16.1 GENERAL PRINCIPLES

- Diabetes occurs more frequently in palliative care patients than the general population. ¹
- Patients with pancreatic cancer are more susceptible to developing diabetes. ¹
- Management of diabetes in palliative care patients should be adjusted according to individual requirements and may alter depending on the stage of the disease. Complications may usually be managed in a palliative care setting but if severe, admission to an acute unit may be required e.g. for hyperglycaemia associated with ketoacidosis. ¹
- Good diabetic control will help to avoid symptoms of hyperglycaemia or hypoglycaemia and so maintain quality of life. However, strict diabetic control may be less important in palliative care because of a reduced emphasis on avoiding late diabetic complications. ²
- Diabetic control should be monitored using capillary blood glucose and venous blood glucose.
- Urinalysis should not be used for monitoring diabetic control. ²
- Cachexia / anorexia syndrome is common in some malignancies. Affected patients may have a reduced need for hypoglycaemic agents. ²
- Many of the drugs used in palliative care are diabetogenic and therefore may precipitate diabetes or lead to a reduction in diabetic control e.g. corticosteroids and diuretics. ²
- Hyperglycaemia may cause symptoms such as:
  - Polyuria
  - Polydipsia
  - Thrush
  - Fatigue
  - Altered conscious level/confusion. ³

16.2 GUIDELINES

16.2.1 Diet Controlled Diabetes and Type 2 Diabetes Mellitus

- A dietary advice leaflet should be provided but relaxation of dietary restrictions may be appropriate and should be judged on an individual basis. ² [Level 3]
- Aim for a pre-meal capillary blood glucose of 5-15mmol/l. If a patient has symptoms due to hyperglycaemia at this level then tighter diabetic control may be necessary. ⁴ [Level 4]
- For patients with recurrent high blood glucose levels (>15mmol), consider increasing current medication/adding insulin. The level of increase should be guided by the body mass index of the patient. ⁵ [Level 4]
- In non overweight patients, sulphonylureas are recommended as the first line oral hypoglycaemic agent. The oral hypoglycaemic agent of choice is Gliclazide. The initial dose is
- 40mg-80mg daily with a maximum of 320mg daily. The renal function should be monitored. If this is deteriorating then the dose of gliclazide should be reduced or a change to insulin considered. [Level 2++]

- Early advice from the diabetologists and the Specialist Palliative Care Team should be sought if the patient is symptomatic from hyper/hypoglycaemia or there is evidence of diabetic complications. [Level 4]

- The use of metformin should be avoided as there is an increased risk of lactic acidosis and hypoglycaemic episodes with deteriorating renal function. Unless the patient is well controlled on metformin, he / she should be converted to gliclazide or insulin. [Level 2++]

- There should be a regular review of oral hypoglycaemic agents prescribed for an individual patient. This is particularly important if there is weight loss or a change in dose of any of the diabetogenic drugs such as corticosteroids or diuretics. [Level 4]

- If there is a need to change to insulin, a once daily long acting insulin such as glargine should be used. Long acting insulins result in more stable glycaemic control and have a slightly lower risk of hypoglycaemia than conventional intermediate acting insulins such as Human Insulatard or Humulin I. They may therefore be more appropriate in palliative care patients, especially those with low calorie intake. [Level 2++]

- If there is uncertainty about the choice of insulin or the dose, the diabetic team should be consulted. [Level 4]

- Avoid stat doses of short acting insulin such as Actrapid or Humulin S for episodes of hypoglycaemia. The duration of action of Actrapid is eight hours and its use may precipitate episodes of hypoglycaemia later in the day. There is also the disadvantage of subjecting patients to multiple injections. Instead consider increasing the dose of insulin. [Level 2-]

- Sliding scales of insulin should not be used in the management of hypoglycaemia. Instead, the doses of the long-acting insulin should be adjusted [Level 4]

### 16.2.2 Type 1 Diabetes

- Consider converting to a long acting insulin if the patient is on a different insulin type. [Level 2++]

- The dose of insulin should be reviewed as the patient deteriorates. Consider halving the insulin dose in patients with weeks to live, as their oral intake declines. [Level 3]

### 16.2.3 Hypoglycaemia

- Causes of hypoglycaemia include: reduced dietary intake, tumour effect, drugs, liver failure, hypoaldrenism and hypopituitarism. Clinical features include agitation, confusion, coma and seizures. Emergency treatment includes administration of sugary drinks/foods; sublingual glucogel, intravenous 10% dextrose and intramuscular glucagon. [Level 2++]

### 16.2.4 Corticosteroids and Diabetes

- Hyperglycaemia is a recognised side effect of corticosteroid therapy in both diabetic and non-diabetic patients. It is therefore important to monitor glucose levels in all patients receiving corticosteroid therapy. [Level 4]

- Patients who develop diabetes whilst taking corticosteroids should be managed on the lowest effective corticosteroid dose. [Level 4]

- Figure 16.1 gives guidelines for the monitoring and management of blood glucose in patients on corticosteroids (see Guidelines on Use of Corticosteroids in Palliative Care).
Figure 16.1 Guidelines for monitoring and management of blood glucose in patients on corticosteroids [Level 4]
16.2.5 Diabetic Patients in the Last Days of Life
- It is important that when a diabetic patient is placed on the Liverpool Care Pathway for the Dying Patient (LCP), there is a differentiation made between whether they have Type 1 or Type 2 diabetes. [Level 4]

Type 2 Diabetes and the Last Days of Life
- Hyperglycaemia is unlikely to occur in the dying phase in patients with Type 2 diabetes. [Level 4]
- It is important to have discussions with the patient and/or family about stopping medication and capillary blood glucose monitoring before starting the LCP. [Level 4]
- If the patient is dying and unable to take fluids/medication, stop oral hypoglycaemics and/or insulin in Type 2 diabetes. [Level 4]

Type 1 Diabetes and the Last Days of Life
- If a patient with Type I diabetes is in the dying phase, consider maintaining the patient on insulin at a reduced dose to limit the risk of symptomatic ketoacidosis. [Level 4].
- It may be necessary to check capillary blood glucose to exclude hyper/hypoglycaemia if the patient is symptomatic e.g. agitation, confusion, nausea, thirst. [Level 4]

16.3 STANDARDS
1. Gliclazide is the oral hypoglycaemic of choice. [Grade B]
2. Long acting insulins such as glargine are the insulins of choice. [Grade B]
3. Diabetic control should be monitored using capillary blood glucose and venous blood glucose. Urinalysis should not be used for routine monitoring. [Grade B]
4. Sliding scales of insulin and the use of Actrapid should be avoided in the management of episodes of hyperglycaemia. [Grade D]

16.4 REFERENCES


### 16.5 CONTRIBUTORS

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