Inpatient advice on the management of hyperglycaemia in dexamethasone treated COVID-19 patients.

COVID-19 patients on Dexamethasone 6mg OD

Known Diabetes: Hold SGLT2i ❄and Metformin. Continue other diabetes medication. check blood glucose 6 hourly.

Blood glucose persistently high >12 mmol/L

NO

YES

Insulin treated

Twice daily insulin: **Use Table 2 to titrate**

Basal + Bolus insulin: **Use Table 1 and 3 to titrate**

Non-Insulin treated

	Age <70 years or eGFR >30mls/min	Age >70 years or eGFR <30mls/min
Humulin I	0.3units/kg/day	0.15units/kg/day
Dosing pattern	2/3rd in morning and 1/3rd in evening	

No Diabetes: check blood glucose 6 hourly for 48 hours

Blood glucose >12mmol/L. Give stat dose of Novorapid based on bodyweight. Use Table 1 for guidance of dosing. Recheck Blood glucose after 4 hours

Blood glucose persistently high >12 mmol/L or > 2 stat doses Novorapid is given

YES

NO

After 48 hours	
Blood Glucose	***Guidance***
6-12 mmol/L	continue 6 hourly Blood glucose monitoring
>12 mmol/L	-Check ketones, PH and electrolytes to rule out DKA / HHS -Give stat Correction Dose Novorapid *or Humalog if patient is already using it.* Dose according to table 1. -Recheck glucose after 4 hours. to determine response and whether a further correction dose is needed Use Table 2, and 3 as appropriate to patient to titrate regular insulin

After 48 hours	
Blood Glucose	***Guidance***
<10 mmol/L	once daily glucose monitoring until dexamethasone is stopped
10-12 mmol/L	Monitor 6 hourly blood glucose
>12 mmol/L	-Check ketones, PH and electrolytes to rule out DKA / HHS --Give stat Correction Dose Novorapid s.c. According to table 1 -Recheck glucose after 4 hours. to determine response and whether a further correction dose is needed -Start insulin Humulin I if Blood glucose persistently high >12 mmol/L or > 2 stat doses Novorapid is given.

Note : 1unit of Novorapid will decrease the blood glucose by approximately 3mmol/L. But patient's with high BMI and insulin resistance will need higher dose. See table on prescription chart to dose according to bodyweight or if already on insulin, calculate TDD(Total daily dose)= Add all the doses of insulin/day and choose the accurate column on the table.

❄**SGLT2 inhibitors:** Dapagliflozin, Empagliflozin and Canagliflozin

Table 1: Advice on stat dose of Novorapid based on body weight for insulin naïve patients & for patient's who are already treated with short acting insulin- using TDD.

› **Insulin treated**

Where the total daily dose (TDD) of insulin is known follow the guidance in the table based on TDD. If the TDD is unknown, follow guidance according to the person's weight

CORRECTION DOSES OF RAPID ACTING INSULIN

GLUCOSE (MMOL/L)	• TDD = <50 UNITS PER DAY • OR WEIGHT < 50 KG	• TDD = 50 -100 UNITS PER DAY • OR WEIGHT 50 -100 KG	• TDD = >100 UNITS PER DAY • OR WEIGHT >100 KG	←
12.0-14.9	2 units	2 units	4 units	• Please check **KETONES** if glucose >12.0mmol/L ⚠ **If KETONE >1.5mmol/L, for doctor review** ⚠ **If KETONE >3.0mmol/L** Exclude DKA-Venous pH, bicarbonate, lab glucose, U&E. Refer to diabetes team
15.0-16.9	2 units	3 units	5 units	
17.0-18.9	3 units	4 units	5 units	
19.0-20.9	3 units	5 units	6 units	
21.0-22.9	4 units	6 units	7 units	
23.0-24.9	4 units	7 units	8 units	
25.0-27.0	5 units	8 units	9 units	
Over 27	6 units	9 units	10 units	

* Caution in patient's at risk of hypoglycaemia

Table 2: Advice on titrating Twice daily insulin like like Humulin I, Insulatard or Premixed insulin like Novomix-30, Humulin M3 (Note patient's may typically need 40% and at times even more increments in dose compared to baseline, so regular monitoring is essential to titrate the dose)

Evening insulin dose changes to address high blood glucose at bedtime and morning*					
Bed-time or Morning Blood glucose	<4 mmol/l	4.1-6mmol/l	6.1 – 12mmol/l	12.1-18mmol/l	>18mmol/l
Evening insulin dose changes	Reduce by 20%	Reduce by 10%	Continue same	Increase by 10%	Increase by 20%

Morning insulin dose changes to address high blood glucose at mid day and evening*					
Mid day or Evening Blood glucose	<4 mmol/l	4.1-6mmol/l	6.1 – 12mmol/l	12.1-18mmol/l	>18mmol/l
Morning insulin dose changes	Reduce by 20%	Reduce by 10%	Continue same	Increase by 10%	Increase by 20%

* Caution in patient's at risk of hypoglycaemia

Table 3: Advice on titrating once daily insulin like Lantus, Tresiba, Toujeo. Long-acting insulin dosing should be titrated once in 2-3 days if required to avoid under or over treatment. (Note patient's may typically need 40% and at times even more increments in dose compared to baseline, so regular monitoring is essential to titrate the dose)

Blood glucose Before insulin administration	<4 mmol/l	4.1-6mmol/l	6.1 – 12mmol/l	12.1-18mmol/l	>18mmol/l
Evening insulin dose changes	Reduce by 20%	Reduce by 10%	Continue same	Increase by 10%	Increase by 20%

* Caution in patient's at risk of hypoglycaemia

Discharge planning

Patient not on insulin before admission	Use insulin titration table as shown before Down titrate the insulin and stop if appropriate. Optimize oral hypoglycaemic medications
Patient on insulin before admission	Use insulin titration table as shown before Monitor and titrate insulin dose
Persistent high blood glucose 48 hours after stopping Dexamethasone	Use insulin titration table as shown before Discuss with inpatient diabetes team

Inpatient diabetes team e-advice referral if:

Newly diagnosed diabetes
Complex insulin regimens like
Basal bolus insulin
Insulin Pump managed
Type 1 diabetes, DKA
Gestational diabetes
Recurrent hypoglycaemia.
Uncontrolled hyperglycaemia

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Modified and adapted from ABCD guidance: https://abcd.care/sites/abcd.care/files/site_uploads/Resources/COVID-19/COvID_Dex_v1.4.pdf