

ASSESSMENT OF 30 MCQS

FPSC NO : 99

MCQS ON GOAL: GUIDANCE ORIENTED APPROACH TO LEARNING
SUBMISSION DEADLINE: 31 May 2022, 12 NOON

INSTRUCTIONS

- To submit answers to the following multiple choice questions, you are required to log on to the College Online Portal (<https://lms.wizlearn.com/cfps/>)
- Please contact sfp@cfps.org.sg if you have not received an email on the new LMS account.
- Attempt ALL the following multiple-choice questions.
- There is only ONE correct answer for each question.
- The answers should be submitted to the College of Family Physicians Singapore via the College Online Portal before the submission deadline stated above.
- There will be NO further extension of the submission deadline

- Which of the following is not involved with hypoglycaemia counterregulation?**
 - Cortisol
 - Growth hormone
 - Cortisol
 - C-peptide
 - Glucagon
- Which of the following is false?**
 - Impaired awareness of hypoglycaemia (IAH) is a risk factor for hypoglycaemia
 - IAH affects both type 1 and type 2 diabetes patients
 - IAH is irreversible
 - IAH can be detected through thorough clinical assessment
 - IAH can be quantified by the Gold questionnaire
- SGLT2 inhibitors are not associated with:**
 - Weight loss
 - Glycosuria
 - Hypoglycaemia
 - Diabetic ketoacidosis (DKA)
 - Vaginal infections
- Which of the following is not associated with GLP-1 receptor agonists?**
 - Suppression of appetite
 - Weight gain
 - Increased insulin secretion
 - Increased gastric emptying
 - Gastrointestinal side effects
- Which of following is true?**
 - GLP-1 receptor agonists are not associated with hypoglycaemia
 - Sulphonylurea is associated with weight loss
 - Insulin is associated with weight loss
 - Elderly diabetes patients should have the same diabetes treatment targets as younger patients.
 - Impaired awareness of hypoglycaemia (IAH) affects only type 1 diabetes patients
- Which of the following is not a hypothesized mechanism of GLP-1RA to reduce CV events?**
 - HDL-C increase
 - Blood pressure reduction
 - Weight loss
 - Anti-inflammatory action
 - LDL-C reduction
- Which of the following statements is correct?**
 - Glucose infused intravenously elicits a higher insulin secretory response than oral
 - Incretin hormones do not stimulate release of insulin
 - Only GLP-1 stimulate release of insulin in a glucose-dependent manner but not GIP
 - Incretin effect is not affected in type 2 diabetes
 - Incretin hormones stimulate release of insulin in a glucose-dependent manner
- Which of the following statements is incorrect?**
 - At nearly all stages of T2D, pharmacological dosages of GLP-1 significantly restore insulin secretion to levels approaching normal
 - Effects of exogenously administered GLP-1 cannot be augmented by GIP
 - GIP can (under certain circumstances) stimulate glucagon secretion and antagonise GLP-1-mediated suppression of glucagon release
 - In T2D, the insulinotropic effects of GIP are still present
 - Pharmacological doses of GIP only have marginal effects on insulin secretion
- Which of the following statements is correct?**
 - GLP-1RA exhibit low oral bioavailability, are enzymatically inactivated when they reach the gastrointestinal tract, and have high rates of diffusion into the cell
 - Sodium N-[8-(2-hydroxybenzoyl)amino] caprylate (SNAC) co-formulated with semaglutide decreases the local pH of gastric fluid, which prevents enzyme degradation

- C. SNAC is associated with dimer-inducing, and pepsin-inhibiting effect in the stomach for oral delivery of semaglutide.
- D. Sodium N-[8-(2-hydroxybenzoyl)amino] caprylate (SNAC) is a strong base
- E. Sodium N-[8-(2-hydroxybenzoyl)amino] caprylate (SNAC) is a permeation enhancer that increases the absorption of semaglutide in the stomach

10. A 60-year-old woman presents to the clinic to discuss the management of her type 2 diabetes mellitus. She is dissatisfied with her recent HbA1c value. She has been taking metformin monotherapy at the maximal dose for the past year. Additionally, she has attempted but failed to lose weight; yet weight loss remains a primary concern for this patient.

On physical examination, vital signs are normal. Central obesity is noted. The remainder of the examination, including retinal examination and diabetic foot examination, is normal.

Laboratory studies show HbA1c value of 7.6 percent (goal <7.0 percent) and glomerular filtration rate greater than 42 mL/min/1.73 m².

Which of the following is the most appropriate add-on therapy to supplement metformin for this patient?

