

Hypoglycemia Management

1. Definition

- **Hypoglycemia:** Blood glucose **<70 mg/dL** with or without symptoms.
- **Severe Hypoglycemia:** Blood glucose **<54 mg/dL** with **altered mental status, seizures, or unconsciousness**, requiring external assistance for recovery.

2. Classification (If Needed)

- **Mild to Moderate Hypoglycemia:** Patient is conscious and able to self-treat.
- **Severe Hypoglycemia:** Patient has neurological impairment (seizures, coma) and requires IV/IM treatment.

3. Presenting Clinical Features

A. Symptoms of Hypoglycemia

- **Neurogenic (Adrenergic) Symptoms:**
 - Palpitations, sweating, tremors
 - Hunger, anxiety, irritability
- **Neuroglycopenic Symptoms** (Due to brain glucose deprivation):
 - Confusion, dizziness, slurred speech
 - Blurred vision
 - Seizures, coma (in severe cases)

4. Initial Evaluation

- **Capillary Blood Glucose (CBG) with Glucometer** (Confirm hypoglycemia).
- **Serum Insulin & C-Peptide (If Whipple's Triad is present)** to rule out insulinoma.
- **Serum Cortisol (If recurrent hypoglycemia, rule out adrenal insufficiency).**
- **ECG if prolonged QTc is suspected (Hypoglycemia can trigger arrhythmias).**

5. Management

A. Mild to Moderate Hypoglycemia (Patient Conscious & Able to Eat)

1. **"Rule of 15" (15-15-15 Approach)**
 - **Give 15g of fast-acting carbohydrates:**
 - Glucose tablets (4-5g per tab) OR
 - 1 tbsp sugar/honey OR
 - ½ cup (125 ml) fruit juice/soda (not diet) OR
 - 3-4 glucose biscuits.
 - **Recheck blood glucose in 15 min.**

- If still <70 mg/dL, **repeat 15g glucose**.
- Once glucose >70 mg/dL, **eat a complex carbohydrate meal** to prevent recurrence.

B. Severe Hypoglycemia (Altered Mental Status, Seizures, or Unconscious)

1. If IV Access Available → Give IV Glucose

- **IV Dextrose 25-50 mL of Dextrose 50% (D50) push**, followed by **Dextrose 10% (D10) infusion** if prolonged fasting suspected.

2. If No IV Access → Give IM/SC Glucagon

- **1 mg IM/SC Glucagon** (May not be effective in alcohol-induced or malnourished hypoglycemia).
- Once patient regains consciousness, give oral carbohydrates.

3. Recheck Blood Glucose Every 15 Minutes Until Stable.

C. Long-Term Management & Prevention

- **Adjust Insulin/Oral Hypoglycemics** if recurrent episodes.
- **Educate patients on early recognition & "Rule of 15" strategy.**
- **Avoid skipping meals or excessive alcohol consumption.**

6. Monitoring & Follow-Up

- **Continuous Glucose Monitoring (CGM) for high-risk patients** (e.g., Type 1 DM, frequent hypoglycemia).
- **HbA1c & Review of Medication Doses** (To adjust therapy if needed).
- **Hospital Observation** if hypoglycemia is due to long-acting sulfonylureas (e.g., Glibenclamide) due to risk of recurrent episodes.

7. Red Flags – When to Refer

- **Recurrent unexplained hypoglycemia** (Consider insulinoma, adrenal insufficiency).
- **Severe hypoglycemia requiring hospitalization or ICU admission.**
- **Hypoglycemia unresponsive to standard treatment.**

💡 Additional Notes & Insights

💡 Beta-Blockers Can Mask Hypoglycemia Symptoms!

- Patients on **propranolol, metoprolol, atenolol** may not feel adrenergic symptoms (sweating, palpitations).
- **Neuroglycopenic symptoms (confusion, dizziness) may be the only warning signs.**

💡 **Glucagon May Not Work in Malnourished or Alcoholic Patients!**

- **Glucagon relies on liver glycogen stores**, which are depleted in **chronic alcohol use, fasting, or malnutrition**.
- **IV Dextrose is the preferred treatment in these cases.**

💡 **Nighttime Hypoglycemia (Nocturnal Hypoglycemia) is Dangerous!**

- Symptoms: **Night sweats, nightmares, morning headache.**
- **Suspect Somogyi Effect** (Rebound hyperglycemia after overnight hypoglycemia).
- **Solution:** Lower nighttime insulin dose or give bedtime snack.

💡 **Sulfonylurea-Induced Hypoglycemia Lasts Longer!**

- **Drugs like Glibenclamide, Glimepiride can cause prolonged hypoglycemia (>24 hours).**
- **Patients should be admitted for IV glucose infusion & monitoring.**

💡 **Hypoglycemia in Non-Diabetics → Consider Insulinoma or Adrenal Insufficiency!**

- **Whipple's Triad (Symptoms + Low Glucose + Symptom Relief After Glucose) → Investigate Further.**
 - Check **Serum C-Peptide & Insulin levels** (High insulin & C-peptide suggests insulinoma, low C-peptide suggests exogenous insulin use).
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