ST VINCENT'S HOSPITAL SYDNEY
A FACILITY OF ST VINCENT'S HEALTH AUSTRALIA

Policies & Protocols

Hypoglycaemia Management Protocol

Protocol:

Objective:

- To advise the treatment and management of hypoglycaemia in the hospitalised patient with diabetes, aiming to:
  - Minimise hypoglycaemic events
  - Treat hypoglycaemia promptly and effectively so that the blood glucose levels return to an acceptable range without delay
  - Prevent further hypoglycaemia by finding the cause and adjusting treatment as necessary.

Principles of Action:

- Identify patients at risk of hypoglycaemia (those treated with insulin or sulfonylureas).
- Identify hypoglycaemia, BGL < 4mmol/L.
- Treat hypoglycaemia (include initial and follow-up treatments) according to the patient's conscious state, nil by mouth status and ability to swallow safely.
- Monitor BGL every 15mins for patients experiencing hypoglycaemia and repeat hypoglycaemia treatment until BGL ≥ 5mmol/L.
- **Initiate a PACE call if BGL < 4mmol/L, with a decreased level of consciousness (excludes Intensive Care Unit/Emergency Department).**
- **In the Emergency Department initiate additional rapid response or additional clinical review according to Between the Flags – Adult Emergency Department Observation Chart criteria.**
- Ensure all patients who are at risk of hypoglycaemia **AND** are unable to eat or drink normally have a **patent wide-bore** IV cannula in situ, preferably in the antecubital fossa.
- Find the cause of hypoglycaemia and adjust treatment if future hypoglycaemia is likely to occur.
- Refer to the SVH Parenteral Nutrition Policy for patients with diabetes on Parenteral Nutrition.
- For treatment and management of hypoglycaemia in the hospitalised patient without diabetes refer to the Endocrine Team
  - Registrar page 6810
  - Endocrine Consultant on call via switchboard (out of hours or weekends)

Definitions:

Blood Glucose Level (BGL)	Measure of glucose in the blood (mmol/L).
Blood Glucose Monitoring (BGM)	Measurement and documentation of the Blood Glucose Level (BGL) using a capillary (finger-prick) blood sample and point of care (bedside) blood glucose meter.
Carbohydrate (CHO)	Dietary starches and sugars that break down to form glucose molecules that are absorbed into the blood stream.
CERS	Clinical Emergency Response System.
Hypoglycaemia	**A BGL <4mmol/L** (capillary or venous blood sample).
Hypo Kit	A box with oral hypoglycaemia treatment available in all patient care areas.
Impaired awareness of hypoglycaemia (IAH)	An acquired syndrome associated with insulin treatment where warning symptoms of hypoglycaemia are diminished in intensity, altered in nature or lost altogether.
Nocturnal Hypoglycaemia	Hypoglycaemia occurring overnight.
PACE	Patient with Acute Condition for Escalation.
Recurrent Hypoglycaemia	More than two hypoglycaemic events in 24 hours.
Sulphonylurea Tablet	A tablet used to treat hyperglycaemia by increasing insulin secretion. Includes: glibenclamide, gliclazide, glimepiride, glipizide.

Roles and Responsibilities:

All clinical staff are responsible for the following:

- Ensuring they understand what causes hypoglycaemia, how to recognise hypoglycaemia and how to treat hypoglycaemia.
- Maintaining up-to-date knowledge and skills to comply with current evidence based hypoglycaemia management practice and policies.
- Monitoring patients with diabetes for hypoglycaemia.
- Excluding hypoglycaemia in any person with diabetes who is acutely unwell, drowsy, unconscious, unable to co-operate, presenting with aggressive behaviour or seizures.
- Treating and ensuring ongoing monitoring of patients with hypoglycaemia without delay according to this procedure.

The Medical Officer (MO) is responsible for the following:

- Prescribing IM and/or IV treatment of hypoglycaemia in a patient unable to eat and drink
- Investigating the cause of hypoglycaemia and, if required, adjusting therapy to prevent future episodes (may include consultation with the Endocrine Team particularly in patients with recurrent hypoglycaemia).
- Ensuring an insulin chart (P438) reminder alert is prescribed at the correct times in MedChart (if applicable)

The Registered Nurse (RN) is responsible for the following:

- Monitoring patients for / with hypoglycaemia
- Administration of treatment in response to hypoglycaemia
- Reporting all incidents of hypoglycaemia, the actions taken and the outcomes (resolution of hypoglycaemia) to the MO and documenting in the medical record and on the:
  - Blood Glucose Monitoring & Subcutaneous Insulin Administration Chart – P438
  - DKA/HHS Intravenous Insulin Infusion Management Chart - P186
  - Intensive Care Unit Insulin Infusion Chart – P453
- Ensuring an insulin chart (P438) reminder alert is prescribed at the correct times in MedChart (if applicable)

Nursing Unit Managers are responsible for ensuring:

- Essential equipment is easily accessible for clinicians to monitor and treat patients with hypoglycaemia.
- The ward 'Hypo Kit' is checked by nursing staff on a daily basis to ensure it is complete and in date.
- Kitchen supplies (lemonade, sugar sachets and sweet biscuits) are available to ensure 'Hypo Kit' stock can remain complete.
- All patients who experience hypoglycaemia related to a management error (e.g. error in prescription or administration of insulin, error in hypoglycaemia treatment) are reported in RiskMan™, and have a documented diabetes management plan.

