

## Self Study MCQs

### 4: Dementia

- 1) When prescribing donepezil to treat Alzheimer's disease, all of the following statements are correct **EXCEPT**:
- a) Starting dose is 5mg daily
  - b) Initial dose should be maintained for 4 weeks before any increase is considered
  - c) Riiivastigmine and galantamine is believed to be more effective than donepezil
  - d) Weight loss is a concern
  - e) Donepezil is associated with GI adverse effects and headaches

**Answer: C.** All the cholinesterase inhibitors are believed to be equally effective for treating mild to moderate Alzheimer's disease (Page 45 of Therapeutics Choices). Nausea, vomiting and anorexia are common adverse effects, frequently leading to weight loss. Initial dosing is at 5mg daily, and clinicians can increase the dose to 10 mg daily after 4 weeks.

- 2 . Which of the following drugs is NOT LIKELY to have a drug interaction with a cholinesterase inhibitor such as donepezil or galantamine?
- a) Oxybutynin (for urinary incontinence)
  - b) Carbamazepine
  - c) Ramipril
  - d) Timolol
  - e) Benztropine

**Answer: C.** ACE Inhibitors such as Ramipril do not interact with cholinesterase inhibitors. As listed on Table 2 (page 53 of Therapeutics Choices), drugs with cholinergic activity such as oxybutynin or benztropine, can have an antagonize the effect of cholinesterase inhibitors. Drugs commonly known to induce P450 CYP 3A4 or CYP 2D6 enzymes, such as carbamazepine or phenytoin, will decrease the effectiveness of cholinesterase inhibitors. Beta blockers such as timolol or metoprolol can have additive bradycardic effects.

### 9: Drug Withdrawal Syndromes

- 3) Choose the **CORRECT** statement about the treatment of opioid withdrawal:
- a) methadone discontinuation should be slowly tapered over many weeks
  - b) clonidine is an effective treatment against the muscle aches and cravings
  - c) methadone has a half-life of about 2 to 4 hours
  - d) naltrexone has no effect on the euphoric effects of opioids
  - e) clonidine is used as a long-term therapy

**Answer: a.** Any discontinuation of methadone should be slowly tapered since drug craving can persist for several months. Methadone can be given once a day because it has a half-life of about 30 hours. Clonidine is only used for 7-12 days to blunt the withdrawal symptoms in acute detoxification but it has no effect on the muscle aches and cravings. Naltrexone is a long-acting opioid antagonist used to block the agonist effects such as euphoria.

12/13: Headaches

- 4) Which of the following migraine prophylaxis medications should **NOT** be prescribed for an asthmatic child?
- a) flunarizine
  - b) propranolol
  - c) amitriptyline
  - d) pizotifen

**Answer: b.** All of these agents are used for migraine prophylaxis in children but, since nonselective beta-blockers can cause bronchospasm, propranolol should be avoided in this patient.

- 5) JM is a 15-year old patient on eletriptan for migraine headaches. Which of the following could safely be given to this patient?
- a) ibuprofen
  - b) escitalopram
  - c) clarithromycin
  - d) ketoconazole
  - e) sumatriptan

**Answer: a.** This patient could take ibuprofen safely. Escitalopram is an SSRI, and triptans should be used with caution with these agents as well, there are concerns about increased suicidality when using an antidepressant in children. Eletriptan is contraindicated within 72 hours of CYP3A4 inhibitors (clarithromycin and ketoconazole). One triptan should not be taken within 24 hours of another triptan.

15: Neuropathic Pain

- 6) When treating neuropathic pain, you have to take into consideration:
- A) first-line agents are amitriptyline, gabapentin and pregabalin
  - B) artificial saliva mouth spray can be given with amitriptyline if the patient gets dry mouth
  - C) gabapentin has no significant interactions with common over the counter medications like ibuprofen, cough and cold remedies or antacids
  - D) a stool softener should be given with opioids and amitriptyline
  - E) codeine is a good choice for treating severe pain

The correct answer is:

- a) C and D
- b) B, D and E
- c) A, B and D
- d) C and E
- e) A, B, C and D

**Answer: c.** TCAs (amitriptyline) cause dry mouth due to their anticholinergic effects. Both opioids and TCAs cause constipation and, since these agents will be used on a regular, a stool softener or other laxative should be given as a preventive. Amitriptyline is standard therapy for neuropathic pain but gabapentin and pregabalin are alternative first-line agents. The bioavailability of gabapentin is reduced by OTC antacids and, since this agent causes GI upset, concomitant use of these agents should be avoided. Tolerance is not a major problem when opioids are used to treat chronic, severe, nonmalignant pain and codeine is a poor choice for treatment of severe pain.

7) Which of the following statements regarding the treatment of neuropathic pain is FALSE?

- a) Acetaminophen with codeine (Tylenol #3) is a first line treatment for neuropathic pain
- b) If patients are too sedated on amitriptyline, nortriptyline may be better tolerated
- c) Some patients may obtain better relief of pain with a combination of a TCA (such as amitriptyline) and an antiepileptic drug (such as gabapentin)
- d) Bupropion is has been shown to be less effective than TCAs

**Answer: a.** Opioid treatment is usually tried as a second or third line treatment option for people who have significant neuropathic pain refractory to first line agents (Table 2, page 213 of Therapeutics choices). Nortriptyline is less sedating than amitriptyline and may be a reasonable choice. Combinations therapies such as amitriptyline and gabapentin can have synergistic effects on pain (page 214) and bupropion (and some trials with venlafaxine) suggest they are less effective than TCAs for controlling neuropathic pain (page 212).

