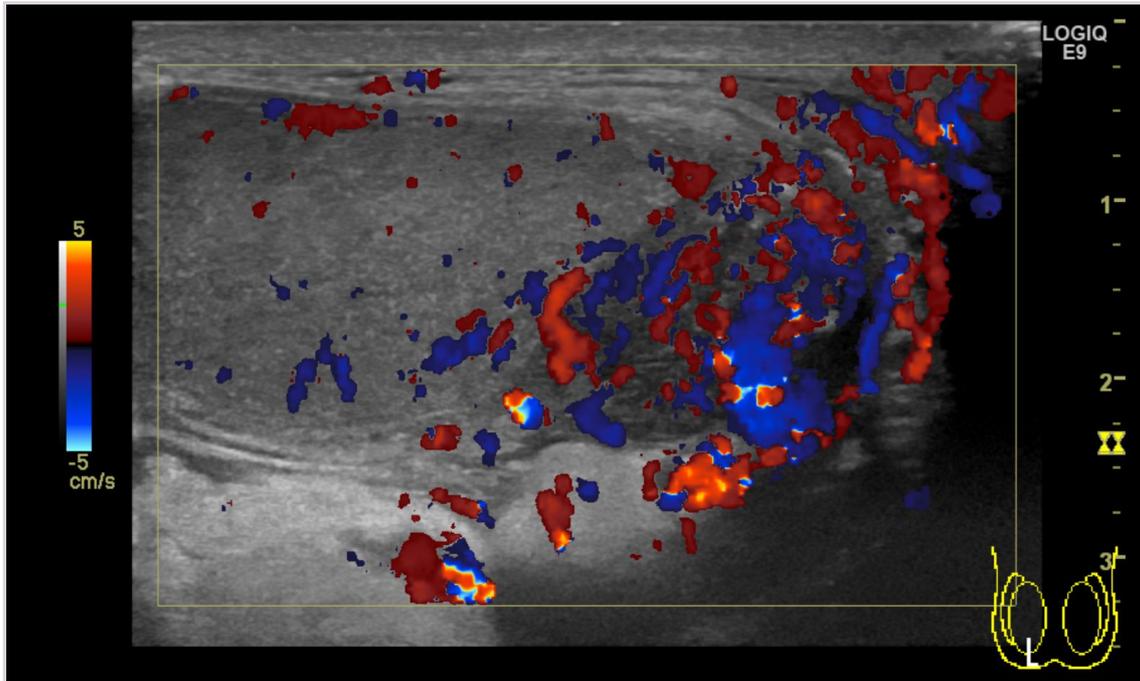
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88

A 26-year old man comes to the Walk-in Emergency Clinic because of pain in his scrotum. The pain has appeared slowly over 2-3 days, but has increased over the last 24 hours. Clinical examination reveals obvious redness and swelling, as well as pain at palpation of the testicles. CRP 80 (normal <5). Results of the imaging investigation are shown below.

What is the most probable diagnosis?





- A Torsion of the testis
- B Spermatocele
- C Testicular tumour
- D Epididymitis

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89

The total incidence of congenital malformations is not known, but it is estimated that about 3-5% of all newborns have one or more malformations associated with various organ systems. The most common are neurological, cardiovascular and urogenital. In many cases the malformation/anomaly is detected by prenatal diagnostics. Below you can see an X-ray from which the neonatologist wishes to confirm a clinically suspected anomaly. What does the X-ray show?



- A Bilateral cervical ribs
- B Oesophageal atresia with fistula
- C Omphalocele
- D Congenital diaphragm hernia

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90

You are working as LIS2 (resident/doctor) in the Endocrinology Dept. A 25-year-old woman who has been to see you previously walks into the office. Clinical work-up and blood tests indicate that the patient has hyperthyroidism. At the previous appointment you sent the patient for measurement of thyroid uptake to differentiate between possible causes of the patient's hyperthyroidism. The results of the investigation are described as 'homogeneous, high activity uptake in a slightly enlarged thyroid gland'.

Which diagnosis do you give the patient?

