



ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಸಂಖ್ಯೆ: ಆಕುಕ 107 ಅಮುಕಾ 2021

ಕರ್ನಾಟಕ ಸರ್ಕಾರ ಸಚಿವಾಲಯ
ವಿಕಾಸ ಸೌಧ
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ಸುತ್ತೋಲೆ

ಕೋವಿಡ್-19 ರೋಗಿಗಳಿಗೆ ಚಿಕಿತ್ಸೆ ನೀಡಲು ಅನುಸರಿಸಬಹುದಾದ ಚಿಕಿತ್ಸಾ ಮಾರ್ಗಸೂಚಿ - **Guidelines for Management of COVID-19 -A point of Care Approach (Version 4.0)** ನ್ನು ಡಾ: ಎಸ್.ಸಚ್ಚಿದಾನಂದ್‌ರವರ ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿನ ಕ್ಲಿನಿಕಲ್ ಪ್ರೊಟೋಕಾಲ್ ಸಮಿತಿ ಹಾಗೂ ಡಾ: ಎಂ.ಕೆ.ಸುದರ್ಶನ್ ಇವರ ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿನ ತಾಂತ್ರಿಕ ಸಲಹಾ ಸಮಿತಿಯು ಜಂಟಿಯಾಗಿ ಅನುಮೋದಿಸಿರುತ್ತದೆ (ಪ್ರತಿ ಲಗತ್ತಿಸಿದೆ).

ಸದರಿ **Guidelines for Management of COVID-19 (Version 4.0)** ನ್ನು ಅನುಸರಿಸಲು ಕೋರಿದೆ.

pages-1 to 17


(ಜಾವೇದ್ ಅಖ್ತರ್)

ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿ
ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಇಲಾಖೆ

ಇವರಿಗೆ:

1. ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿ, ವೈದ್ಯಕೀಯ ಶಿಕ್ಷಣ ಇಲಾಖೆ
2. ಆಯುಕ್ತರು, ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಸೇವೆಗಳು, ಬೆಂಗಳೂರು
3. ಮುಖ್ಯ ಆಯುಕ್ತರು, ಬಿ.ಬಿ.ಎಂ.ಪಿ.
4. ಅಭಿಯಾನ ನಿರ್ದೇಶಕರು, ರಾಷ್ಟ್ರೀಯ ಆರೋಗ್ಯ ಅಭಿಯಾನ, ಬೆಂಗಳೂರು
5. ಎಲ್ಲಾ ಜಿಲ್ಲಾಧಿಕಾರಿಗಳು/ಜಿಲ್ಲಾ ಪಂಚಾಯಿತಿಗಳ ಎಲ್ಲಾ ಮುಖ್ಯ ಕಾರ್ಯನಿರ್ವಹಣಾಧಿಕಾರಿಗಳು
6. ಕಾರ್ಯಕಾರಿ ನಿರ್ದೇಶಕರು, ಸುವರ್ಣ ಆರೋಗ್ಯ ಸುರಕ್ಷಾ ಟ್ರಸ್ಟ್
7. ನಿರ್ದೇಶಕರು, ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಸೇವೆಗಳು, ಬೆಂಗಳೂರು
8. ನಿರ್ದೇಶಕರು, ವೈದ್ಯಕೀಯ ಶಿಕ್ಷಣ, ಬೆಂಗಳೂರು
9. ಖಾಸಗಿ ವೈದ್ಯಕೀಯ ಕಾಲೇಜುಗಳ ಎಲ್ಲಾ ನಿರ್ದೇಶಕರುಗಳು ಮತ್ತು ವೈದ್ಯಕೀಯ ಅಧೀಕ್ಷಕರುಗಳು
10. ಎಲ್ಲಾ ಜಿಲ್ಲಾ ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣಾಧಿಕಾರಿಗಳು / ಎಲ್ಲಾ ಜಿಲ್ಲೆಯ ಜಿಲ್ಲಾ ಶಸ್ತ್ರಚಿಕಿತ್ಸಕರು/ಜಿಲ್ಲಾ ಸರ್ವೇಕ್ಷಣಾಧಿಕಾರಿಗಳು

ಪ್ರತಿಯನ್ನು:

1. ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿ ಇವರ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು
2. ಮಾನ್ಯ ಸಚಿವರು, ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಇಲಾಖೆ & ವೈದ್ಯಕೀಯ ಶಿಕ್ಷಣ, ಇವರ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು

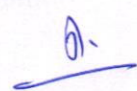
Guidelines for Management of COVID19

[A Point of Care Approach]

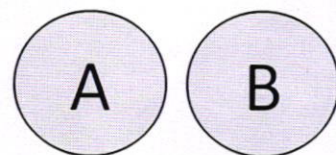
Version 4.0 (POC)

April 2021

Government of Karnataka



HOME ISOLATION



Asymptomatic: COVID-19 Positive

COVID-19 Positive with Mild Symptoms

- Anosmia
- Fever
- Dry Cough
- Myalgia
- Diarrhoea
- Loss of Taste/smell

Investigations Suggested:

- CBC, LFT, RFT
 - RBS
 - CXR
 - CRP
 - SpO2 monitoring 6 hourly
 - 6MWT(Six Minute Walk Test)
or 3MWT (For >60 yrs.)
- Once

Management:

- T. Ivermectin 12mg OD for 3 days **OR**
T. Favipiravir 1800mg (200mg x9) BD on Day 1,
f/b 800mg(200mg x4) BD For 6 days.
- T. Vitamin C 500mg BD
- T. Zinc 50mg OD

Monitor Symptoms and Body Temperature

Maintain Adequate Hydration

Monitor Oxygen saturation with a Pulse Oximeter

Measure BP twice a day

Perform 6MWT everyday

If the Above patients Develops these symptoms/signs:

- Shortness of Breath/Breathlessness
- Resting Heart Rate >100/Palpitations
- SpO2 <94% on any occasion
- 6MWT/3MWT induced Desaturation of >4%
- Neutrophil Lymphocyte Ratio >3.5
- Worsening of Symptoms

To be shifted immediately to DCHC/DCH.

- All opting for Home isolation should have Pulse Oximeter and BP Apparatus at home.

Eligibility for Home Isolation/Home care:

- The person shall be clinically assigned as asymptomatic/mild case through telephonic triage or by the health staff/medical officer/ physician. Such cases should have the requisite facility at their residence for self-isolation and also for quarantining the family contacts.
- A caregiver should be available to provide care on a 24 X 7 basis. A regular communication link between the caregiver and hospital is a pre-requisite for the entire duration of home isolation/ home care
- The person shall provide a signed undertaking for self-isolation/home care and follow guidelines of home isolation/home care
The person shall agree to monitor his/her health and regularly inform their health status to the tele-monitoring team/ medical officer/physician/ family doctor and District Surveillance Officer (DSO) for further follow up by the surveillance teams.
- Home isolation/home care shall not be applicable for pregnant women 2 weeks before expected date of delivery (EDD)

- Patient Who symptoms increase within the next 12-24 hours, needs to be Shifted to CCC/DCHC depending on situation

COVID CARE CENTRES (CCC)

Separate well ventilated room with a separate toilet for the person in isolation/home care.

The person shall stay in the identified room and away from other persons in the home. Group A/B, with no adequate facilities for proper Home Isolation will be in CCC

Investigations:

- CBC, LFT, RFT
- RBS
- Chest Xray
- CRP
- SpO2 monitoring 6 hourly
- 6MWT (Six-minute Walk Test) /3MWT

Once

Any Desaturation >4% on 6MWT is an indication to shift to DCHC/DCH immediately.

Management:

- T. Ivermectin 12mg OD for 3 days **OR**
T. Favipiravir 1800mg (200mg x9) BD on Day 1, f/b 800mg (200mg x4) BD for 6 days
- T. Vitamin C 500mg BD
- T. Zinc 50mg OD

Monitor Symptoms and Body Temperature

Monitor Oxygen saturation

Maintain Adequate Hydration/ Drink Plenty of Fluids

Monitor Oxygen saturation with a Pulse Oximeter

Measure BP twice a day

Perform 6MWT everyday

Supportive Counselling of the Patient & family members

Availability of BP Apparatus and Pulse Oximeters is a Must.

