

# DUMPSQUEEN

## North American Pharmacist Licensure Examination

Test Prep NAPLEX

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## QUESTION NO: 1

Select the class of Anti-diabetic medication that works in the specified organ to prevent hyperglycemia. Select all that applies. Brain (E)

- A. Sulfonylureas
- B. Alpha- Glucosidase Inhibitors
- C. DPP4 Inhibitors
- D. Glucagon-like peptide-1 receptor agonists
- E. Thiazolidinediones
- F. Biguanide
- G. SGLT2 inhibitors

## ANSWER: D

### Explanation:

Glucagon-like peptide-1 receptor agonists Sulfonylureas work in beta cells in the pancreas that are still functioning to enhance insulin secretion. Alpha-Glucosidase Inhibitors stop  $\alpha$ -glucosidase enzymes in the small intestine and delay digestion and absorption of starch and disaccharides which lowers the levels of glucose after meals. DPP4 blocks the degradation of GLP-1, GIP, and a variety of other peptides, including brain natriuretic peptide. Glucagon-like peptide-1 receptor agonists work in various organs of the body. Glucagon-like peptide-1 receptor agonists enhance glucose homeostasis through: (i) stimulation of insulin secretion; (ii) inhibition of glucagon secretion; (iii) direct and indirect suppression of endogenous glucose production; (iv) suppression of appetite; (v) enhanced insulin sensitivity secondary to weight loss; (vi) delayed gastric emptying, resulting in decreased postprandial hyperglycaemia. Thiazolidinediones are the only true insulin-sensitising agents, exerting their effects in skeletal and cardiac muscle, liver, and adipose tissue. It ameliorates insulin resistance, decreases visceral fat. Biguanides work in liver, muscle, adipose tissue via activation of AMP-activated protein kinase (AMPK) reduce hepatic glucose production. SGLT2 inhibitors work in the kidneys to inhibit sodium-glucose transport proteins to reabsorb glucose into the blood from muscle cells; overall this helps to improve insulin release from the beta cells of the pancreas.

Reference:

<https://doi.org/10.1093/eurheartj/ehv239>

## QUESTION NO: 2

A 20-year-old student came to the emergency department with primary complaints of palpitations, low-grade fever, and anxiety for 2 months. She reports that she is irritable and suffers severe mood swings that is interfering with her sleep and relationships (she admits to crying spells and frequent fights with friends and family). She has also lost 12 pounds in the past 2 months with no apparent alteration in her diet or physical activity (though she is happy with her weight loss). She denies any past medical problems, though her friends have always been worried that she eats too little.

Her temperature is 38.0 C (100.4 F), blood pressure is 148/62 mm Hg, pulse is 122/min and regular, and respiratory rate is 28/min. Examination reveals a bruit heard over the anterior neck, fine tremor of the hands, and warm, moist skin. Her eyes and eyelids do not move together during finger following test (with steady head). Laboratory work is sent, including a thyroid panel, but will not be available until tomorrow morning.

Which of the following is the most appropriate initial management at this time?

- A. Diltiazem therapy
- B. Iodine therapy
- C. Methimazole therapy
- D. Propranolol therapy
- E. Referral to a surgeon

**ANSWER: D**

**Explanation:**

This patient had hyperthyroidism, though the exact cause of her condition is not currently clear. The immediate treatment should focus on controlling the patient's symptoms for which a non-specific betablocker is seemingly an ideal choice. Propranolol therapy can be initiated without any adverse effects while the patient undergoes further workup of her condition. As the treatment for hyperthyroidism varies depending upon the cause of the condition, more definitive therapy should be avoided. Diltiazem (choice A) helps control heart rate but does not have the same antiadrenergic properties as beta-blockers/ The initial treatment for symptomatic hyperthyroidism is propranolol. Iodine (choice B) can be used in high doses to inhibit thyroid production of T3 and T4. Until it's clear that this patient does not have an exogenous source of thyroid hormone (and until it is clear she is not pregnant), this agent should not be considered. Propylthiouracil (PTU) and Methimazole (choice C) inhibit the organification of iodine to tyrosine residues. If this patient has Graves diseases, this would be an appropriate treatment. Until a diagnosis is made, however, initial therapy should consist of a beta-blocker. Surgical treatment (choice E) of hyperthyroidism is often a reasonable treatment for patients who cannot tolerate medical therapy of radioactive iodine ablation.

**QUESTION NO: 3**

WM did not receive influenza vaccine prior to the start of this season, it's now December. He did get influenza vaccine last year. Which of the following is correct course of action?