- A Toxic multinodular goitre
- B Subacute thyroiditis
- C Toxic adenoma
- D Graves' disease

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91

A 39-year old man goes to the Walk-in Centre in his home municipality in the evening with strong pain that comes in waves in his left flank. He cannot sit or lie at ease. Is nauseous during the pain attacks. No fever. Lab: CRP <5 mg/L. Urine dipstick: Blood ++, leukocytes 0, glucose 0. It is about 110 km to the nearest hospital. You suspect a urinary tract concrement, and treat him first with analgesics and antiphlogistics. Which imaging diagnostics do you order?

- A No imaging diagnostics are necessary.
- B Ultrasound of the kidneys and X-ray of the urinary tract the next day.
- C Stone CT in 2-3 weeks.
- D 3-phase CT the same evening.

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92

After routine investigations, a 32-year-old man has been diagnosed with a probably malignant tumour in his right testis. Investigation of metastases is required before making a final decision on which treatment to use. What would be the best choice of imaging diagnostics from the options below?

- A Skeletal scintigraphy.
- B Ultrasound scrotum and abdomen.
- C MRI pelvis and spine.
- D CT thorax and abdomen.

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93

Urinary tract infections (UTI) are very common in childhood. Several imaging diagnostic modalities can be used to investigate them. Ultrasound is generally the first choice at/after the first febrile UTI/ pyelonephritis and with recurrent non-febrile UTIs.

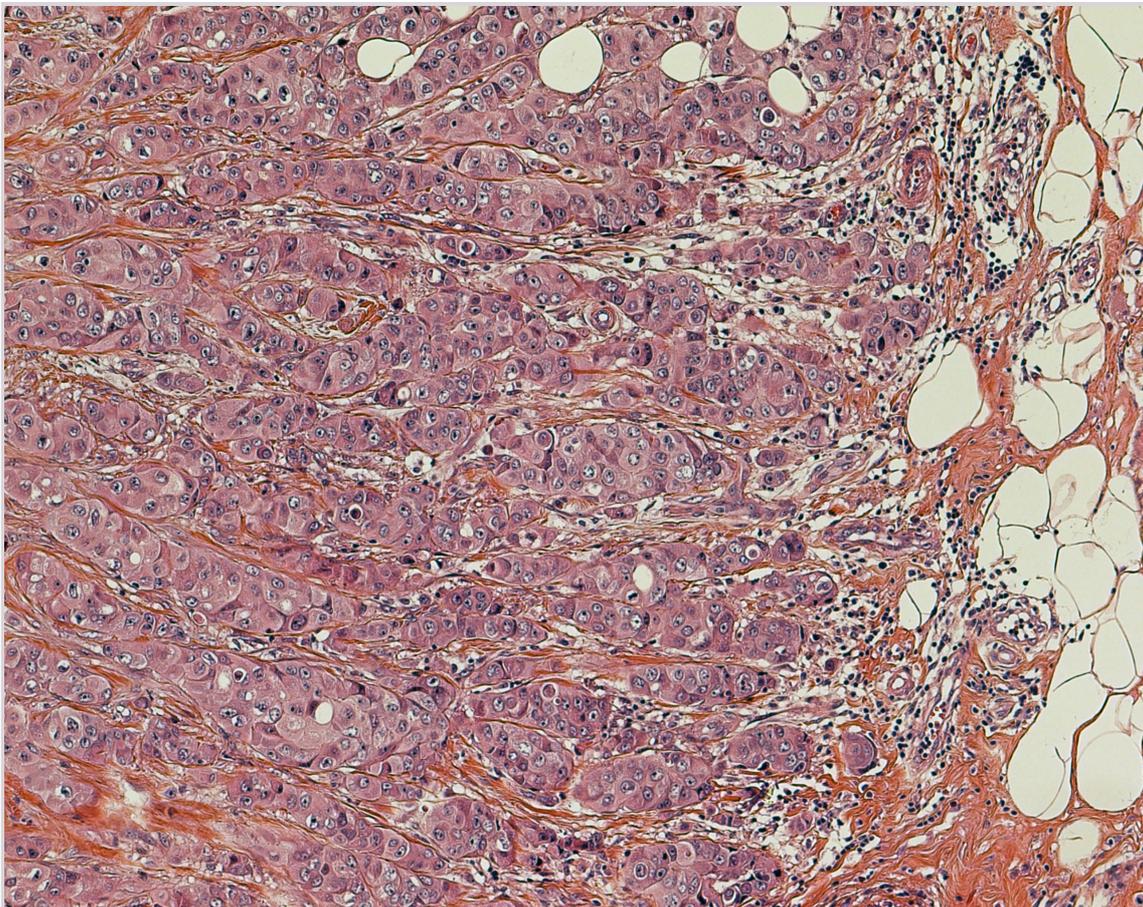
Which statement on investigating UTI with ultrasound is correct?