Program Managers are responsible for the following:

- Each Program and Clinical Unit must review trended Riskman™ data on medication incidents (including insulin) on a quarterly basis and develop and implement strategies towards reducing the incidence of hypoglycaemia.

Process:

Equipment:

- AccuCheck™ Performa Blood Glucose Meter or Novostat Blood Glucose Meter (ICU)
- Hypoglycaemia Kit stocked with the following items:
  - x 2 cans lemonade
  - x 12 sachets sugar
  - x 4 packets of sweet biscuits
- IV 50% Glucose in 50mL (minijet located on resuscitation trolley)
- IM Glucagon 1mg (imprest stock)
- 5% Dextrose 1000mL flask
- IV infusion giving set

Identify hypoglycaemia:

- Identify hypoglycaemia by:
  - BGL < 4mmol/L in a person with diabetes treated with insulin or sulphonylurea tablets.
  - Signs and symptoms (if unable to confirm for any reason using BGM)
    - Autonomic: Sweating, palpitations, shaking, hunger
    - Neuroglycopenia: Confusion, drowsiness, odd behaviour, difficulty with speech, uncoordination
    - General malaise: Headache, nausea

Hypoglycaemia Treatment

Disposal of Waste/Equipment:

- Dispose of equipment in accordance with SVH Waste Management Policy
- Wash hands post procedure

Post Procedure Patient Management:

- Identify the risk factor or cause of hypoglycaemia and adjust therapy to prevent future episodes
- If unable to identify cause, contact and discuss with Endocrine Registrar p.6810 or Diabetes CNC p.6157 (Mon-Fri 8am-4.30pm) or, if after hours, the Senior on Wards.
- All episodes of **recurrent hypoglycaemia** should be referred to the Endocrine Team (Endocrine Registrar p.6810 or Diabetes CNC p.6157).
- Replenish hypo kits immediately after use.

Documentation:

- Document all episodes of hypoglycaemia:
  - In the patient's medical record AND
  - In the hypoglycaemia management section on the Blood Glucose monitoring & Subcutaneous Insulin Administration Chart P438 or the DKA/HHS Intravenous Insulin Infusion Management Chart - P186 or the ICU Insulin Infusion Chart – P453.

- Ensure an insulin chart (P438) reminder alert is prescribed at the correct times in MedChart (if applicable)

Include the treatment, resolution, ongoing management and any treatment changes to prevent further hypoglycaemia.

- Notify all episodes of hypoglycaemia related to error in prescription or administration of insulin, or other clinical management error, in the Incident Information Management System (RiskMan™).

Appendices:

- Appendix I: Hypoglycaemia Bundle of Care

Standard:

Compliance:

- Compliance with the procedure will be monitored and actioned by the Geriatric Ambulatory Medicine Quality Committee and include the following elements:
  - Percentage of wards with up to date hypo kits available (or equivalent) monitored via nursing safety checks
  - Percentage of hospital discharges delayed by episodes of inpatient hypoglycaemia from coded data
  - Reduction in episodes of hypoglycaemic events monitored via RiskMan™
  - Reduction in the incidence of PACE calls related to hypoglycaemia
  - Practice compliance will be monitored annually by auditing patient healthcare records. This audit will be a randomly selected group of patients who experienced hypoglycaemia during their admission. These patients will be identified from coding. See Appendix 1 for the audit tool.

Risk Rating: High

National Safety and Quality Health Service Standards:

- Standard 4 - Medication Safety
- Standard 9 – Recognition and Responding to Clinical Deterioration in Acute Health Care

References:

Supporting Evidence:

1. Stanisstreet D, Walden E, Jones C, Graveling A. The Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus. NHS Diabetes March 2010, p1-28
2. NHS National Diabetes Inpatient Audit 2012 – Bedside Audit Questionnaire. Retrieved on 6/12/2012 from http://www.ic.nhs.uk/webfiles/Services/NCASP/NaDIA/5.NaDIA_Bedside_Audit_Questionnaire.pdf.
3. American Diabetes Association. Standards of Medical Care in Diabetes. *Diabetes Care*. 2012 Vol 35 (Suppl 1), pS11-S63.
4. Braithwaite SS, Buie MM, Thompson CL, Baldwin DF, Oertel MD, Robertson BA, Mehrotra HP. Hospital Hypoglycaemia: Not only Treatment but also Prevention. *Endocrine Practice*, 2004 Vol. 10(2), p 89-99.
5. Tomksy D. Detection, Prevention, and Treatment of Hypoglycaemia in the Hospital. *Diabetes Spectrum*. 2005 Vol 18(1), p 39-44.
6. Garg R, Hurwitz S, Turchin A, Trivedi A. Hypoglycaemia, With or Without Insulin Therapy, Is Associated With Increased Mortality Among Hospitalized Patients. *Diabetes Care, Dec 17th, 2012 [published ahead of print].* Retrieved http://care.diabetesjournals.org on 7.1.2013,

Risk Rating:

Not set

Focus Area(s):

- Medicines & Other Therapeutics

Linked PP:

- Inpatient Diabetes Model of Care Policy
- Procedure for Management of Diabetic Ketoacidosis (DKA) and Hyperosmolar Hyperglycaemic State (HHS) Protocol

Departments:

- Clinical Organisation Wide

Revision History:

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Suggest change (0 changes already suggested)