Module 2

Insulins: An introduction

CPD QUESTIONNAIRE

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1. Which statement is true?

- ☐ **A** Insulin maintains glucose homeostasis by its direct effects on skeletal muscle, liver and adipocytes
- ☐ **B** Decreasing fasting plasma insulin levels are characteristic of insulin resistance
- ☐ **C** A and B

2. The major mechanism for the development of T2DM is:

- ☐ **A** Increased insulin production with consequent pancreatic β-cell decompensation/loss
- ☐ **B** Autoimmune destruction of pancreatic β-cells
- ☐ **C** A and B

3. In T1DM, inflammation of Islet cells leads to infiltration of:

- ☐ **A** T lymphocytes
- ☐ **B** B lymphocytes
- ☐ **C** Macrophages
- ☐ **D** All the above
- ☐ **E** A and C

4. Which statement is true?

- ☐ **A** The insulin receptor consists of α and β sub-units, occurring as A and B isoforms
- ☐ **B** The A isoform expressed in liver, muscle and white adipose tissue is more specific than the B isoform
- ☐ **C** A and B

5. Activation of the insulin receptor initiates:

- ☐ **A** Movement of GSVs to the surface of the plasma membrane
- ☐ **B** Glycogen synthesis and storage
- ☐ **C** Decreased intracellular glucose-6-phosphate production
- ☐ **D** A and B

6. Sustained, constant basal insulin levels throughout the day is due to insulin being secreted from the pancreas in a pulsatile manner.

- ☐ **A** True
- ☐ **B** False

7. Which statement is true?

- ☐ **A** Glucose is the most potent secretagogue for insulin secretion
- ☐ **B** A biphasic response sees insulin levels increase to a peak within 3-4 minutes
- ☐ **C** A and B

8. Sulphonylureas, thiazolidinediones and some GLP-1 receptor agonists increase the:

- ☐ **A** Amplitude of insulin release pulses
- ☐ **B** Frequency of insulin release pulses
- ☐ **C** A and B

9. Which of the listed insulin analogues has a duration of action of up to 36 hours?

- ☐ **A** Aspart
- ☐ **B** Glargine U300
- ☐ **C** Glulisine
- ☐ **D** Lispro
- ☐ **E** All the above
- ☐ **F** A, C and D

10. Pre-mixed human biphasic insulins have a time of onset of:

- ☐ **A** 5-15 minutes
- ☐ **B** 30-60 minutes
- ☐ **C** 120-240 minutes

11. Which of the listed basal human insulins has a time of onset of 90 minutes?

- ☐ **A** NPH
- ☐ **B** Lente
- ☐ **C** A and B

12. The duration of action of intermediate- and long-acting insulins is dose dependent.

- ☐ **A** True
- ☐ **B** False

13. Advantages of insulin pens over vial and syringe include:

- ☐ **A** Better dosing accuracy
- ☐ **B** Easy dose adjustment for very small increments (<Iu)
- ☐ **C** Easy administration
- ☐ **D** Lessening of injection pain
- ☐ **E** All the above
- ☐ **F** A, C and D

14. Easier insulin administration using pens, compared to vial and syringe, encourages regular use of prescribed insulin.

- ☐ **A** True
- ☐ **B** False

15. Which of the listed analogue insulins are available as pre-mixed formulations in South Africa?

- ☐ **A** Lispro
- ☐ **B** Aspart
- ☐ **C** Glulisine
- ☐ **D** Degludec
- ☐ **E** All the above
- ☐ **F** A, B and D

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