- A Ultrasound is an adequate modality for detecting predisposing causes of infections in an acute clinical situation.
- B Using ultrasound one can find changes in the kidneys and/or bladder in about 80% of the cases.
- C Ultrasound is unfortunately too operator-dependent and necessitates the use of other modalities for investigation of underlying malformations.
- D Ultrasound has greater sensitivity for demonstration of pyelonephritis changes and its complications than CT.

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94

A 55-year old woman has a 3 cm diameter tumour in her left breast. It is removed surgically and the image shows a hematoxylin-erythrosine-saffron (HES) stained histology section from the tumour (x600).



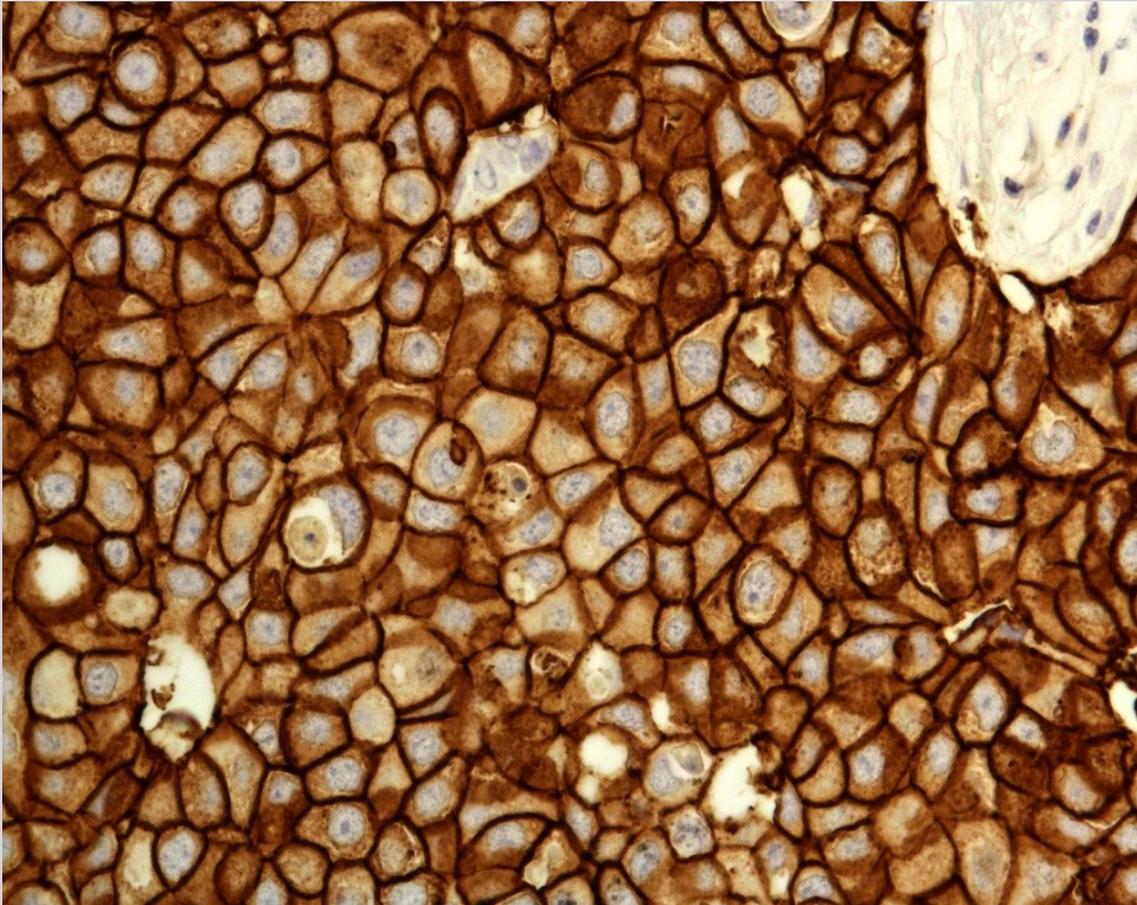
Which diagnosis best fits the findings in the image?