- A. Basal insulin
- B. Glucagon-like peptide-1 (GLP-1) receptor agonist
- C. Sodium-glucose transporter-2 (SGLT2) inhibitor
- D. Sulfonylurea
- E. Thiazolidinedione

11. When can oral semaglutide be used?

- A. As monotherapy
- B. After failure of metformin
- C. After failure of metformin and sulfonylureas
- D. After failure of metformin and SGLT-2 inhibitors
- E. Any of the above

12. Which medication should be discontinued when starting oral semaglutide?

- A. Metformin
- B. Sulfonylureas
- C. DPP-4 inhibitors
- D. SGLT-2 inhibitors
- E. None of the above

13. Which pills can be taken with oral semaglutide pill?

- A. Levothyroxine
- B. Alendronate
- C. Metformin
- D. Telmisartan
- E. None of the above; one should wait for 30 minutes after oral semaglutide before taking any other pill

14. Which of the following was seen to be a significant side effect of oral semaglutide in PIONEER studies?

- A. Retinopathy
- B. Acute kidney injury
- C. Hypoglycaemia
- D. Nausea
- E. Weight gain

15. Oral semaglutide 14 mg has shown to have a greater A1c reduction compared to which of the following?

- A. Empagliflozin 25 mg/day
- B. Sitagliptin 100 mg/day
- C. Liraglutide 1.8 mg/day
- D. Dulaglutide 0.75 mg/week
- E. All of the above

16. What is true of Type 2 diabetes and its complications?

- A. Both micro- and macro-vascular complications have their onset with diagnosis of diabetes and therefore should be screened at outset
- B. Micro-vascular complications occur before and macro-vascular complications occur at time of onset of diabetes, therefore both should be screened at outset
- C. Macro-vascular complications occur before and micro-vascular complications occur at time of onset of diabetes, therefore screening should be started before diagnosis.
- D. Both micro- and macro-vascular complications may be present before diabetes diagnosis
- E. Both micro- and macro-vascular complications develop with years of hyperglycaemia, therefore screening should start five years from diagnosis

17. With respect to diabetic retinopathy, which of the following is false?

- A. Screen at diagnosis in Type 2 diabetes
- B. Retinal photography has advantages over direct ophthalmoscopy for documentation.
- C. The earliest sign of diabetes retinopathy on direct ophthalmoscopy or retinal photography is the presence of micro-aneurysms
- D. All patients with Type 2 diabetes should be referred to an ophthalmologist on diagnosis for baseline assessment of early diabetic retinopathy
- E. The presence of macular edema requires an early referral to an ophthalmologist

18. Feet examination for a person with diabetes at the primary care level encompasses all except:

- A. Checking for foot pulses
- B. Testing for ankle reflexes
- C. Using either a neurothesiometer or a biothesiometer to test for neuropathy
- D. Looking for calluses and deformities
- E. Checking for vibration, pinprick, proprioception, and monofilament

19. Mr Lim is 40, has had diabetes and hypertension since age 29, and his HbA1c is seven percent. His cardiovascular risk by ESC guidelines is considered:

- A. Low
- B. Moderate
- C. High
- D. Very high
- E. Extremely high

20. All the following are false except:

- A. The recommended cardiac screening for Type 2 diabetes is either a coronary calcium score or a treadmill stress test
- B. Before starting on an SGLT-2 inhibitor, heart failure risk is routinely assessed with a 2D echocardiogram
- C. Screening for asymptomatic ASCVD is not routine as the benefit of this has not been shown
- D. Since Type 2 diabetes is a CV-risk equivalent, all should benefit from an SGLT-2 inhibitor and/or a GLP-1 receptor agonist
- E. In the CAPTURE study, SGLT-2 inhibitors and GLP-1 receptor agonists were appropriately used in diabetic patients at HIGH cardio-vascular risk

21. Which of the following statements is correct?

- A. Diabetic kidney disease (DKD) is the main cause of ESRD in Singapore
- B. Diabetes mellitus affects 5 percent of the global adult population according to IDF 2022
- C. Glycaemic control is the most important factor in preventing diabetes-related complications
- D. Sepsis is the main cause of death among DKD patients
- E. DKD is synonymous with diabetic nephropathy

22. Which of the following statements is incorrect?

- A. In patients with DKD, multifactorial risk intervention has been shown to reduce mortality and the risk of developing microvascular complications
- B. In pre-clinical studies, activation of the mineralocorticoid receptor (MR) may result in tissue inflammation and fibrosis
- C. Blockade of the renin-angiotensin-aldosterone system (RAAS) results in lowering systemic blood pressure only
- D. Standard of care in managing DKD includes maximum tolerated dose of RAAS blocker
- E. Despite RAAS blockade with ACE inhibitor or ARB in high-risk DKD, significant residual risk of progressive renal disease persists

23. Which of the following statements is incorrect?

- A. RAAS blocker can be replaced by SGLT-2 inhibitors to achieve cardiorenal protection
- B. SGLT-2 inhibitors are not associated with increased risk of fracture or limb amputation
- C. KDIGO recommends addition of SGLT-2 inhibitors to maximally tolerated doses of ACE inhibitor or ARB in patients with DKD
- D. MR antagonism leads to reduction in proteinuria
- E. Finerenone, a selective non-steroidal MR antagonist, was associated with higher incidence of hyperkalaemia in the Fidelio-CKD trial