16: Bell's Palsy

8) AB, a 35-year old pregnant patient of yours, presents with the Bell's Palsy symptoms of mild facial weakness of the upper and lower face, ear pain and altered taste which began about 5 days ago and hasn't worsened since. Which of these statements represents your best response?

- a) No treatment is necessary since ~85% of cases resolve without treatment
- b) morphine 10mg q4h prn for the ear pain
- c) acyclovir 400mg 5 times daily for 10 days
- d) prednisone 1mg/kg daily for 5 days, then taper dose for 5 days

**Answer: a.** Up to 85% of cases recover spontaneously without treatment. Ibuprofen or acetaminophen with or without codeine may be used for pain in the first day or two, but more potent agents are not usually needed. Acyclovir is seldom given without prednisone and its benefit is not established. Prednisone would not be used since no treatment is needed for mild weakness that is no longer evolving.

19: Restless Legs Syndrome

9) Which of the following medications have been shown useful in the treatment of restless legs syndrome?

- a) diphenhydramine
- b) caffeine
- c) pramipexole
- d) fluoxetine
- e) alcohol

Answer: c. Pramipexole, a dopamine agonist, is one of the drugs of choice in the treatment of restless legs syndrome. All of the other agents have been shown to contribute to the symptoms.

21: Seizures and Epilepsy (use of folic acid)

10) Your patient MJ is a 27-year old female whose epilepsy is well-controlled on lamotrigine. She and her husband have decided that they are ready to start a family, so she wants to discuss her plans with you. You talk to her about the need for folic acid to prevent any teratogenic effects from the antiepileptic agent and recommend:

- a) a good prenatal multivitamin for its folic acid content
- b) folic acid 0.4mg daily
- c) folic acid 1mg daily
- d) folic acid 5mg daily

**Answer: d.** Women on antiepileptic drugs should receive 5mg daily starting before conception and during the pregnancy to prevent neural tube defects. All of the other choices would not provide enough folic acid; prenatal vitamins only contain, at maximum, 1mg of folic acid.

25: Age-Related Macular Degeneration

11) MF is a 78-year old smoker who is newly diagnosed with the dry form of age-related macular degeneration (AMD). When counselling this patient, you recommend that:

- A) she stop smoking
- B) she take a vitamin compound containing beta-carotene and vitamins C and E
- C) she take a vitamin compound containing copper, zinc, vitamins C and E
- D) she always wear sunglasses
- E) she self-monitor her vision with an Amsler grid

The correct answer is:

- a) A, B and E
- b) A, D and E
- c) B and D
- d) B, C and E
- e) A, C and E

**Answer: e.** Smoking is implicated in up to 30% of vision loss from AMD. The AREDS trial showed a 25% reduction in vision loss when taking a combination of beta-carotene, copper, zinc and vitamins C and E; however, beta-carotene has been shown to increase the risk of lung cancer in smokers, even up to 5 or 10 years later. Self-monitoring with an Amsler grid will help detect the progression to the wet form of AMD in the 5% of patients in which this occurs. It is not known if wearing sunglasses has an impact on the condition.

26: Thyroid Disorders

12) Which of the following is the **INCORRECT** response regarding the treatment of hypothyroidism?

- a) the dosage of levothyroxine must be reduced during pregnancy
- b) levothyroxine dosage adjustments are made every 3 to 4 weeks
- c) levothyroxine dosage adjustments are made every 4 weeks in the elderly
- d) the average adult replacement dose of levothyroxine is 1.6mcg/kg/day
- e) levothyroxine treatment may exacerbate angina

**Answer: a.** Thyroid binding globulins increase during pregnancy and levothyroxine requirements may increase by up to 50%. It takes about 6 weeks to reach steady state after a dosage adjustment, so no changes in dosage should be made before 6 weeks.

13) Which of the following drugs does not interact with levothyroxine in a way that prevents or reduces its absorption?

- a) iron
- b) calcium
- c) warfarin
- d) sucralfate

**Answer: c.** Levothyroxine may affect the body's response to warfarin, leading to increase anticoagulation. All of the other drugs bind to levothyroxine preventing its absorption, and the administration of these agents should be spaced to prevent this.

28: Obesity

14) JP is 43-year old female with type 2 diabetes who is taking metformin 500mg twice daily, hydrochlorothiazide 25mg daily and citalopram 20mg daily. She has been trying to lose weight to help with both her diabetes and mild hypertension but has not been able to lose more than a few pounds. The best prescription alternative for her would be:

- a) sibutramine 10mg daily
- b) orlistat 120mg three times daily
- c) diethylpropion SR each morning
- d) bupropion SR 150mg daily

**Answer: b.** Orlistat is approved for weight loss in type 2 diabetes patients for whom it improves glycemic and metabolic control. Sibutramine is contraindicated because of the additive serotonergic effect with citalopram, potentially leading to serotonin syndrome. Diethylpropion and bupropion have mild appetite suppressant effects but are only to be used in the short term.

15) Which of the following statements about medications used to treat obesity is **TRUE**?

- a) sibutramine and orlistat have been found in well designed trials to have a beneficial effect on prolonging life in those with BMI >35
- b) Sibutramine is a pancreatic and lipase inhibitor
- c) Discontinuation of anti-obesity medications typically does NOT result in regaining weight
- d) Sibutramine is contraindicated in patients with coronary artery disease, arrhythmias and cerebrovascular disease
- e) In obese individuals, doses of bupropion of 450 mg daily are not associated with increased seizure risk than doses of 150 mg daily.