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

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95

A 43-year old woman has a tumour in her left breast. A biopsy from the tumour is sent for immunohistochemical investigation for antibody against HER2. Below you can see an image of the immunohistochemical section, which reveals an overexpression of the HER2 protein in the cell membrane of the tumour cells.



What significance does it have for the patient that the tumour overexpresses the HER2 protein?

- A It means that there is a HER2 mutation
- B It means that the tumour is a metastasis
- C It means that the tumour is invasive
- D It indicates that trastuzumab will have a good effect

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96

A 34-year-old woman visits her GP with the following symptoms and findings: Loss of vision (particularly peripheral vision), high blood pressure, high blood glucose and increased amounts of subcutaneous fatty tissue on her back and neck. It is suspected that her symptoms can be caused by a tumour.

Which is the most probable diagnosis?

- A** Pheochromocytoma
 - B** Glioblastoma
 - C** Pituitary adenoma
 - D** Meningioma
-

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97

A 26-year-old woman has an enlarged thyroid. Previously, it was slightly larger than it is now and it was tender. She is tired and has noticed that her hair has become thinner. Because of its size it was removed surgically. The histopathology report on the specimen from surgery describes:

'Thyroid with fibrosis and lymphocyte infiltration. Remnants of follicular structures without colloid can be seen. These structures are covered by a simple layer epithelium with large, round nuclei and eosinophil-rich cytoplasm, best compatible with oncocytic metaplasia.»

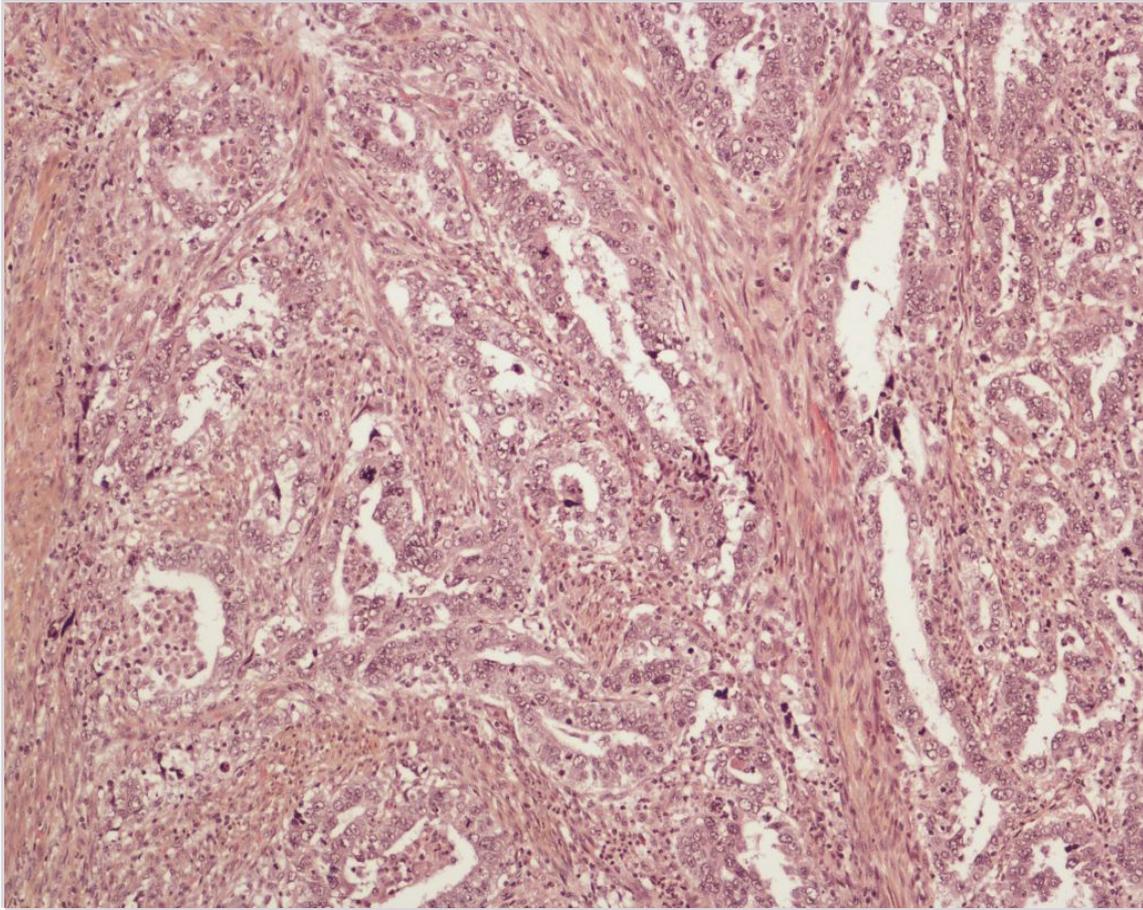
What is the most probable diagnosis?

