

Module III-6

Short-term complications

Overview

Short-term complications are either hypoglycaemia or hyperglycaemia and are a common cause of hospitalization. Hypoglycaemia can cause loss of consciousness and seizures; hyperglycaemia can result in diabetic ketoacidosis or hyperosmolar hyperglycaemic state.

Short-term complications are often preventable. Therefore, people with diabetes need to know the causes, signs and symptoms, treatment and prevention strategies to minimize the risk of developing these complications.

Goal

To provide participants with an understanding of hypoglycaemia and hyperglycaemia, the consequences and the need to assist the person with diabetes to implement strategies to prevent their occurrence

Objectives

After completing this module the participant will be able to:

Hypoglycaemia

- Describe the fear that people with diabetes and their relatives have of hypoglycaemia and how this impacts on diabetes management
- State the causes of hypoglycaemia, recognizing that in many cases the causes cannot be identified
- Describe the difference between adrenergic and neuroglycopenic signs and symptoms
- State the signs and symptoms of hypoglycaemia, recognizing that these may change from time to time and person to person, but also within individuals over periods of time
- Discuss preventive strategies for hypoglycaemia, including individual nutritional and physical exercise management
- Discuss the treatment of mild and severe hypoglycaemia
- Discuss the use of glucagon
- Discuss the increased risk of hyperglycaemia after an episode of severe hypoglycaemia
- Discuss the cause, risk, signs and symptoms and management of nocturnal hypoglycaemia

- Recognize the need to increase community awareness of hypoglycaemia, particularly in specific groups, such as teachers, sports coaches, police officers and other emergency-service personnel
- Discuss the risk of prolonged hypoglycaemia in older adults
- Discuss the causes of hypoglycaemia unawareness and management strategies
- Discuss methods to improve the recognition of hypoglycaemia
- Discuss the legal implications and safety aspects of driving a motor vehicle and using heavy equipment

Diabetic ketoacidosis (DKA)

- State the causes of DKA
- State the signs and symptoms of DKA
- Discuss preventive strategies for DKA
- Discuss treatment of DKA
- Recognize that recurring DKA may be a sign of a social or psychological problem, and discuss strategies for addressing such problems

Hyperosmolar hyperglycaemic state (HHS)

- Describe people most at risk of developing HHS
- Discuss preventive strategies for HHS
- State the signs and symptoms of HHS
- Discuss treatment of HHS
- Discuss the mortality rate for HHS
- Recognize the decreased cognition that occurs in the immediate recovery period and the need for supportive education

Management of home emergencies

- Recognize the critical importance of never omitting insulin administration in type 1 diabetes when the person has an intercurrent illness
- Recognize the impact on blood glucose of different types of illness, such as fever or malabsorption
- Describe the need for regular testing of blood glucose and ketones during an acute illness
- Recognize the need to adjust insulin according to blood glucose levels and ketones

- Discuss strategies for managing illness when blood or urine testing materials are not available
- Discuss strategies for supplying sufficient carbohydrate when appetite is poor
- Recognize the need to drink enough water and liquids for rehydration, and decreasing activity, when blood glucose is high
- Describe when medical or hospital intervention is necessary
- Describe the local guidelines for insulin therapy and carbohydrate management during sick days

Teaching strategies	Lecture and case studies
Suggested time	2 hours
Who should teach this module	Diabetes educator
Evaluation strategies	Question and answer Quiz Case study review Plan for managing sick days
References	<p>American Diabetes Association. <i>Medical management of type 2 diabetes</i> 5th edition. ADA.Alexandria, 2006.</p> <p>American Diabetes Association. <i>Medical management of type 1 diabetes</i> 5th edition. ADA.Alexandria, 2006.</p> <p>American Diabetes Association. <i>Therapy for diabetes mellitus and related disorders</i> 4th edition. ADA.Alexandria, 2007.</p> <p>Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. <i>Can J Diab</i> 2003; 27(suppl 2).</p> <p>Clarke WL, Cox DJ, Gonder-Frederick LA, et al. The relationship between non routine use of insulin, food, and exercise and the occurrence of hypoglycaemia in adults with IDDM and varying degrees of hypoglycemic awareness and metabolic control. <i>Diabetes Educ</i> 1997; 23: 55-8.</p> <p>Cox DJ, Gonder-Frederick LA, Kovatchev BP, et al. Progressive hypoglycaemia's impact on driving simulation performance. Occurrence, awareness and correction. <i>Diabetes Care</i> 2000; 23(2): 163-70.</p> <p>De Beer K, Michael S, Thacker M, et al. Diabetic ketoacidosis and hyperglycaemic hyperosmolar syndrome - clinical guidelines. <i>Nurs Crit Care</i> 2008; 13: 5-11.</p>

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Wild D, von Maltzahn R, Brohan E, et al. A critical review of the literature on fear of hypoglycemia in diabetes: Implications for diabetes management and patient education. *Patient Educ Couns* 2007; 68: 10-5.

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