**Answer: d.** Sibutramine is contraindicated in patients with coronary artery disease, arrhythmias, heart failure, uncontrolled hypertension and cerebrovascular disease (Page 386). Anti-obesity medications have **not** been shown to have a beneficial effect on mortality (page 365). Sibutramine acts by inhibiting the reuptake of serotonin and norepinephrine (it is not a lipase inhibitor). Discontinuation of anti-obesity medications typically does result in regaining weight (page 364). Single doses of bupropion of >150 mg per dose or total daily dose >300 mg/day are associated with increased seizure risk.

33: Stable Angina

16) The most common side effect of nitrate therapy in the treatment of angina is:

- a) Chest pain
- b) Upset stomach
- c) Muscle cramps
- d) Headache

**Answer: d.** Headache is extremely common and can be severe due to the vasodilatory effects of the nitrate. Chest pain is a symptom of an angina attack and nitrates are taken to prevent these. Upset stomach and muscle cramps rarely occur with nitrates.

17) You have a patient with an established diagnosis of chronic stable angina. Which of the following drugs should this patient **NOT** receive?

- a) ASA 80mg daily
- b) Nifedipine 10mg 3 times daily
- c) Simvastatin 40mg daily
- d) Ramipril 10mg daily
- e) Isosorbide dinitrate 10mg 3 times daily

**Answer: b.** Short-acting nifedipine has been associated with higher mortality rates and should be avoided. Antiplatelet agents (ASA), ACE inhibitors (ramipril) and statins (simvastatin) all have clear evidence that their use benefits patients with angina pectoris. Nitrates (isosorbide dinitrate) are effective for acute and chronic angina.

35 – Post-myocardial infarction

- 18) A patient with a myocardial infarction (without any previous medical conditions) should be routinely started on all of the following medications **EXCEPT**:
- a) Metoprolol
  - b) Ramipril
  - c) ASA
  - d) Simvastatin
  - e) Hydrochlorothiazide

**Answer: e.** Among high risk patients, antiplatelet agents such as ASA, beta-blockers, ACE inhibitors and lipid-lowering therapies independently reduce the incidence of vascular events and have been shown to reduce mortality. A diuretic would only be considered with concurrent heart failure to minimize fluid retention.

42: Venous Thromboembolism

- 19) All of the following antimicrobials should be given with caution, if at all, to a patient being treated with warfarin for a deep vein thrombosis (DVT) **EXCEPT**:
- a) erythromycin
  - b) fluconazole
  - c) ciprofloxacin
  - d) tetracycline
  - e) clindamycin

**Answer: e.** Clindamycin does not interact with warfarin. All of the other agents potentiate the effects of warfarin, increasing the INR.

- 20) When treating DVT, warfarin is given at a dose to maintain an INR range of:

- a) 0.5 – 1
- b) 1 – 1.5
- c) 1.5 – 5
- d) 2 - 3
- e) 4 – 5

**Answer: d.** The standard treatment is for an INR range of 2-3, though an INR of 1.5-2 has been shown to be effective. All the other ranges listed are not the most appropriate target INR range.

43: Intermittent Claudication

- 21) When considering the use of pentoxifylline to treat intermittent claudication, all of the following is true **EXCEPT**:
- a) smoking cessation is more beneficial in moderate claudication
  - b) it causes a lot of GI upset, so should be taken with food
  - c) 24 weeks of therapy followed by 8 weeks drug-free can decrease the need for the drug
  - d) it is very effective in mild claudication
  - e) it will increase the risk of bleeding if given with warfarin

**Answer: d.** It only produces marginal improvement in pain-free and maximal walking distance, so is not indicated for mild claudication. Smoking cessation and leg exercise are probably more useful in moderate

claudication. Pentoxifylline causes nausea, vomiting, dyspepsia, belching, bloating and flatulence; the incidence of these can be reduced by taking the medication with food. A drug-free period as exercise tolerance increases can reduce the need for pentoxifylline. It increases the effect of warfarin by an unknown mechanism, leading to an increased risk of bleeding.

44: Raynaud's Phenomenon

22) For a patient with Raynaud's phenomenon, the following could be of value:

- a) avoid snowmobiling
- b) take nifedipine XL 30mg daily in the winter
- c) take nifedipine XL 30mg 30-60 min. before cold exposure
- d) all of the above
- e) none of the above

**Answer: d.** Patients with Raynaud's phenomenon should be told to avoid cold exposure and the use of vibrating tools; snowmobiling combines both of these factors. Calcium channel blockers (CCBs) are the first-line agents in treatment of this condition and reduce the frequency and severity of the attacks. A CCB can be taken either before cold exposure or on a regular basis during the winter months; daily use rather than prn will increase tolerance to the side effects.

48: Asthma in Infants and Children

23) What is the **INCORRECT** statement regarding asthma therapy in infants and children?

- a) adult doses of inhaled medication may be required in children
- b) formoterol, a LABA, has a similar onset of action to salbutamol
- c) children on ICS therapy have restricted height as adults
- d) montelukast may allow a lower dose of an ICS
- e) use of salbutamol >4 times per week indicates suboptimal asthma control

**Answer: c.** There is an initial decrease in growth rate but it is not sustained with long-term therapy; ICS use doesn't affect final adult height. Drug deposition with an MDI and spacer device can be as little as 10 to 20% of that in adults and, as a result, adult doses may be needed. Formoterol, though it is long-acting, has a rapid onset and can be used as prn therapy. Leukotriene Receptor Antagonists (LTRAs) such as zafirlukast and montelukast) have steroid-sparing properties and exert the equivalent control on airway inflammation as fluticasone 100mcg/day. Use of salbutamol on a prn basis provides valuable information on asthma control and use of 4 or more times per week indicates suboptimal control.