If the Above patients Develops these symptoms/signs:

- Shortness of Breath (Breathlessness)
- Resting Heart Rate >100, Palpitations
- SpO2 <94% on any occasion
- 6MWT induced Desaturation of >4%
- Neutrophil Lymphocyte Ratio >3.5
- Worsening of Symptoms

To be shifted immediately to DCHC/DCH

50% of beds in CCCs should have facility for Oxygen Supply

Dr

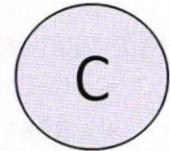
Patient in CCC will stand discharged /released from home isolation):

- after 10 days of symptom onset (or date of sampling, for asymptomatic cases) **and**
- no fever for 3 days consecutive,
- Maintains oxygen saturation above 94;

Thereafter, the patient shall be advised to isolate at home and self-monitor their health for further 7 days.

There is no need for any COVID-19 test (RT-PCR / CBNAAT /True-NAT/ Rapid Antigen Test) after the period of home isolation is over.

Designated COVID Health Centres (DCHC)



Symptomatic Patients with Comorbidities

- Age >60
- Obesity
- DM/HTN/IHD
- COPD/Chronic Lung Disease
- Immunosuppressed State
- CKD / CLD

Investigations:

- CBC
- LFT
- RFT
- RBS
- ECG
- Chest Xray
- SpO2
- 6MWT/3MWT
- HRCT Thorax (If Available)
- CRP
- D-Dimer

Blood tests to be repeated after 72 hours, if baseline values are abnormal.

Management:

- T. Ivermectin 12mg OD for 3 days **OR**
T. Favipiravir 1800mg (200mg x9) BD on Day 1, f/b 800mg (200mg x4) BD for 6 days
- T. Vitamin C 500mg BD
- T. Zinc 50mg OD
- Inj. LMWH [E.g., Enoxaparin 0.5mg/kg/day] S/C or Inj. Heparin 5000U, if D-Dimer >1000ng/ml for 7 days.
- Start on Oxygen therapy immediately if Saturation drops <94%,
Add Inj. Dexamethasone 6mg IV **OR** T. Dexamethasone 8mg OD for 5-10 days

Monitor Symptoms and Body Temperature

Monitor Oxygen saturation

Adequate Control and Management of Comorbidities

Antibiotics if Clinical Signs of Bacterial Infection

Supportive Counselling of the Patient & family members

Patient to be shifted to DCH if:

Any Desaturation <90%,

Any Uncontrolled Comorbidities,

Any Neutrophil Lymphocyte Ratio >17

Any Worsening of Symptoms

- Use Inj. Remdesivir only in patients with duration of symptoms <10 days. (Ideally <5 days) so as to **STRIKE EARLY and STRIKE HARD**

Designated COVID Hospitals (DCH)- Wards

D

Pneumonia without Respiratory Failure

Investigations:

- SpO₂
- CBC
- LFT
- RFT
- RBS
- ECG
- CXR
- CRP, D-Dimer
- LDH, Ferritin
- ABG baseline
- Triglycerides
- Procalcitonin
- HRCT Thorax
- Trop-I, CKMB
- IL-6

Blood tests to be repeated after 48 hours, if baseline values are abnormal.

ROX INDEX

Ratio of SpO₂/FiO₂ to Respiratory rate:

<4.8 is an indication to shift to ICU

Management:

- Inj. LMWH [E.g., Enoxaparin 0.5mg/kg/day] S/C or Inj. Heparin 5000U IV TID if D-Dimer >1000ng/ml for 7 days/ till discharge if values of D-Dimer is still high >500.
- If CRP is elevated, Steroids can be Considered
 - Inj. Methylprednisolone 40mg IV [1-2mg/kg] for 5-10 days **OR**
 - Inj. Dexamethasone 6mg IV [0.2-0.4mg/kg] **OR**
 - T. Dexamethasone 8mg OD for 5-10 days
- Inj. Remdesivir 200mg IV OD on D1, F/b 100mg IV OD for 4 days
- T. Vitamin C 500mg BD
- T. Zinc 50mg OD
- Start on Oxygen therapy if Saturation drops <94%.