- A** Hyperthyroidism
 - B** Lymphoma
 - C** Lateral neck cyst
 - D** Autoimmune thyroiditis
-

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98

A 65-year-old woman sees a doctor for postmenopausal bleeding. A pipelle sample is taken and the woman later undergoes surgery. Below is a histology image from the uterus (HES, 100X magnification).



What is the diagnosis?

- A** Adenocarcinoma
- B** Complex hyperplasia with atypia
- C** Complex hyperplasia without atypia
- D** Adenomyosis

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99

A 35-year old man underwent surgery for a testicular tumour. You are his GP and receive a copy of the results from the Pathology Dept. after the surgery. It states that he has a germ cell tumour. The patient now has an appointment with you and has several questions about the diagnosis.

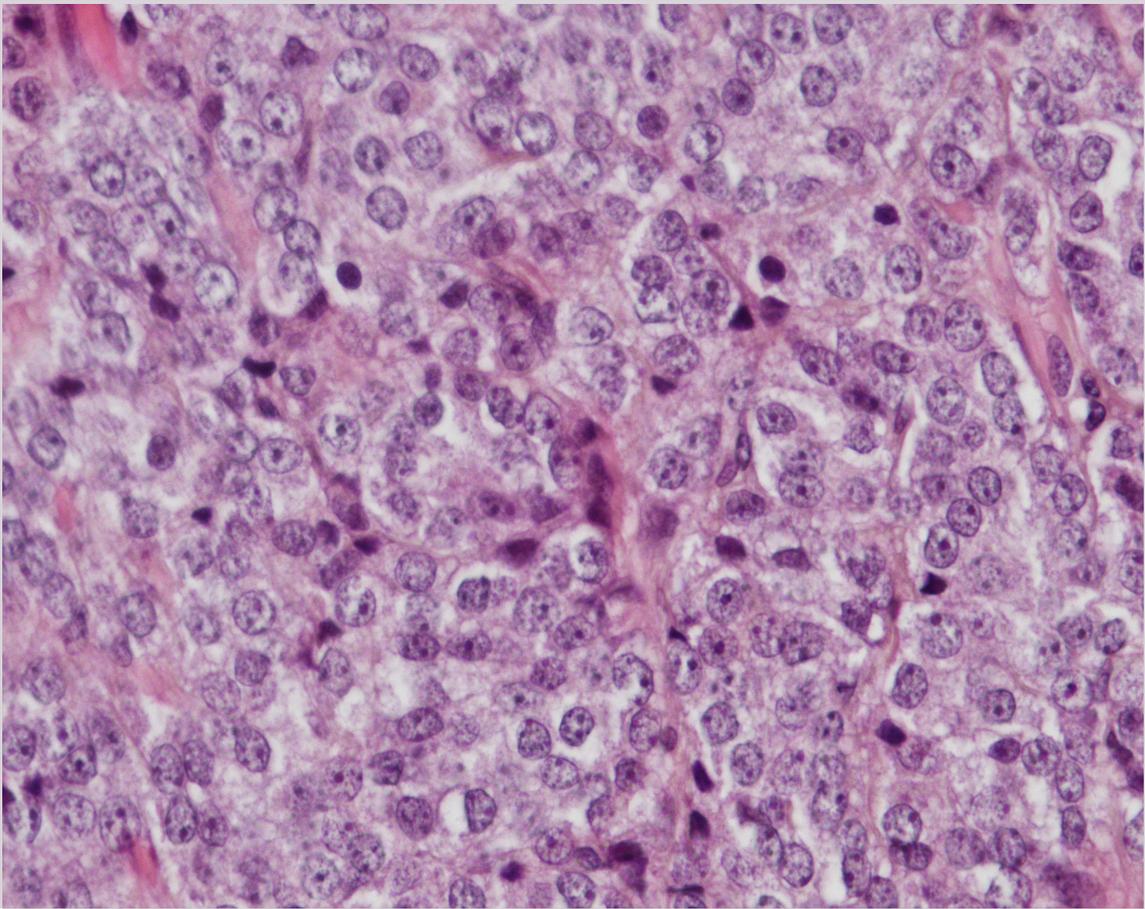
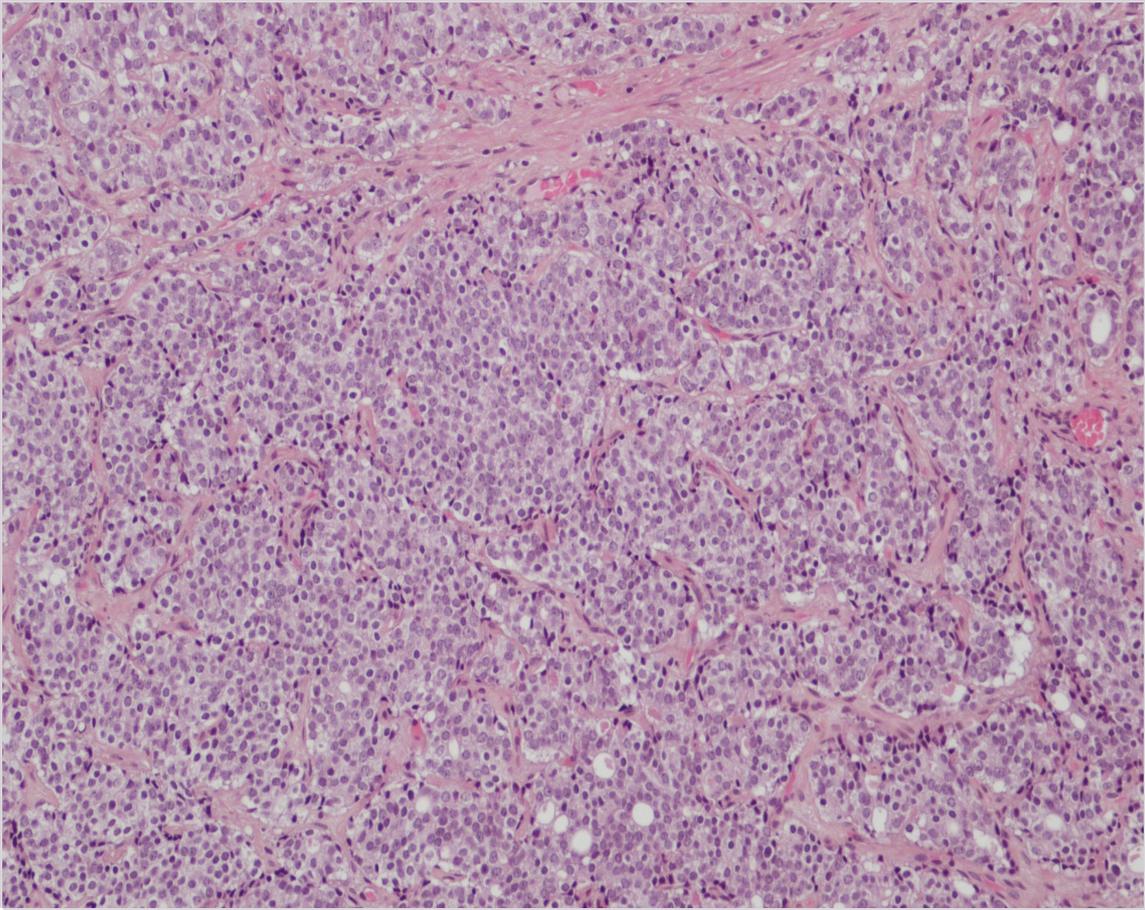
Which statement is correct?

- A** Benign tumours in the testicles are called germ cell tumours
- B** Testicular lymphomas are classified as germ cell tumours
- C** A retained testicle predisposes for germ cell tumours
- D** There is only one type of germ cell tumour (teratoma)

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100

A 65-year-old man has been shown to have elevated PSA (prostate-specific antigen) at a routine check-up with his GP. His GP refers him for investigations at the Urology Dept. where several biopsies are taken from the prostate. The images show histopathology specimens from the prostate biopsies (HES, 100x og 400x).



