Module III-2

Blood glucose-lowering agents

Overview

Diet and exercise are the first line of treatment for all people with type 2 diabetes, including young people. However, due to the natural history of type 2 diabetes, 50-75% of those affected are unlikely to achieve normal glucose levels through these measures alone. The microvascular complications of diabetes are associated with the duration of diabetes and poor control. Therefore, it is well accepted that blood glucose-lowering agents should be commenced earlier in the treatment plan, when they are most effective, rather than later.

Incretin mimetics and DPP-4 inhibitors are now available in some countries. These medications have more than one action that results in improved glucose control.

Goal

To provide the participant with an understanding of the different blood glucose-lowering agents used to treat type 2 diabetes, and why particular agents are chosen in preference to others

Objectives

After completing this module the participant will be able to:

- Identify appropriate treatment aims when using blood glucose-lowering agents
- Discuss the natural progression of type 2 diabetes and the resulting need for medications and/or insulin therapy
- Discuss the role of blood glucose-lowering agents in the management of type 2 diabetes
- Describe the different blood glucose-lowering agents available (secretagogues, biguanides, thiazolidinediones, incretin mimetics, DPP-4 inhibitors and alpha glucosidase inhibitors), their mechanisms of action and maximum dosage
- Discuss how and when to take the different agents
- Describe the potential for hypoglycaemia when using secretagogues. Refer to Module III-6, Short-term complications
- Describe the need for caution when using long-acting sulphonylureas in elderly people. Refer to Module IV-4, The older adult

	• Describe the possible side effects and potential problems associated with the use of secretagogues, biguanides, thiazolidinediones, alpha glucosidase inhibitors, incretin mimetics and DPP-4 inhibitors • Discuss the need for titration of dosage to lessen the risk of side effects • Describe the specific contraindications to the use of each type of agent • Identify the appropriate time to commence, and type of medication to use, in different clinical situations • Discuss strategies for improving medication taking behaviours • Discuss the benefits of combining blood glucose-lowering agents at less than maximal dosages • Discuss the use of incretin mimetics and DPP-4 inhibitors in people with type 2 diabetes • Describe the action of incretin mimetics and DPP-4, their potential side effects and contraindications • Describe the adjustment of oral agents and the use of combination therapy – such as using insulin and oral agents together • Discuss the use of oral medication in children with type 2 diabetes • Describe the management plan for a person who has not reached target levels with the above agents. Refer to Module III-3, Insulin therapy
Teaching strategies	Case studies with discussion and feedback Self-directed learning
Suggested time	Case studies: 2 hours
Who should teach this module	Endocrinologist, diabetes educator, pharmacist
Evaluation of learning	Successful completion of case studies
References	Ahmann AJ, Riddle MC. Current blood glucose lowering medicines for type 2 diabetes. *Postgrad Med* 2002; 111: 32-46. Amylin Pharmaceuticals Inc and Eli Lilly and Company. *Byetta Clinical Data.* (www.byettahcp.com/hcp/hcp200_byetta_clinical_data.jsp)

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Detailed content for this module is available as a slide presentation at www.idf.org