- Pulmonary Rehabilitation Exercises to be initiated
- Supportive Counselling of the Patient & family members

Monitor Symptoms and Body Temperature

Monitor Oxygen saturation

Adequate Control and Management of Comorbidities

Antibiotics if Clinical Signs of Bacterial Infection

Danger Signs:

- SpO₂ <90% on any occasion, PaO₂ <60mmHg
- Neutrophil Lymphocyte Ratio >17

Designated COVID Hospitals (DCH)- Wards

E

Pneumonia with Respiratory Failure

Investigations:

- SpO₂
- CBC
- LFT
- RFT
- RBS
- ECG
- CXR
- CRP, D-Dimer
- LDH, Ferritin
- ABG as required
- Triglycerides
- Procalcitonin
- HRCT Thorax
- Trop-I
- CK-MB
- IL-6

Blood tests to be repeated after 48 hours

ROX INDEX

Ratio of SpO₂/FiO₂ to Respiratory rate:

<4.8 is an indication to shift to ICU

Management:

- Oxygen Therapy as Appropriate
- CARP (COVID19 Awake Repositioning-Prone) Protocol
- Inj. Methylprednisolone 40mg IV [1-2mg/kg] for 5-10 days
- OR**
- Inj. Dexamethasone 6mg IV [0.2-0.4mg/kg] for 5-10 days
- Inj. LMWH [E.g., Enoxaparin 0.5mg/kg/day] S/C or Inj. Heparin 5000 IU IV TID till the patient is discharged/ D-dimer levels <500ng/dl
- Inj. Remdesivir 200mg IV OD on D1, F/b 100mg IV OD for 4 days.

- Consider Use of Convalescent Plasma Therapy, 4-13ml/kg (Usually 200ml single dose is given slowly over not less than 2 hours) if Patient continues to be hypoxic when still on Antivirals; Not recommended after 6th day of illness.
- T. Vitamin C 500mg BD
- T. Zinc 50mg OD

Adequate Control and Management of Comorbidities

Antibiotics if Clinical Signs of Bacterial Infection

Pulmonary Rehabilitation Exercises to be initiated

Supportive Counselling of the Patient & family members

Danger Signs:

- SpO₂ <90% on any occasion, PaO₂ <60mmHg
- Neutrophil Lymphocyte Ratio >17

Designated COVID Hospitals (DCH)- ICU



Pneumonia with Respiratory Failure with Sepsis /Septic Shock/Multi Organ Dysfunction Syndrome

- SpO₂ <90 on Room Air
- RR>30/min
- PaO₂ <60mmHg
- Altered Mental Status
- Any Sign of End Organ Damage

Investigations:

- CBC, LFT, RFT
- RBS
- ECG
- CXR
- CRP, D-Dimer
- LDH, Ferritin
- ABG as needed
- Triglycerides
- Procalcitonin
- HRCT Thorax
- Trop-I, CK-MB
- IL-6
- Blood Culture

Blood tests to be repeated after 48 hours/ As indicated.

Management:

- Oxygen Therapy and Airway Management as Appropriate
- CARP (COVID Awake Repositioning Prone) Protocol
- Initiate Antibiotics as per Institution Protocol, Ideally within 1 hour of Admission.
- Inj. LMWH [E.g., Enoxaparin 0.5mg/kg/dayBD] S/C or Inj.Heparin 5000U IV *TID* until discharge.

A

- Inj. Methylprednisolone 40mg [1-2mg/kg] IV for 5-10 days **OR**
- Inj. Dexamethasone 6mg IV [0.2-0.4mg/kg] for up to 10 days **OR**
- Inj. Hydrocortisone 50mg TiD for up to 10 days **OR**
- Tab. Prednisolone 40mg **ODOR**
- Tab. Methylprednisolone 16mg BD or 8mg QiD
- Consider use of Inj. Tocilizumab 400mg[8mg/kg] IV in 100ml NS over 1 hour, 12 hours apart **OR**
- Inj. Itolizumab Up to 1.6 mg/kg IV, to be given in 250 ml normal saline over 6 hours, Single dose: **If Patient continues to be hypoxic in spite of Higher Respiratory Support.**
- T. Vitamin C 500mg BD
- T. Zinc 50mg OD

Continuous Monitoring of Vital parameters

Adequate Control and Management of Comorbidities

Pulmonary Rehabilitation Exercises to be initiated

Supportive Counselling of family members

Cardiac Monitoring and MR-Scanning for Myocarditis

RED FLAG SIGNS:

- SpO₂ <90% on any occasion
- Neutrophil Lymphocyte Ratio >17

Investigations to be repeated as and when appropriate, Decisions to be individualised to each patient