24. Which of the following statements is incorrect?

- A. All SGLT-2 inhibitors have been shown in randomised controlled trials to provide renoprotection in non-diabetic CKD
- B. Metformin is recommended as the first-line anti-hyperglycaemic drug according to level of renal function
- C. SGLT-2 inhibitors and RAAS blockers act synergistically to reduce intra-glomerular pressure, leading to reduction in proteinuria
- D. GLP-1 receptor agonists are preferred for diabetic patients with background CV disease
- E. In the SUSTAIN-6 trial, GLP-1 receptor agonists reduced the risk of persistent macroalbuminuria in diabetic patients

25. KDIGO/ADA guidelines in management of patients with diabetes and CKD recommend all of the following except:

- F. A comprehensive strategy including healthy lifestyle, CV risk, and glycaemic control and appropriate reno-protective drugs
- G. Metformin is recommended as the first-line anti-hyperglycaemic drug according to level of renal function
- H. Addition of a SGLT-2 inhibitor regardless of level of renal function
- I. Appropriate target HbA1c according to level of renal function
- J. GLP-1 receptor agonist is the preferred added agent if HbA1c target is not achieved with Metformin and SGLT-2 inhibitor

26. All of the following are true about Type 2 diabetes except:

- A. Independent of other conventional risk factors, Type 2 diabetes confers an approximately fivefold increased risk for CV disease compared with individuals without diabetes
- B. The prevalence of Type 2 diabetes within Singapore is projected to reach 1 in 6 adults by 2050
- C. Complications such as CV disease, apnoea, and obstructive sleep seem to be especially related with obesity and diabetes
- D. The DIRECT trial demonstrates that a weight loss of approximately 15 kg can lead to remission in approximately 80 percent of patients with obesity and T2D
- E. Cardiovascular disease accounts for 50 percent of mortality

27. Which of the following is false about Glucagon-Like Peptide-1 receptor agonists (GLP1-RA)?

- A. The addition of a GLP-1RA should be considered in patients with a contraindication or intolerance to metformin
- B. Stimulate insulin secretion after an oral glucose load via the incretin effect
- C. The benefits of this form of therapy to treat type 2 diabetes include delayed gastric emptying and inhibiting the production of glucagon from pancreatic alpha cells if blood sugar levels are high
- D. Principally cleared by hepatic metabolism
- E. Shown to promote an average weight loss of 2.9 kg compared to placebo, in addition to lowering both systolic and diastolic blood pressure and total cholesterol

28. Which of the following is false about oral semaglutide:

- A. 7 mg or 14 mg is indicated as an adjunct to diet and exercise to improve glycaemic control in adults with type 2 diabetes
- B. It is contraindicated in patients with a personal or family history of MTC and in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2)
- C. Routine monitoring of serum calcitonin or using thyroid ultrasound is of proven value for early detection of MTC in patients
- D. It is not indicated for use in patients with type 1 diabetes
- E. The most common adverse reactions, reported in ≥5 percent of patients treated, are nausea, abdominal pain, diarrhoea, decreased appetite, vomiting, and constipation

29. All of the following are true about the SUSTAIN-6 trial except:

- A. It assessed the effects of *once weekly subcutaneously* administered semaglutide versus placebo, when added to standard care, on cardiovascular (CV) safety in patients with type 2 diabetes. Findings from SUSTAIN 6 fall within the spectrum reported with other GLP-1RA cardiovascular outcome trials
- B. Patients were randomised (1:1:1:1) to receive either 1.0 mg or 2.4 mg of once-weekly subcutaneous semaglutide or volume-matched placebo in addition to their standard care for 104 weeks
- C. Of the 3,297 patients enrolled, 83.0 percent were aged ≥50 years and had established CV disease or chronic kidney disease
- D. The putative mechanisms of CV benefit of semaglutide that were observed involved directly influencing GLP-1 receptors in the CV system, potentially leading to anti-atherosclerotic/anti-inflammatory effects and improved endothelial function/vasodilation
- E. The beneficial effects of semaglutide have been recognised in international guidelines and GLP-1RAs are now recommended to reduce the risk of CV events in high-risk patients with Type 2 diabetes

30. All of the following are true about the PIONEER-6 trial except:

- A. It assessed the effects of *once daily oral* semaglutide versus placebo, when added to standard care, on cardiovascular (CV) safety in patients with type 2 diabetes
- B. Semaglutide was initiated at 3 mg and dose-escalated every 4 weeks, to 7 mg and then 14 mg. Once the maximum 14 mg daily dose was reached, patients remained at this dose
- C. Of the 3,183 patients enrolled, 85 percent were aged ≥50 years and had established CV disease or chronic kidney disease
- D. Compared with SUSTAIN 6, PIONEER 6 included a greater proportion of patients receiving sodium-glucose co-transporter-2 inhibitors (SGLT2i; 10 percent versus <1 percent), reflecting the increased use of this drug class at the time of this trial
- E. Non-fatal MI occurred in fewer patients in the oral semaglutide group compared to the placebo group