

Appendix 5 Assessment and management of hypoglycaemia in children

1. Definition:

BG values below 60–70 mg/dl are generally agreed on to place the individual at risk for severe hypoglycaemia values in this range are associated with alterations in the counter regulatory hormones essential to the spontaneous reversal of hypoglycaemia. Therefore, in the interest of avoiding hypoglycaemia maintaining blood glucose 70 mg/dl is the recommended lower target for BG levels in children and adults with insulin-treated diabetes.

2. Goal of Treatment:

- The goal is to restore the BG level to euglycaemia (100 mg/dl).
- Should be remembered that capillary BG estimation at low BG Levels is less accurate than at higher levels, and therefore, low BG numbers should be interpreted with caution.

2. Prevention of Hypoglycaemia:

Hypoglycaemia occurs more often:

- a. When the treatment regimen is altered (more insulin, less food, and more exercise).
- b. In younger children.
- c. With lower HbA_{1c} levels; The relation between severe hypoglycaemia and lower HbA_{1c} had been extensively explored.
- d. When there are frequent low BG levels.
- e. When awareness of autonomic symptoms is reduced.
- f. During sleep.

3. Assessment of Hypoglycaemic Episodes:

Every episode should be assessed carefully to determine its cause:

- Evaluating the insulin action profile (time of insulin administration, peak insulin action, and intensity of insulin action).
- Recent food intake (timing and amount of carbohydrates eaten and peak BG effect of recent food).
- Recent physical activity (timing, duration, and intensity).
- Blood glucose monitoring
- Frequent BG monitoring, with special attention to overnight (01:00–05:00 hours) levels, is one of the most important ways to detect mild hypoglycaemia and prevent serious and severe episodes.

4. Treatment of Hypoglycaemia:

- The aim of diabetes treatment should be to maintain BG levels above 70mg/dl while striving to achieve the best possible glycaemic control without the occurrence of severe hypoglycaemia.
- An immediate source of glucose or sucrose must always be immediately available to young people with diabetes.

- Equipment for BG measurement must be available to all children with diabetes for immediate confirmation and safe management of hypoglycaemia.
- Glucagon should be readily accessible to all parents and caregivers, especially when there is a high risk of severe hypoglycaemia.
- Treatment of hypoglycaemia should increase the BG approximately 55-70 mg/dl. This can be accomplished by giving glucose tablets/sugar lumps or a sweet drink (glucose/sucrose drinks, cola etc.), approximately 10 grams of glucose is needed for a 30 kg child and 15 grams for a 30 kg child (approximately 0.3 g/kg).
- If sucrose or fructose are used, slightly higher amounts are required compared to pure glucose, chocolate, whole milk and other foods containing fat will cause the sugar to be absorbed more slowly and should be avoided as the initial treatment of hypoglycaemia.
- Following treatment BG should be retested in 10–15 min, if no response or inadequate response repeat intake Retest the BG in 20–30 min to confirm that target glucose has been maintained, and not exceeded as above.
- BG monitoring should be performed prior to exercise, and extra carbohydrates should be eaten based on the BG level and the expected intensity and duration of the exercise.
- Patients and their parents should be trained to contact their diabetes care provider if hypoglycaemia is documented without symptoms or if the symptoms are those of neuroglycopenia and not autonomic symptoms (ie hypoglycaemia unawareness).
- Blood glucose goals may need to be adjusted upward in patients with recurrent hypoglycaemia and/or hypoglycaemia unawareness.
- If unexplained hypoglycaemia is frequent, evaluation for unrecognized coeliac and Addison's disease should be considered.