All the decisions to be taken on the basis of Clinical Signs and Symptoms, rather than Blood and Radiological parameters

VENTILATION IN PATIENTS WITH ARDS WITH LOW LUNG COMPLIANCE:

- Select volume A/C mode on the ventilator
- Set ventilator settings to achieve initial VT = 6 mL/kg PBW.
- Set initial rate to approximate baseline minute ventilation (not >35 bpm).
- Aim for a pH over 7.2, do not worry about the PaCO₂. If the PaCO₂ keeps going up too much in spite of a RR of 35, reduce the dead space in the circuit. If the pH drops below 7.2, consider adding sodium bicarbonate infusion.
- Use a minimum positive end expiratory pressure (PEEP) of 5 cm H₂O.
- Plateau pressure goal: ≤30 cm H₂O
- Check Pplat (0.5 second inspiratory pause) at least every 4 hours and after each change in PEEP or VT
- If the Pplat remains above 30 cm H₂O, decrease VT by 1 mL/kg steps (minimum = 4 mL/kg).

VENTILATION IN PATIENTS WITH ARDS WITH NEAR-NORMAL LUNG COMPLIANCE:

- Select volume A/C mode on the ventilator
- PEEP <10 cm of water with BP monitoring
- FIO₂ < 60 - 70% to keep SaO₂ > 85, PaO₂ < 60 mmhg
- Tidal volume - 8-10 ml/kg
- Prone ventilation not indicated
- Try semi recumbent position
- Try weaning slowly, watch for mucosal oedema, Hydrocortisone 200 mg IV, 30min before extubating.

Monitoring in COVID-19

<u>Parameters</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
BP, Heart Rate	Daily	Daily	12 hrly	6 hrly	6 hrly	Continuously
SpO ₂	6 hrly	6 hrs	4 hrly	4 hrly	Continuously /2hrly	Continuously
CBC, RFT, LFT, CRP	Once	Once	Every 2 days	Every 2 days	Every 2 days	Daily
D-Dimer	-	-	Once/ As indicated	Every 2 days	Every 2 days	Every 2 days
ECG	Once	Once	Once/As Indicated	Every 2 days	Every 2 days	Daily
ABG	-	-	Once if Indicated	Every 2 days	Daily	Daily/ As Indicated
Chest Xray	Once	Once	Once/ As Indicated	Every 2 days	Every 2 days/ As Indicated	As indicated/every 2 days

The Decisions of Management should be on the basis of Clinical Judgement rather than the Radiological and Haematological Parameters

Q

PULMONARY REHABILITATION

Frequency of exercises

1st Week – One full sequence of below (1-8) exercises to be done only once. Repeat 4 times/day with minimum interval of 2-3hrs

2nd week – one full sequence of below (1-8) exercises to be done twice. Repeat 3 times/day

3rd & 4th week - one full sequence of below (1-8) exercises to be done thrice. Repeat 2 times/day

1. Diaphragmatic Breathing.
2. Incentive Spirometry.
3. Sit to Stand Squats.
4. Stand Marching.
5. Seated Arm Reaches.
6. Standing Heel Raises.
7. Side stepping.
8. Wall Push-Ups.

Do not proceed if you do not feel well enough to exercise. STOP exercise immediately if you get chest pain, palpitations, exhaustion, or dizziness/lightheadedness.

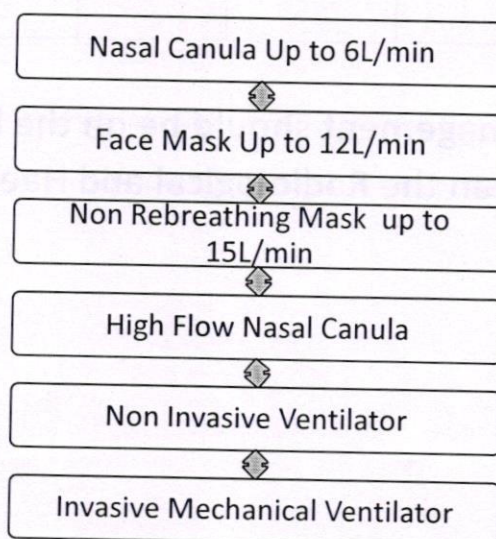
OXYGEN THERAPY TITRATION

TARGET SATURATION (with lowest FiO₂ possible)