24) Which of the following is the **CORRECT** statement regarding the treatment of asthma in children?

- a) inhaled corticosteroids (ICS) can be safely stopped once symptoms are under control
- b) salbutamol prevents exercise-induced bronchospasm for up to 10 hours
- c) formoterol can be used to treat bronchospasm
- d) montelukast will allow an ASA-sensitive asthmatic to take ibuprofen safely
- e) long-acting theophylline is an effective agent for routine maintenance in asthma

**Answer: c.** Formoterol is a LABA that has a rapid onset of action similar to salbutamol which makes it an effective treatment for bronchospasm. Regular use of an ICS reduces mortality and asthma exacerbations, improves pulmonary function and controls symptoms; cessation may result in the return of airway hyperactivity to previous levels. Salbutamol is a SABA that only prevents exercise-induced bronchospasm for 2-4 hours. Even though montelukast may provide bronchoprotection in an ASA-



sensitive asthmatic, NSAIDs should still be avoided in these patients. Theophylline is only used as add-on therapy because of its potential for toxicity and the large number of drug interactions involving this agent.

#### 56: Inflammatory Bowel Disease

25) Which of the following statements are **TRUE** regarding the treatment of Crohn's disease or ulcerative colitis?

- A) the use of NSAIDs should be avoided
- B) therapy with purine antimetabolites should be accompanied by a contraceptive agent for females
- C) loperamide is useful for diarrhea in patients with severe disease
- D) sulfasalazine has the least incidence of side effects
- E) 5-aminosalicylic acid is the most effective aminosalicylate agents for ulcerative colitis

The correct answer is:

- a) A and B
- b) A, C and D
- c) B, D and E
- d) A, B and C
- e) D and E

**Answer: a.** NSAIDs may exacerbate symptoms in both of these conditions. Purine antimetabolites carry a risk of teratogenicity, so a female patient should use effective contraception. Antidiarrheal agents should be avoided in severe disease due to the risk of toxic megacolon. Sulfasalazine has the highest incidence of side effects, including nausea, headache, rash, haemolytic anemia and hepatotoxicity. All 5-ASA preparations are equally effective in ulcerative colitis.

#### 57: Irritable Bowel Syndrome

26) Which is the **BEST** response regarding irritable bowel syndrome?

- a) Probiotics are very useful in the treatment of irritable bowel syndrome
- b) lifestyle modification is more useful than medication
- c) loperamide 2mg qid is recommended for diarrhea
- d) psyllium and bran should be taken for constipation
- e) pinaverium for spasm is a mainstay of therapy

**Answer: b.** Patients generally benefit more from lifestyle modification, including diet and stress reduction, than from drug therapy. While there is interest in the use of probiotics in IBS, quality of available products is unreliable and supporting evidence is lacking. Loperamide should be taken on a PRN basis, not regularly. For predominant constipation, psyllium OR bran is recommended as fibre sources. Since "colonic spasm" doesn't explain IBS symptoms so an antispasmodic, such as pinaverium, dicyclomine or hyoscine, is unlikely to be helpful.

58: Lower Urinary Tract Symptoms and Benign Prostatic Hyperplasia

27) HB is a 73-year old patient with BPH who has been stabilized on Flomax CR 0.4mg daily. He has just been diagnosed with depression. Which of the following antidepressants would be contraindicated for this patient?

- a) escitalopram
- b) paroxetine
- c) venlafaxine
- d) nortriptyline
- e) moclobemide

**Answer: d.** Nortriptyline is a tricyclic antidepressant and, like all of that class, has a high incidence of anticholinergic side effects, including urinary hesitancy. None of the other agents would be contraindicated.

61: Contraception

28) Choose the **TRUE** statement regarding the adverse effects acronym "ACHES" in relation to oral contraceptives:

- a) "A" refers to acne
- b) "C" refers to chest pain caused by an MI
- c) "H" refers to hives from an allergic reaction
- d) "E" refers to elevated blood pressure
- e) "S" refers to severe menstrual cramps

**Answer: b.** ACHES refers to Abdominal pain, Chest pain, Headaches, Eye problems and Severe leg pain.

29) Choose the **FALSE** statement in regards to Emergency Contraception:

- a) The Yuzpe method causes a higher rate of nausea than Plan B
- b) All methods must be used within 24 hours of unprotected intercourse to be effective
- c) The two (2) Plan B tablets can be taken as a single dose
- d) The two (2) Plan B tablets can be taken 12 hours apart
- e) A copper IUD can be used up to 7 days after unprotected intercourse

**Answer: b.** The efficacy is highest if used within 24 hours of unprotected intercourse, but the oral methods can be used up to 5 days and the copper IUD up to 7 days after unprotected intercourse. The nausea/vomiting rates for the Yuzpe method are 50.5%/18.8% while for Plan B they are 23.1%/5.6%. The dosing of Plan B is quite flexible, with the possibilities of taking 2 tablets together, 1 q12h and 1 q24h .

62: Dysmenorrhea

30) All of the following are effective in the treatment of dysmenorrhea **EXCEPT**:

- a) Topical heat therapy
- b) Regular exercise
- c) Mefenamic acid 500mg to start then 250mg q6h prn
- d) Ibuprofen 200-600mg q6h
- e) Naproxen sodium 550mg bid

**Answer: c.** All NSAIDs (except for ASA) are effective in 80% of dysmenorrheal cases and there is minimal difference between them; however, they should be taken on a regular schedule for 48 to 72 hours and should not be taken prn. Both topical heat and regular exercise are nonpharmacological therapies that provide relief for dysmenorrhea.