- A. Skip influenza vaccine for this year since it's too late.
- B. Skip influenza vaccine for this year since he received vaccine last year.
- C. Start WM on Tamiflu to prevent him from getting influenza.
- D. Vaccinate him with influenza vaccine since influenza season lasts until March in your community.
- E. Start Amantadine 200mg daily

**ANSWER: D**

**Explanation:**

Influenza vaccine is recommended annually, thus, WM should not skip it this year, and B is incorrect. Also, per the CDC, seasonal influenza outbreaks can occur as early as October, however, most activity peaks in January or later. Thus, it is not too late for WM to receive his vaccine in December, thus A is incorrect. Lastly, antiviral medications such as Tamiflu are an important adjunct to vaccinations. They are recommended as early as possible for any patient with confirmed or suspected influenza who, is 1) Hospitalized, 2) has severe, complicated, or progressive illness or 3) is at higher risk for influenza complications. Thus, WM is not a candidate with the given information and C is incorrect. Starting Tamiflu or Amantadine is not recommended for prevention. It has indication for treatment and prophylaxis.

## QUESTION NO: 4

When does the newer chronic kidney disease (CKD) guidelines recommend stopping metformin?

- A. when the estimated glomerular filtration (eGFR) is  $<30$  mL/min/1.73 m<sup>2</sup>
- B. when estimated glomerular filtration (eGFR) is  $<50$  mL/min/1.73 m<sup>2</sup>
- C. when creatinine clearance  $<30$  ml/min
- D. when creatinine clearance  $<50$  ml/min
- E. when serum creatinine is  $<1.8$  mg/dL

**ANSWER: A**

### Explanation:

Metformin should be stopped when eGFR falls below 30. This is the only cutoff that is recommended for absolute discontinuing. If the eGFR falls between 30-44 while ontherapy, benefits and risks of discontinuing should be evaluated. New initiation is only recommended when eGFR  $>45$ .

## QUESTION NO: 5

Which of the following medication may increase LDL?

- A. Lisinopril
- B. Hydrochlorothiazide
- C. Diltiazem
- D. Metoprolol
- E. Amlodipine

**ANSWER: B**

### Explanation:

LDL can be elevated by diuretics, cyclosporine, glucocorticoids, and amiodarone.

## QUESTION NO: 6

What is the active ingredient found in the medicine Adalat?

- A. Nifedipine
- B. Adalimumab
- C. Digoxin
- D. Simvastatin

**ANSWER: A**

### Explanation:

The dihydropyridine drug – nifedipine – is the active ingredient found in the medicine Adalat. Nifedipine is used to treat angina, Reynaud's phenomenon and hypertension. It is also used as a tocolytic agent in premature labor.

## QUESTION NO: 7

A patient with multibacillary leprosy is on dapsone, clofazimine, and rifampin. Which of the following is true regarding the mechanism of action of the medications listed?

- A. Dapsone is bacteriostatic because of its inhibitory effects on dihydrofolate reductase
- B. Dapsone is bacteriostatic because of its inhibitory effects on myeloperoxidase
- C. Clofazimine is bactericidal by directly inhibiting bacterial DNA polymerase
- D. Rifampin is bacteriostatic by inhibiting RNA synthesis by blocking DNA-dependent RNA polymerase
- E. Rifampin is bactericidal by inhibiting RNA synthesis by blocking DNA-dependent RNA polymerase

**ANSWER: E**

### Explanation:

A, B – false – dapsone inhibits bacterial synthesis of dihydrofolic acid, via competition with para-aminobenzoate for the active site of dihydropteroate synthetase. Dapsone is both bacteriostatic and weakly bactericidal against *M. leprae*. Neither of the listed mechanisms are the cause of these effects. C – False – A substance with both anti-leprosy and anti-inflammatory activity, clofazimine is weakly bactericidal against *M. leprae* by binding to the guanine bases of bacterial DNA, not DNA polymerase directly. D – False – See below. E – True – Rifampin is bactericidal by inhibiting RNA synthesis by blocking DNA-dependent RNA polymerase.

## QUESTION NO: 8

LN is 84 YOM who is in hospital for a back surgery. His height is 5 feet and 4 inches, weight 85 kg and NKDA.