All COVID19 patients: SpO₂ 94-96%

COVID19 patients with COPD: SpO₂ 88-92%

For Patients on Mechanical Ventilation: SpO₂ 90-92%



Allow at least 5 mins at each dose before adjusting further upwards or downwards (except with Major and sudden fall in saturation – falls $\geq 3\%$ also require clinical review)

MANAGEMENT OF HYPERTENSION IN COVID 19 PNEUMONIA

Among patients with COVID 19, studies have shown that concomitant hypertension is an independent risk factor carrying a twofold mortality risk as compared to non-hypertensives. Hypertension, CKD, AKI, ESRD patients on maintenance haemodialysis and ischemic heart disease with or without diabetes are the array of patients with COVID 19 and hypertension. **Hence the patients with co morbidities are expected to have severe forms of COVID 19.** There is no evidence that stopping the antihypertensive reduces severity of COVID 19. Studies on hypertensives with COVID 19 using RAAS antihypertensive and non RAAS antihypertensive like beta blockers and calcium channel blockers showed no difference in disease severity, but lower mortality among patients using RAAS agents have been documented.

Patients with AKI not requiring dialysis should be managed with conservative fluid resuscitation goals. Since more patients may in addition have pneumonia and ARDS limiting the use of iv fluids, fluid resuscitation should be individualized based on trackable objective measures like IVC collapse in bedside USG.

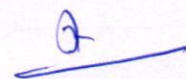
For ESRD/CKD and AKI patients requiring RRT, the indications remain the same as for non-COVID patients.

Investigations recommended for hypertensives with COVID 19:

- ECG/ 2D ECHO is possible
- BNP, Troponin I, CPK-MB
- RFT/urine routine
- Serum electrolytes
- Cardiac monitoring for arrhythmias
- USG abdomen/chest
- MR scanning for myocarditis.

All COVID 19 patients presenting with hypertension BP>140/90, / SBP>160 mmHg

1. With history of hypertensive drugs for same- to continue, if well controlled.
2. Diabetics if on ACE inhibitors or ARBs to continue.
3. CKD/ESRD on HD - to continue same antihypertensive closely monitoring RFT and serum electrolytes/ RRT continued.
4. If AKI suspected- urine routine for proteinuria, haematuria, abnormal RFT.



- Monitor input/output chart
- Avoid ACE inhibitors and ARBs. Use non RAAS antihypertensives.
- Daily monitoring of serum creatinine and serum electrolytes.
- Avoid nephrotoxic drugs.
- If associated diabetes mellitus present or steroid used for ARDS COVID 19 regimen, monitor blood sugars
- Check for procalcitonin.

MANAGEMENT OF HYPERGLYCEMIA AND DIABETES IN COVID19

Ref: ENDOCRINOLOGY IN THE TIME OF COVID-19: Remodelling diabetes services and emerging innovation in European Journal of Endocrinology, August 2020

Where change seen	Key difference with COVID-19	Suggested action
Early in admission	<p>People with COVID-19 infection appear to have a greater risk of hyperglycemia with ketones including:</p> <ul style="list-style-type: none"> • People with type-2 diabetes (risk even greater if on a SGLT-2 inhibitor) • People with newly diagnosed diabetes <p>Covid-19 disease precipitates atypical presentations of diabetes emergencies (e.g. Mixed DKA and hyperosmolar states)</p>	<ul style="list-style-type: none"> • Check blood glucose in everybody on admission • Check ketones in: <ul style="list-style-type: none"> • Everybody with diabetes being admitted • Everybody with admission glucose over 12 mmol/l • Stop SGLT-2 inhibitors in all people admitted to hospital • Consider using 10-12% glucose where ketoses persists despite treatment in line with usual protocols
Severe illness on admission	<p>Fluid requirements may differ in those with DKA/HHS and evidence of : or "Lung leak" myocarditis</p>	<ul style="list-style-type: none"> • After restoring the circulating volume the rate of fluid replacement regimen may need to be adjusted where evidence of "lung leak" or myocarditis. • Contact the diabetes specialist team early • Early involvement of the critical care team
All inpatient areas	<p>Infusion pumps may not be available to manage hyperglycemia using intravenous insulin as these are required elsewhere (e.g: for sedation in ICU)</p>	<ul style="list-style-type: none"> • Use alternative s/c regimens to manage <ul style="list-style-type: none"> • Hyperglycemia • Mild DKA • Contact the diabetes specialist team for support
ICU	<p>Significant insulin resistance seen in people with type-2 diabetes in ICU settings</p>	<ul style="list-style-type: none"> • IV insulin protocols may be need amending (people seen requiring up to 20 units/hr) • Patients often nursed prone to feeding may be accidentally interrupted – paradoxical risk of hypoglycemia