31) Which of the following statements about the treatment of dysmenorrhea is TRUE?

- a) ASA is as effective as other NSAIDs for treating dysmenorrhea
- b) Diclofenac should be used in conjunction with misoprostol or a PPI when used for dysmenorrhea for most females
- c) Combined oral contraceptives (COC) have not been found to be helpful to treat dysmenorrhea
- d) NSAIDs and SSRIs used together for dysmenorrhea can increase the risk of gastrointestinal bleeding
- e) None of the above

**Answer: d.** The combination of NSAIDs and SSRIs has been associated with an increased risk of GI bleeds. ASA is less effective than other NSAIDs for treating dysmenorrhea (Page 836). Since NSAIDs are used for a short term, they do not need a gastroprotective agent to be used concomitantly unless the person is at high risk for peptic ulcers. Combined oral contraceptives are a reasonable first line option for dysmenorrhea.

65: Female Sexual Dysfunction

32) All of the following medications can cause Female Sexual Dysfunction **EXCEPT**:

- a) Paroxetine
- b) Amitriptyline
- c) Phenytoin
- d) Testosterone
- e) Metoprolol

**Answer: d.** Physicians experienced in women's sexual dysfunction are investigating the use of testosterone in its treatment. All of the other agents have sexual dysfunction as a recognized adverse drug reaction (ADR).

66: Male Sexual Dysfunction

33) Choose the **TRUE** statement regarding the treatment of Erectile Dysfunction:

- a) SSRIs have been shown to be useful in treatment
- b) Taladafil has the longest duration of action of the phosphodiesterase Type 5 (PDE5) Inhibitors
- c) The PDE5 Inhibitors have no drug interactions of concern
- d) Sildenafil will show an effect within 30 minutes
- e) Vardenafil should be taken with a high fat meal

**Answer: b.** Taladafil has a duration of effect of up to 36 hours, while sildenafil and vardenafil have a duration of effect of 8-12 hours. SSRIs have a recognized ADR of sexual/erectile dysfunction. All of the PDE5 Inhibitors have quite a few significant ITRs, including with nitrates, CYP3A4 inhibitors, and grapefruit juice. A high fat meal delays the absorption of vardenafil.

70: Gout and Hyperuricemia

34) What would be the **BEST** choice for treatment of acute gout in someone with no contraindications?

- a) colchicine 0.6mg once daily
- b) indomethacin 75mg stat then 50mg q6h x 2 days
- c) allopurinol 100mg daily
- d) celecoxib 100mg bid

**Answer: b.** NSAIDs are the first choice in treatment of acute gout. COX-2 inhibitors would be reserved for those patients at risk for ulcer complications (>65, previous GI bleed, on anticoagulants or corticosteroids). While using colchicine is reasonable, it is often needed more than once daily and has a limited role due to its potential toxicity. Allopurinol is used as a prophylactic agent to prevent further attacks.

35) Which of the following statements regarding gout treatment is/are **TRUE**?

- a) Indomethacin is more effective than other NSAIDs in the treatment of gout.
- b) Colchicine should be as first line therapy in patients with acute gout and renal failure (CrCl < 10 mL/min)
- c) Probenecid should be started during an attack of acute gouty arthritis.
- d) Allopurinol is not associated with gastrointestinal side effects.
- e) None of the above

**Answer: e.** All the NSAIDs are equally effective for treating gout – though indomethacin is traditionally used more. Colchicine is contraindicated in those with severe renal failure. Though probenecid can precipitate a gout attack, it should not be started during an attack and allopurinol is associated with several GI adverse effects.

36) When initiating therapy with allopurinol all of the following are true **EXCEPT**:

- a) start with allopurinol 100mg daily and gradually titrate upwards
- b) the patient should be told to reduce wine intake
- c) colchicine 0.6mg twice daily will reduce the possibility of an acute flare
- d) the patient should be told to reduce beer and liquor intake
- e) indomethacin 25mg twice daily will reduce the possibility of an acute flare

**Answer: b.** Wine consumption has not been associated with an increased risk of gout. On the other hand, beer, liquor, meat and seafood have all been associated with an increased risk of gout. The starting dose of allopurinol is 100mg daily, gradually increased and titrated to urate levels. Colchicine or, if it cannot be used, a low-dose NSAID reduces the risk of an acute flare when therapy with allopurinol is started.

72: Rheumatoid Arthritis

37) Which of the following statements regarding the use of NSAIDs in the treatment of rheumatoid arthritis is/are **TRUE**?

- a) they are safe when used during early pregnancy (first or second trimester)
- b) COX-2 inhibitors are as equally effective as traditional NSAIDs
- c) misoprostol should be added if the patient is at risk of peptic ulcer disease
- d) NSAIDs are used initially in patients with rheumatoid arthritis to reduce joint pain and swelling.

- e) all of the above

**Answer: e** NSAIDs are considered safe during the first two trimesters of pregnancy but should not be used in the last month due to the risk of fetal and maternal bleeding, premature closure of the ductus arteriosus and interference with labour. The efficacy of traditional NSAIDs and COX-2 inhibitors are similar. Appropriate gastroprotection (misoprostol, a PPI) should be used if a patient is at risk of peptic ulcer disease. They are helpful in reducing joint pain and swelling, but do not alter progression of disease.

78: Rosacea

38) Which of the following statements about rosacea are **TRUE**?

