A guidance on diagnosis and management of hyperglycemia at COVID care facilities in India.

Guidance for deciding initial doses of insulin for steroid induced diabetes

- **No Diabetes**
  - 0.2 units/kg/day NPH 0.1 unit/kg (Morning) Regular Insulin 0.1 unit/kg before lunch

- **Already on 1 or 2 oral glucose lowering agents (oral-GLAs) for diabetes**
  - 0.4 units/kg/day NPH 0.1 unit/kg (Morning/Evening) Regular Insulin 0.1 unit/kg BBF, BL, BD each

- **Already on > 2 oral-GLAs for diabetes**
  - 0.6 units/kg/day NPH 0.2 units/kg (Morning) + 0.1 unit/kg (Evening) Regular Insulin 0.1 unit/kg BBF, BL, BD each

- **Diabetes on Insulin > 0.6 units/kg/day**
  - 1.2 X patient's insulin dose units/kg/day (20% extra) 50% NPH [2/3rd (Morning) + 1/3rd (Evening)] 50% Regular Insulin [divided equally between BBF, BL, and BD]

Guidance on the use of oral glucose lowering agents (Oral-GLAs)

- Relatively Safe
  - DPP-4 Inhibitors
- Caution
  - Metformin
    - Risk of lactic acidosis if moderately to severely ill with hemodynamic instability or hypoxia
- Contraindications for Oral-GLAs
  - Sulfonylureas
    - Risk of hypoglycemia if oral intake is poor or with concomitant use of insulin therapy
- Mild Hyperglycemia (Pre-meal = 180 mg/dl) (Post-meal = 250 mg/dl)

Blood glucose monitoring strategy for individuals with no evidence of stress hyperglycemia or undiagnosed diabetes at the initial screen

- **No hyperglycemia at admission**
  - Severe illness increases
  - Patient is initiated on steroids

- **High Risk individuals**
  - Cardiovascular disease
  - Obese
  - Age > 50 years

- **Monitor blood glucose twice a day every 3-4 days**

Guidance on the use of insulin therapy

- **Prescribe insulin**
  - If there are contraindications to oral glucose lowering agents
  - Moderate to severe Covid
  - Moderate to severe Hyperglycemia (Pre-meal ≥ 180 mg/dl) (Post-meal ≥ 250 mg/dl)

- **Start with 0.4 units/kg/day**
  - Consider lower dose (0.2 units/kg/day in elderly, frail or patients with renal/hepatic failure)

- **Deciding basal and bolus component**
  - Divide equally into 4 doses when using regular and NPH insulin
  - Divide equally (Basal and Bolus) when using insulin analogs

- **Basal bolus insulin regimen**
  - Titrated infusion rate based on ambient BG level, magnitude of BG change in previous hour, factors influencing insulin sensitivity/resistance, time of the day, dietary status, concomitant medications and target BG level

- **Blood glucose targets**
  - Pre-meal: 110-150 mg/dl
  - Post-meal: 140-200 mg/dl

Suitable insulin regimens for various situations

- **Insulin regimen**
  - 3 doses of prandial regular insulin + 1 or 2 doses of NPH insulin
  - Suiited for patients with moderate-severe hyperglycemia who have a regular diet pattern and experience prandial excursion with each meal

- **Basal Bolus**
  - 1 or 2 doses of prandial regular insulin + 1 or 2 doses of NPH insulin
  - Suiited for patients with moderate-severe hyperglycemia who have a regular diet pattern and experience prandial excursion with 1 or 2 meals (like patients initiated on steroids in morning only)

- **Correctional insulin with or without basal insulin**
  - Monitor capillary blood glucose BBF, 2 hours ABF, BL, BD and 2 hours AD for patients on Basal Bolus
  - Monitor patients on other insulin regimens with BBF, BL, BD, and AD if 6 point monitoring is not feasible

- **Monitoring**
  - Not recommended for routine use.
  - Should only be used in patients with erratic diet patterns, preferably with a basal insulin


Department of Endocrinology and Metabolism, All India Institute of Medical Sciences, New Delhi

Created with Biorender.com