1: People with no past history of Diabetes and no Stress Hyperglycaemia:

Blood Glucose Monitoring:
Frequency: Two tests per day – at least
Timings: Fasting; Before and 2 hours After Meals
Blood Glucose Targets mg/dl: Pre-meal= 80 to 120; Post-meal= 140 – 180
Special Note: Even if initial blood glucose levels are normal, repeat frequent daily monitoring should be done if started on steroids.

2: People with no past history of Diabetes; Stress Hyperglycaemia diagnosed in Hospital:

Blood Glucose Monitoring:																												
Frequency: Four to six tests per day																												
Timings: Fasting; Before and 2 hours After Meals; 3 am																												
Blood Glucose Targets mg/dl: Pre-meal= 80 to 120; Post-meal = 140 – 180																												
Special Note: More frequent daily monitoring should be done if started on steroids.																												
Oral Diabetes Medications																												
Start the following new diabetes medications:																												
Always try to include Gliptins [DPP4 Inhibitors] in the treatment regimen [Eg: Tab Vildagliptin / Sitagliptin] at the appropriate doses																												
Insulin Injections: Please enter details in the Diabetes Monitoring Sheet																												
Start the following new insulin regimen Bolus Only:																												
Insulin Regular Scheduled [Fixed] Dose TID + Sliding Scale Dose TID [Before Breakfast, Lunch and Dinner [Choose the appropriate Sliding Scale: Low – Mid – High]																												
Sliding Scale Choices Insulin Units: TDD= Total Daily Dose given on previous day																												
<table border="1"> <thead> <tr> <th>TDD</th> <th>Scale</th> <th>BG < 150</th> <th>151-200</th> <th>201-250</th> <th>251-300</th> <th>> 300</th> </tr> </thead> <tbody> <tr> <td>< 40</td> <td>Low</td> <td>0</td> <td>2</td> <td>4</td> <td>6</td> <td>8</td> </tr> <tr> <td>41- 80</td> <td>Mid</td> <td>0</td> <td>3</td> <td>6</td> <td>9</td> <td>12</td> </tr> <tr> <td>> 80</td> <td>High</td> <td>0</td> <td>4</td> <td>8</td> <td>12</td> <td>16</td> </tr> </tbody> </table>	TDD	Scale	BG < 150	151-200	201-250	251-300	> 300	< 40	Low	0	2	4	6	8	41- 80	Mid	0	3	6	9	12	> 80	High	0	4	8	12	16
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Dose Titration: Daily calculate the Total Daily Dose of Insulin [TDD] and upgrade or downgrade the Scheduled Insulin Doses																												

3: People with past history of Diabetes on Oral Diabetes Medicines OHA [+/- Insulin]:

Blood Glucose Monitoring:
Frequency: Four to six tests per day
Timings: Fasting; Before and 2 hours After Meals; 3 am
Blood Glucose Targets mg/dl: Pre-meal= 80 to 120; Post-meal = 140 – 180
Special Note: More frequent daily monitoring should be done if started on steroids.
Oral Diabetes Medications
Start the following new diabetes medications:
Always try to include Gliptins [DPP4 Inhibitors] in the treatment regimen [Eg: Tab Vildagliptin / Sitagliptin] at the appropriate doses
Insulin Injections:
Start the following new insulin regimen Basal - Bolus:
Basal Insulin Regular Scheduled [Fixed] Dose TID + Sliding Scale Dose TID [Before Breakfast, Lunch and Dinner; Basal Insulin NPH or Glargine: After Dinner – Bedtime:

[Choose the appropriate Sliding Scale: Low – Mid – High]

Sliding Scale Choices Insulin Units: TDD= Total Daily Dose given on previous day

TDD	Scale	BG < 150	151-200	201-250	251-300	> 300
< 40	Low	0	2	4	6	8
41- 80	Mid	0	3	6	9	12
> 80	High	0	4	8	12	16