- A) Alcohol can act as a trigger
- B) Topical corticosteroids are useful to treat the redness and inflammation
- C) Tetracycline should be avoided because it causes photosensitivity reactions
- D) Topical metronidazole should be continued for 12 weeks
- E) Sunlight can be helpful as a treatment

The correct answer is:

- a) A and E
- b) B, C and D
- c) A and D
- d) A
- e) E

**Answer: c.** Alcohol is a trigger that can worsen rosacea, as is sunlight, heat, hot beverages, spicy foods, stress and the application of corticosteroids to the face. Tetracycline is one of the agents used to treat severe and persistent rosacea, though the side effect of photosensitivity does mean that the user must protect the skin during sun exposure. While topical metronidazole is the first-line treatment against mild to moderate rosacea, it can take 12 weeks of therapy to show pronounced improvement.

39) While tetracycline is an effective treatment for rosacea, it has several disadvantages. These disadvantages include:

- a) high cost
- b) telangiectasia results from its use
- c) topical metronidazole cannot be used at the same time
- d) some food restrictions are required
- e) concurrent antacids are required to prevent GI upset

**Answer: d.** Since the absorption of tetracycline is reduced by interactions with calcium, it cannot be taken with milk or milk products. This interaction also applies to iron, zinc, aluminum, magnesium and other cations, so the intake of these items (e.g. antacids, vitamins, etc.) must be spaced by 2 hours. Tetracycline is the cheapest agent in the class of tetracyclines, and a 30-day supply costs less than \$10. Telangiectasia is caused by the condition but its presence is revealed when the antibiotic clears up the symptoms. Tetracycline is frequently added to topical metronidazole therapy in recurrent and severe rosacea.

79: Sunburn

40) Which of the following agents would **NOT** be implicated in a phototoxic reaction?

- a) Tretinoin
- b) Doxycycline
- c) Ciprofloxacin
- d) Hydrochlorothiazide
- e) Amoxicillin

**Answer: e.** All of the other agents have known phototoxic side effects.

41) SB is a 19-year old fair-skinned woman who has sunburn after visiting a tanning salon. Any of the following would be useful to reduce erythema and/or pain **EXCEPT**:

- a) Diclofenac 1% gel applied 6 and 10 hours after exposure
- b) Betamethasone dipropionate 0.025% cream applied prn
- c) Prednisone 5mg po daily x 5 days
- d) Ibuprofen 400mg q6h x 4 doses
- e) Tap water compresses for 20 min. 4 to 6 times daily

**Answer: c.** Systemic corticosteroids have little effect when treating sunburn and may increase the risk of secondary infection. All of the other alternatives have been shown to provide relief. Compresses provide temporary relief. NSAIDS, either topical or oral, may decrease pain, erythema and, in some cases, edema. Potent topical corticosteroids transiently decrease erythema and have an additive effect with ibuprofen or indomethacin.

80: Burns

42) TJ is a 35kg 6-year old boy with a scald on his outer right arm between the wrist and elbow. There is minimal blistering, though the skin is very red and the child is complaining of pain. You would tell the parent to:

- a) give ibuprofen 175-350mg every 6 to 8 hours for pain
- b) give ibuprofen 175-350mg every 6 to 8 hours if needed for pain
- c) give acetaminophen 350-525mg every 4 to 6 hours for pain
- d) give acetaminophen 350-525mg every 4 to 6 hours if needed for pain
- e) apply silver sulfadiazine cream to the area once daily

**Answer: a.** NSAIDS manage pain in minor burns and suppress the inflammation and should be given on a regular basis; children particularly require analgesia for burns. The dosage range for ibuprofen in children is 5-10mg/kg every 6 to 8 hours. Topical antibiotics are often not used with superficial burns and, for TJ, blistering is minimal and would likely not require a prophylactic antibiotic. The parent can be told the signs of infection to watch for and use a readily available agent, such as bacitracin, if needed.

85: Scabies and Pediculosis

43) Which of the following is **FALSE** regarding the treatment of infestations?

- a) in scabies, continued itching is a sign of treatment failure
- b) retreatment within 7 to 10 days is recommended for all types of infestations
- c) only contacts with live lice or nits within 1cm of the scalps should be treated
- d) for body lice, bathing and laundering of infested clothing & linens in hot water are sufficient
- e) nits should be mechanically removed after pharmacologic treatment

**Answer: a.** In scabies, itching can persist for weeks after the mites are eradicated as it is caused by the mites' secretions. Retreatment is recommended for all infestations since there are no reliably ovicidal products and patient compliance is not 100%. Head lice are spread by contact, either with the infested person or personal items, so all potential human contacts should be checked but only those with live lice or recently laid nits should be treated. Since body lice only feed from the body but live in clothing and bed linens, bathing plus hot laundering of potentially infested items is usually sufficient. Since no agent is reliably ovicidal and resistance is increasing, nit removal has become increasingly important.

44) Which is the following is **TRUE** regarding the use of pediculocides?

- a) Permethrin rinse is safe to use in patients with ragweed allergy
- b) Pyrethrins/piperonyl shampoo is safe to use in patients with ragweed and chrysanthemum allergy
- c) Lindane is the agent of choice for pregnant women
- d) Permethrin rinse can be used after any type of shampoo
- e) Pyrethrins/piperonyl shampoo is the drug of choice for most patients

**Answer: a.** Both permethrin and pyrethrins/piperonyl are contraindicated in patients with chrysanthemum allergy; however, permethrin is safe for those with ragweed allergy but pyrethrins/piperonyl is not. Lindane is contraindicated during pregnancy. Hair must be washed with a conditioner-free shampoo before using permethrin rinse. Permethrin rinse is the drug of choice for most patients with head lice.