What is the most probable diagnosis?

- A** Normal prostate
 - B** Adenocarcinoma
 - C** Hyperplasia
 - D** Granulomatous inflammation
-

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101

Tubular, interstitial and glomerular injury in the kidneys can give varying histopathological manifestations, and the reason for these changes occurring can vary.

Which statement is correct?

- A** In nephritic syndrome there is most often podocyte injury
 - B** Diabetes mellitus glomerulopathy is a primary glomerulopathy
 - C** Most injuries to the tubules and interstitium are caused by trauma
 - D** Most glomerular injury is immunologically-mediated
-

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102

When evaluating the significance of bacterial findings in a urine culture sample, quantification of the findings is important.

In which case should a low bacterial count be considered significant?

- A** When the sample is from a child.
 - B** When the sample has been taken using a single-use catheter.
 - C** When the sample is from a patient with a urinary tract concrement.
 - D** When the sample is from a patient with symptoms from the upper urinary tract.
-

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103

You suspect that a patient with a permanent urinary tract catheter is developing an upper urinary tract infection.

Which sampling method will give the best material for urine culture from this patient?

- A** Disinfecting the catheter opening with alcohol before taking the sample
 - B** Removing the catheter and taking a sample with a new catheter
 - C** Closing the catheter 2-4 hours before taking the sample
 - D** Flushing the catheter with saline before taking the sample
 - E** Aspiration of urine through the catheter wall
-

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104

Finding several strains of bacteria in a urine sample can be a sign of contamination during sampling. With which sampling method is this type of contamination most often seen?

- A** When the sample taken is a bag sample
 - B** When the sample is taken percutaneously
 - C** When the sample is taken as a midstream sample
 - D** When the sample is taken from men with prostatism
-

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105

Which statement about bacterial vaginosis is correct?

- A** The condition is a sexually transmitted disease
 - B** The condition requires treatment if discovered incidentally
 - C** The condition can only be diagnosed using a microscope
 - D** The condition is not associated with infections in the upper reproductive organs
-

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106

Patients with lymphoma and chronic inflammation disorders often use rituximab (anti-CD20 antibody). Which immune system defect in particular do we see in these patients?

- A** Low plasma levels of immunoglobulins (particularly IgG) called hypogammaglobulinemia
 - B** Reduced number of CD4 lymphocytes
 - C** Decreased complement functionality with low plasma levels of C3 and C4
 - D** Neutropenia
-

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107

A man aged 75 years is admitted to the Medical Department with BP 85/50 mmHg, pulse 120 beats/min and fever (39°C). Urine dipstick shows 3+ for blood and 3+ for leukocytes. He has previously had urinary tract stones on several occasions; therefore he now has a new ultrasound of the urinary tract performed. This reveals significant hydronephrosis in the right renal pelvis. Which treatment should this patient receive first of all?

- A** Ampicillin + gentamicin i.v. and referral for insertion of a nephrostomy catheter
 - B** Ampicillin + gentamicin i.v. and referral for stone fragmentation (ESWL, Extracorporeal shock wave lithotripsy)
 - C** Mecillinam i.v. and referral for insertion of a nephrostomy catheter
 - D** Mecillinam i.v. and referral for stone fragmentation (ESWL, Extracorporeal shock wave lithotripsy)
-

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108

Patients with diseases such as rheumatoid arthritis and Crohn's disease often use tumour necrosis factor inhibitors (e.g. etanercept (Enbrel®), adalimumab (Humira®), infliximab (Remicade®)) as immunosuppressive therapy.

Which infections are these patients particularly susceptible to?

- A** Recurring respiratory tract infections with encapsulated bacteria (pneumococci and Hemophilus influenza)
 - B** Serious skin infections with staphylococci
 - C** Sepsis with extracellular bacteria such as gram-positive cocci (e.g. streptococci and staphylococci) and gram-negative rod bacteria (e.g. E. coli and Klebsiella)
 - D** Opportunistic infections with intracellular microbes such as tuberculosis and fungi
-

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109

A 30-year-old woman has been on holiday in Thailand. Five days after returning home she has a high fever (40°C), severe headache, particularly retro-orbitally, with intense muscle and joint pain. Over the last 24 hours a general maculopapulous rash has appeared. She says she was bitten several times by mosquitos in the middle of the day when she was out shopping in the city. What is the most likely diagnosis?

