

- I. 選擇題 (20%) 請於試卷內之「選擇題作答區」依序作答。
1. Dobutamine (DOBUTREX) is indicated for the short-term treatment of heart failure. Which of the following descriptions are correct for the pharmacological action of dobutamine? (Multiple answers, score 2)
 - (A) The (+) isomer of dobutamine is a potent α_1 agonist and pressor.
 - (B) The (+) and (-) isomers of dobutamine are full agonists at β receptors.
 - (C) Activation of cardiac α_1 receptors may contribute to the positive inotropic effect.
 - (D) Peripheral resistance is relatively unchanged due to a counterbalancing of α_1 receptor-mediated vasoconstriction and β_2 receptor-mediated vasodilation.
 2. A 50-year-old male has recently been diagnosed with hypertension due to pressure reading of 175/102 mmHg. His comorbidities include diabetes and chronic hepatitis C infection with moderate liver impairment. He requires two drugs for initial treatment of his hypertension. Which of the following drugs can be prescribed for him in combination with a thiazide diuretic? (Multiple answers, score 2)
 - (A) Captopril. (B) Fosinopril. (C) Lisinopril. (D) Metoprolol.
 3. Which can precipitate a hypertensive crisis following abrupt cessation of therapy? (Multiple answers, score 2)
 - (A) Hydralazine. (B) Clonidine. (C) Methyldopa. (D) Aliskiren.
 4. How do β blockers improve cardiac function in heart failure? (Multiple answers, score 2)
 - (A) By decreasing renin release.
 - (B) By decreasing norepinephrine release.
 - (C) By slowing AV conduction.
 - (D) By decreasing cardiac remodeling.
 5. Ibuprofen, a NSAID, may exacerbate chronic heart failure (HF). What is the possible mechanism of ibuprofen to precipitate HF? (Multiple answers, score 2)
 - (A) It may increase blood pressure.
 - (B) It may lead to increased fluid retention.
 - (C) It may decrease cardiac contractility.
 - (D) It may increase sympathetic activity.
 6. Which are the appropriate choices for hypertension treatment during pregnancy? (Multiple answers, score 2)
 - (A) Valsartan. (B) Methyldopa. (C) Amlodipine. (D) Aliskiren. (E) Atenolol.
 7. Which best describes the action of angiotensin converting enzyme (ACE) inhibitors on the heart failure? (Single answer, score 1)
 - (A) ACE inhibitors increase aldosterone.
 - (B) ACE inhibitors reduce preload.
 - (C) ACE inhibitors decrease cardiac output.
 - (D) ACE inhibitors decrease potassium secretion.
 8. How is spironolactone beneficial in heart failure? (Single answer, score 1)
 - (A) Prevents cardiac hypertrophy.
 - (B) Decreases vascular resistance.
 - (C) Promotes potassium secretion.
 - (D) Decreases afterload.

9. Which statement regarding to dronedarone is correct? (Single answer, score 1)
- (A) Dronedarone is more effective than amiodarone.
 - (B) Dronedarone increases the risk of death in patients with permanent atrial fibrillation or symptomatic heart failure.
 - (C) Dronedarone may induce thyroid dysfunction.
 - (D) Dronedarone dose not have the risk to induce long QT syndrome.
10. It is now recommended that digoxin can be reserved for patients with heart failure who are in atrial fibrillation. Which of the following is correct regarding digoxin when used for atrial fibrillation? (Single answer, score 1)
- (A) Digoxin works by blocking calcium channel.
 - (B) Digoxin works by blocking Na^+/K^+ ATPase pump.
 - (C) Digoxin works by stimulating vagal tone.
 - (D) Digoxin works by blocking muscarinic receptor.
11. A 62-year-old woman was diagnosed with ventricular tachyarrhythmias after myocardial infarction. She is not currently having symptoms of fatigue and heart failure. Which of the following can be used to treat and prevent life-threatening arrhythmias that occurs post-myocardial infarction? (Single answer, score 1)
- (A) Flecainide. (B) Metoprolol. (C) Dronedarone. (D) Digoxin.
12. Ranolazine has antianginal as well as antiarrhythmic properties. Which is its mechanism of action? (Single answer, score 1)
- (A) Inhibit the late phase of the sodium current.
 - (B) Inhibit the slow voltage-gated calcium current.
 - (C) Activate potassium current.
 - (D) Inhibit ryanodine receptors.
13. Which is considered “fibrin selective” because it rapidly activates plasminogen that is bound to fibrin? (Single answer, score 1)
- (A) Urokinase. (B) Rivaroxaban. (C) Ticlopidine. (D) Alteplase.
14. Which of the following therapies is the best option to lower LDL cholesterol for management of hyperlipidemia with high LDL lipid profile? (Single answer, score 1)
- (A) Ezetimibe. (B) Niacin. (C) Fenofibrate. (D) Simvastatin.

II. 問答題

一、敘述下列利尿劑(Diuretic)之作用機制和藥理作用。(6%)

- (1) Acetazolamide
- (2) Furosemide
- (3) Eplerenone

二、茲以 Tetracycline, Amoxicillin 和 Vancomycin 為例，說明細菌對藥物之抗藥性(Resistance)的主要機制，並寫出克服抗藥性之有用策略。(6%)

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三、試述下列藥物之作用機制和主要臨床用途？(8%)

- (1) Clopidogrel
- (2) Fondaparinux
- (3) Rivaroxaban
- (4) Cholestyramine

四、簡答題：(20%)

- (1) What is the mechanism of action of Etanercept and its major side effects?
- (2) What is the mechanism of action of Omalizumab and its clinical application?
- (3) What is Teriparatide, how does it work and what is its major side effect?
- (4) What is the mechanism of action of Lorcaserin and its clinical application?
- (5) What is Maraloxon and what is its mechanism of action and clinical application?
- (6) What is the mechanism of action of Temozolomide?
- (7) What is the mechanism of action of Erlotinib?
- (8) What is the mechanism of action of Topotecan?
- (9) What is the mechanism of action of Bortezomib and its clinical application?
- (10) What is the mechanism of action of Bleomycin and its major side effect?

五、Please name 4 drugs affecting the GABAergic system with different action mechanisms and their respective clinical indications. (20%)

六、試述下列藥物之作用機制和主要臨床用途？(16%)

- (1) Zileuton
- (2) Terfenadine
- (3) Latanoprost
- (4) Alosetron
- (5) Sumatriptan
- (6) Fluoxetine
- (7) Methimazole
- (8) Finasteride

七、Briefly describe the chemical and physiological factors to affect the bioavailability of therapeutic drugs. (4%)

試題隨卷繳回