86: Bacterial Skin Infections

45) When treating a patient with an infected cat bite, which of the following would you prescribe?

- a) clindamycin 300mg q6h
- b) cephalexin 500mg q6h
- c) cloxacillin 500mg q6h
- d) amoxicillin/clavulanate 500mg q8h
- e) cefadroxil 1gm daily

**Answer: d.** Amoxicillin/clavulanate should be used due to the presence of *Pasteurella multocida* in cat and dog bites. This organism is resistant to clindamycin, cephalosporins (cephalexin, cefadroxil) and penicillinase-resistant penicillins (cloxacillin).

46) Which drug would be the safest to use for a skin infection in a patient with a recent history of anaphylaxis from a dose of intravenous penicillin G?

- a) amoxicillin
- b) dicloxacillin
- c) erythromycin
- d) cephalexin
- e) cefuroxime

**Answer: c.** Erythromycin, being from the macrolide class of agents, has no cross-sensitivity with penicillin G. Amoxicillin and dicloxacillin are both penicillins, so would likely provoke the same anaphylactic reaction as penicillin G. Cephalosporins (cephalexin) have some cross-reactivity with penicillins.

47) *Staphylococcus aureus* is a common etiologic agent in:

- a) urinary tract infection
- b) folliculitis
- c) acute exacerbations of chronic bronchitis
- d) pseudomembranous colitis

**Answer: b.** *S. aureus* is the most common infectious cause of folliculitis. Pseudomembranous colitis is caused by *E. coli*. Acute bronchitis has a nonbacterial cause in >90% of cases. UTIs can be caused by a variety of organisms but *S. aureus* is not among them.

48) Which drug would be safe and effective for the treatment of cellulitis in a pregnant woman who is allergic to penicillin?

- a) minocycline
- b) levofloxacin
- c) clindamycin
- d) silver sulfadiazine
- e) cephalexin

**Answer: c.** Clindamycin is a reasonable agent to treat serious skin and soft tissue infections in penicillin-allergic patients. The only other agent on the list that is also one of the recommended oral agents to treat cellulitis are cephalexin, and this agent has cross-reactivity with penicillins. Fluoroquinolones have little role to play in treating common bacterial skin infections unless gram-negative organisms are suspected. Silver sulfadiazine is a topical agent used to treat burns. Minocycline is not used to treat bacterial skin infections though it has a role to play in the treatment of acne.



87: Common Anemias

49) Which statement about iron supplementation is **FALSE**?

- a) iron is poorly absorbed from enteric-coated tablets
- b) the dosing of iron supplementation is slowly increased to minimize gastric upset
- c) elemental iron has few drug interactions
- d) the target daily dose of elemental iron is 105-200mg per day
- e) an equivalent strength of ferrous fumarate provides more elemental iron than ferrous gluconate

**Answer: c.** Oral iron preparations have many drug interactions, usually due to chelation. This reduces the absorption of both agents in the interaction and their administration should be separated by approximately 2 hours. Nonenteric-coated salts are preferred due to concerns with the effectiveness of enteric-coated preparations in releasing iron in the gastric environment. Gastrointestinal side effects are the main reasons for nonadherence and a graduated approach to dosing should be used to minimize these. The target daily dose is 105-200mg of elemental iron per day although in the elderly 15-50mg per day may be sufficient. A 300mg tablet of ferrous fumarate provides 100mg of elemental iron; an equivalent tablet of ferrous gluconate provides only 35mg.

99: Tuberculosis

50) For the majority of cases, the recommended treatment for a patient with latent TB infection (LTBI) in order to reduce the risk of TB developing is:

- a) Isoniazid 900mg twice weekly
- b) Pyrazinamide 50mg/kg twice weekly
- c) Levofloxacin 500mg daily
- d) Ethambutol 50mg/kg twice weekly
- e) Rifabutin 300mg daily

**Answer: a.** Patients with LTBI have a 10% risk of developing TB, and isoniazid can reduce this risk by >90%. Pyrazinamide was formerly used for prophylaxis in conjunction with rifampin, but this combination is no longer used due to a 7.3% risk of liver injury. The other agents are used in various combinations to treat active TB.

51) Reasons for nonadherence to TB medications, leading to drug resistance, include:

- a) Complicated dosage regimens
- b) Frequent and uncomfortable side effects
- c) Long treatment periods
- d) All of the above
- e) None of the above

**Answer: d.** Patients can be on as many as 4 medications at a time and therapy can last from anywhere from 4 to 12 months, leading to treatment fatigue. All of the antitubercular agents have a high incidence of side effects, including GI upset, rash, myalgia, confusion, urticaria, flu-like illness, etc.

52) Which of the following agents cannot be used to treat active TB during pregnancy?

- a) isoniazid
- b) rifampin
- c) ethambutol
- d) pyrazinamide
- e) streptomycin

**Answer: e.** The combination of isoniazid, rifampin and ethambutol is the preferred initial treatment regimen for a pregnant woman. Teratogenicity with pyrazinamide has not been determined, though the risk is thought to be unlikely. Streptomycin has been associated with congenital deafness and is contraindicated.

100: Bacterial Meningitis

53) Post-exposure prophylaxis against meningitis caused by *N. meningitidis* in an adult can include:

- a) rifampin 600mg q12h x 2 days
- b) ciprofloxacin 500mg as a single dose
- c) ceftriaxone 250mg IM as a single dose
- d) all of the above
- e) none of the above

Answer: d. These are all options for post-exposure prophylaxis.