- A** Typhoid fever
 - B** Malaria
 - C** Rickettsiosis
 - D** Dengue fever
-

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110

Which of the following statements is correct in regard to side effects from ACE inhibitors and angiotensin receptor antagonists (ARB)?

- A** ARB more often causes hyperkalemia than ACE inhibitors
 - B** ACE inhibitors more often cause increased creatinine levels than ARB
 - C** ACE inhibitors more often cause a cough than ARB
 - D** ARB more frequently causes orthostatism than ACE inhibitors
-

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111

You are the GP for a normal weight, 63-year-old woman who smokes, and who has recently been investigated for high blood pressure. You have diagnosed moderate essential hypertension and found indication for antihypertensive treatment based on her total cardiovascular risk profile. Otherwise quite healthy, she has for many years had episodes of AV nodal reentry tachycardia which at times can be problematic. This has not previously been treated prophylactically. It is now time to select the antihypertensive drug.

Which class of antihypertensive drug could be particularly beneficial in this case?

- A Angiotensin receptor blockers
- B Alpha blockers
- C Thiazide diuretics
- D Beta blockers

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112

A patient uses levothyroxine for hypothyroidism. The patient has developed iron deficiency after major surgery and requires peroral iron supplements. An interaction search reveals that there is an interaction between levothyroxine and perorally administered iron.

What is the mechanism behind this interaction?

- A Levothyroxine inhibits the metabolism of iron
- B Iron and levothyroxine form insoluble complexes in the digestive tract
- C Levothyroxine induces the metabolism of iron
- D Iron increases the excretion of levothyroxine in the kidneys

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113

Bisphosphonates are used in the treatment of osteoporosis.

What is the most important mechanism of action for this group of drugs?

- A Bisphosphonates inhibit excretion of calcium from the kidneys
- B Bisphosphonates increase the absorption of calcium from the digestive tract
- C Bisphosphonates are embedded in the bone matrix and stimulate the osteoblasts
- D Bisphosphonates are embedded in the bone matrix and inhibit the osteoclasts

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114

A 30-year-old woman sees you at the general practice surgery to get a prescription for contraception. She has given birth to two children. Previously she has been healthy apart from having migraine with aura.

Which of the following contraceptives is the most correct for this patient?

- A NuvaRing contraceptive ring
- B Evra contraceptive patches
- C Loette contraceptive pills
- D Cerazette contraceptive pills

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115

Medications that are used in the treatment of diabetes type 2 can affect body weight.

Which of the following drug groups have the greatest tendency to increase body weight?

- A Insulins
- B Dipeptidyl peptidase-4 inhibitors (DPP-4 inhibitors) such as sitagliptin
- C Sodium-glucose cotransporter-2 inhibitor (SGLT2 inhibitors) such as empagliflozin
- D Sulfonylurea preparations such as glimepiride

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116

A 74-year-old man with diabetes type 2, elevated blood pressure and hypercholesterolaemia, is being treated with the following drugs:

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

The patient is now to have urography with intravenous contrast.

Which medication must be discontinued in connection with this investigation?

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

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117

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. Of the opioids commonly used in Norway, one is particularly associated with long QT interval as a side effect.

Which opioid is it?

- A** Buprenorphine
- B** Codeine
- C** Tramadol
- D** Methadone

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118

A woman is pregnant in the first trimester. She develops a bacterial cystitis and requires a course of antibiotics.

Which medication is the first-line treatment?

- A** Trimethoprim
- B** Erythromycin
- C** Pivmecillinam
- D** Nitrofurantoin

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119

Dutasteride and finasteride are both inhibitors of testosterone 5-alpha reductase and are used to treat benign prostatic hyperplasia.

What is the mechanism of action of these medicines?

- A** They inhibit conversion of testosterone to the inactive dihydrotestosterone in prostatic tissue
- B** They inhibit the conversion of testosterone to the more active dihydrotestosterone in prostatic tissue
- C** They act as antagonists at the testosterone receptor in prostatic tissue
- D** They inhibit the conversion of testosterone to the more active androstenedione in prostatic tissue

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