His past medical history includes hypertension, diabetes mellitus, major depression, hypothyroidism and chronic back pain. Post-op day 1, LN's medication includes Dexamethasone 8mg iv q6h with taper dosing, Ondansetron 4mg iv q6h prn for N/V, Levothyroxine 0.075mg po daily, Lisinopril 10mg po daily, Citalopram 20mg po daily, Docusate sodium / Senna 1 tab po twice a day, Bisacodyl 10mg suppository daily prn for constipation, Famotidine 20mg iv q12hr, Metoclopramide 10mg iv q6h, Metformin 500mg po bid, D51/2NS with 20K at 125mls/hour and Hydromorphone PCA at 0.2mg/hour of basal rate, demand dose 0.1mg. lock-out every 6min, one hour limit 2.2mg/hour. Pertinent morning labs includes serum creatinine 1.4mg/dl, Mg 1.5mg/dl, K 5.0mmol/L, Na 135mmol/L.

What is LN's creatinine clearance using Cockcroft and Gault equation based on IBW?

- A. 43 mls/min
- B. 53 mls/min
- C. 63 mls/min
- D. 33 mls/min
- E. 23 mls/min

**ANSWER: D**

**Explanation:**

$ABW = 85 \text{ kg}$   
 $IBW = 50 \text{ kg} + 2.3 \text{ kg} (4) = 59.2 \text{ kg}$   
 $85/59.2 = 1.44$   
 $AdjBW = 59.2 \text{ kg} + 0.4(85 \text{ kg} - 59.2 \text{ kg}) = 69.52 \text{ kg}$   
 $CrCl (IBW) = [(140-84) 59.2]/(72 \times 1.4) = 32.8$   
 $CrCl (AdjBW) = [(140-84) 69.52]/(72 \times 1.4) = 38.6$

## QUESTION NO: 9

A 23-year-old female presents to your clinic complaining of intermittent throbbing headaches that usually last for several hours and are made worse by the presence of light. She endorses occasional nausea without vomiting during the most severe episodes. Physical examination is unrevealing, and she has no significant past medical history.

Which of the following treatments is considered an abortive therapy for this patient's underlying condition?

**A. Sumatriptan**

Migraine headaches typically affect females more often than males, and patients most frequently present in their early 20s. Classic symptoms of migraine include throbbing headaches lasting between 2–24 hours in duration, with triggers such as red wine, fasting, stress, and menses. Primary prevention is aimed at the identification and avoidance of triggers. Over the counter NSAIDs can be used if symptoms persist. Failing this, PRN abortive therapy is indicated, including the triptans (e.g. – sumatriptan) and metoclopramide. Choice B – Gabapentin is an anticonvulsant that is considered to be a second-line, prophylactic treatment for recurrent migraine headaches. Its utility is limited by its lengthy side effect profile. Choice C – Amitriptyline, a tricyclic antidepressant, can also be utilized for migraine prophylaxis. However, it will not abort a migraine currently in progress, and extensive side effects limit its use. Choices D + E – Propranolol and diltiazam are beta-blockers and calcium channel blockers, respectively. As with the anticonvulsants and tricyclic antidepressants, these are considered migraine prophylaxis and will not interrupt a migraine once it has begun.

- B. Gabapentin
- C. Amitriptyline
- D. Propranolol

E. Diltiazam

**ANSWER: A**

**Explanation:**

Correct:

A. Migraine headaches typically affect females more often than males, and patients most frequently present in their early 20s. Classic symptoms of migraine include throbbing headaches lasting between 2–24 hours in duration, with triggers such as red wine, fasting, stress, and menses. Primary prevention is aimed at the identification and avoidance of triggers. Over the counter NSAIDS can be used if symptoms persist. Failing this, PRN abortive therapy is indicated, including the triptans (e.g. – sumatriptan) and metoclopramide. Choice B – Gabapentin is an anticonvulsant that is considered to be a second-line, prophylactic treatment for recurrent migraine headaches. Its utility is limited by its lengthy side effect profile. Choice C – Amitriptyline, a tricyclic antidepressant, can also be utilized for migraine prophylaxis. However, it will not abort a migraine currently in progress, and extensive side effects limit its use. Choices D + E – Propranolol and diltiazam are beta-blockers and calcium channel blockers, respectively. As with the anticonvulsants and tricyclic antidepressants, these are considered migraine prophylaxis and will not interrupt a migraine once it has begun.

**QUESTION NO: 10**

Which of these drugs is used to prevent contrast-induced nephropathy?

- A. Metformin
- B. Activated charcoal
- C. N-acetylcysteine
- D. Spironolactone
- E. Mannitol

**ANSWER: C**

**Explanation:**

N-acetylcysteine can be used to prevent contrast-induced nephropathy. Whilst evidence is not overwhelming for use in favor, it does appear to have a clinical impact. N-acetylcysteine is typically given the day before treatment and the day when treatment commences. Other means to prevent contrast-induced nephropathy include adequate hydration, while some studies recommend ascorbic acid.