104: Sexually Transmitted Infections

54) In the treatment of sexually transmitted infections, all of the following are true **EXCEPT**:

- a) metronidazole interacts with alcohol
- b) single-dose fluconazole can be an effective treatment
- c) fluconazole interacts with warfarin
- d) intravaginal metronidazole is effective against trichomoniasis
- e) clindamycin can cause *C. difficile* diarrhea

Answer: d. Only oral metronidazole is effective against trichomoniasis. Alcohol has a disulfiram-like reaction with metronidazole and should be avoided during therapy and for at least 24 hours afterwards. Fluconazole may cause an elevated prothrombin time when given to women on warfarin; a single dose of 150mg is effective against symptomatic vulvovaginal candidiasis but may need to be given for 3 days if the problem is recurrent. *C. difficile* diarrhea is a known ADR of clindamycin and may appear up to 2 months after the antibiotic is finished.

55) In which of the following would you **NOT** routinely treat the sexual partner?

- a) trichomoniasis
- b) candidiasis
- c) chlamydia
- d) pelvic inflammatory disease
- e) gonorrhoea

Answer: b. Candidiasis is not usually considered sexually transmitted, though the treatment of the sexual partner could be considered in recurrent infections (>4/year). All of the others are sexually transmitted diseases and both partners must be treated.

56) Which of the following would damage a latex condom?

- a) metronidazole vaginal gel
- b) miconazole vaginal ovule
- c) nystatin vaginal cream
- d) clotrimazole vaginal tablet
- e) miconazole vaginal cream

Answer: b. Miconazole vaginal ovules contain hydrogenated vegetable oil and mineral oil and these decrease the efficacy latex condoms or diaphragms. This also applies to econazole and terconazole ovules and butoconazole cream. None of the other agents contain these ingredients.

105: Herpes virus Infections (Cold Sores)

57) When treating recurrent cold sores, it is important that topical therapy be started:

- a) within 1 hour of first symptoms
- b) within 2 hours of first symptoms
- c) within 12 hours of first symptoms
- d) within 48 hours of first symptoms
- e) within 72 hours of first symptoms

**Answer: a.** Therapy should be initiated within 1 hour of the first symptoms to reduce the duration of pain and/or accelerate healing.

109: Travellers' Diarrhea

58) Which of the following statements about travellers' diarrhea are **CORRECT**?

- A) antibiotics are not required unless there is fever and blood or mucous in the stool
- B) loperamide is a good treatment to prevent travellers' diarrhea
- C) ciprofloxacin 500mg bid x 3 days is the antibiotic of choice in Asia and India
- D) cholera vaccine has a high rate of efficacy
- E) mild travellers' diarrhea usually resolves in 24 hours with ORS and loperamide

The correct answer is:

- a) A, B and E
- b) A and E
- c) B, C and D
- d) All of them
- e) None of them

**Answer: b.** Mild diarrhea can be managed with fluids and antimotility agents, and antibiotics are only recommended if there are signs of a bacterial infection. Prophylactic antimotility agents (loperamide) have no effect in reducing the incidence of travellers' diarrhea. Azithromycin is the antibiotic of choice in Thailand, India, Indonesia and Nepal as the causative agent is usually a fluoroquinolone-resistant *Campylobacter*. Cholera vaccine (Dukoral) has an efficacy rate of only 25% against travellers' diarrhea.

#### 110: Malaria Prevention

59) Which of the following statements about malaria prevention is **FALSE**?

- a) Chloroquine should be started 2 weeks before departure
- b) Primaquine is known for its severe neuropsychiatric reactions
- c) Mefloquine should be continued for 4 weeks after leaving a malarious area
- d) Primaquine must be taken daily
- e) Chloroquine is safe to use during pregnancy

**Answer: b.** Mefloquine (Lariam) is known for its severe neuropsychiatric reactions (seizures and psychosis). Primaquine has few side effects with the most common being severe haemolytic anemia in those with G6PD deficiency (blacks, Mediterraneans, Asians). Chloroquine and Mefloquine are taken once weekly, starting 2 weeks before departure and continuing for 4 weeks after leaving the malarious area. Primaquine must be taken daily but is only started 1 to 2 days before entry to the area and continued for 3 days after leaving the area. Chloroquine and hydroxychloroquine are safe to use during pregnancy; mefloquine is safe during the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters. All other agents are contraindicated during pregnancy.

#### 116: Fever in Children

60) When treating fever in children, you have to consider that:

- A) dosing of acetaminophen and ibuprofen should be by age
- B) fever is defined as a rectal temperature consistently over 38°C
- C) fever itself is not harmful and can enhance some host defense mechanisms
- D) acetaminophen is recommended over ibuprofen because it has a larger body of safety data
- E) alcohol is a good sponging agent to reduce fever

The correct answer is:

- a) A, D and E
- b) B and D
- c) C and D
- d) B, C and D
- e) A, C and D

**Answer: d.** Dosing of acetaminophen and ibuprofen should be by weight due to size fluctuations in all age groups. Alcohol should never be used as a sponging agent because of the risk that it be absorbed through the skin, inhaled or swallowed. Even though both acetaminophen and ibuprofen are well-studied and safe in large populations, acetaminophen has a larger body of safety data and ibuprofen is reserved for second-line therapy. Fever is a symptom and is most commonly an adaptive response to an infection. Temperatures taken from the rectum, mouth or tympanic membrane reflect core temperature and fever is defined as a temperature consistently over 38°C taken rectally or the rectal equivalent.