Dose Titration: Daily calculate the Total Daily Dose of Insulin [TDD] and upgrade or downgrade the Scheduled Insulin Doses

Scheduled Dose Insulin Units: Ratio of Bolus : Basal = 2 : 2 : 2 : 1 [Example below]

TDD	Insulin Units	Breakfast	Lunch	Dinner	Bedtime
Bolus	Regular	8	8	8	0
Basal	NPH / Glargine	0	0	0	4

4: Sick / ICU diabetes patients with severe hyperglycaemia, DKA or HHNK:

Blood Glucose Monitoring

Frequency: Seven tests per day

Timings: Fasting; Before and 2 hours After Meals; 3 am

Blood Glucose Targets mg/dl: Pre-meal= 80 to 120; Post-meal = 140 – 180

Special Note: More frequent daily monitoring should be done if started on steroids.

Oral Diabetes Medications

Start the following new diabetes medications:

Always try to include Gliptins [DPP4 Inhibitors] in the treatment regimen [Eg: Tab Vildagliptin / Sitagliptin] at the appropriate doses

Insulin Injections:

Start the following new insulin regimen Basal - Bolus:

Basal Insulin Regular Scheduled [Fixed] Dose TID + Sliding Scale Dose TID[Before Breakfast, Lunch and Dinner;

Basal Insulin NPH or Glargine: After Dinner – Bedtime:

[Choose the appropriate Sliding Scale: Low – Mid – High]

Sliding Scale Choices Insulin Units: TDD= Total Daily Dose given on previous day

TDD	Scale	BG < 150	151-200	201-250	251-300	> 300
< 40	Low	0	2	4	6	8
41- 80	Mid	0	3	6	9	12
> 80	High	0	4	8	12	16

Dose Titration: Daily calculate the Total Daily Dose of Insulin [TDD] and upgrade or downgrade the Scheduled Insulin Doses

Scheduled Dose Insulin Units: Ratio of BOLUS : BASAL = 2 : 2 : 2 : 1

TDD	Insulin Units	Breakfast	Lunch	Dinner	Bedtime
Bolus	Regular	8	8	8	0
Basal	NPH / Glargine	0	0	0	4

5: Intravenous Insulin use

Indications for Intravenous Insulin Infusion
1. Patients with nothing by mouth (NPO) status or those having erratic diet pattern (in time and content); 2. Diabetic keto-acidosis (DKA); 3. Uncontrolled hyperglycaemia despite Basal Bolus Regimen [Protocol 4]; 4. Severe hyperglycaemia at onset (Pre-meal BG level ≥ 300 mg/dl and post-meal BG level; ≥ 400 mg/dl); ketone status should be checked before starting infusion; 5. Critically ill like in sepsis and septic shock
Insulin Infusion Protocol:
Initiation: Insulin can be initiated at dose of 0.05-0.1 units/kg body weight/hour.
Infusion preparation: 50 units of regular insulin in 50 ml NS (1 unit / ml).
Frequency of blood glucose monitoring: 1 - 22 hourly; Can be extended to 4 hourly, where requirement is low, glucose values are stable and in target.
Glycaemic targets: To achieve and maintain blood glucose of 140 to 180 mg/dl for most individuals. BG target can be tightened to 110-180 mg/dl in a scenario where this target can be achieved without causing significant hypoglycemia and relaxed to 200-220 mg/dl where even a target of 140-180 mg/dl is unsafe and associated with increased risk of hypoglycemia.

6: Steroid – Glucocorticoid Therapy - Special precautions

Oral or Intravenous Steroid use
Please split total daily IV or Oral steroid dose into two doses, first before breakfast, second before dinner; this will help achieve a flatter / stable 24-hour glucose profiles

Discharge Criteria

The existing guidelines for discharge from the hospital vide reference above (IV) shall be followed and the link is [https://covid19.karnataka.gov.in/storage/pdf-files/cirhws/Revised%20Discharge%20Policy%20for%20COVID-19%20\(Version%203\).pdf](https://covid19.karnataka.gov.in/storage/pdf-files/cirhws/Revised%20Discharge%20Policy%20for%20COVID-19%20(Version%203).pdf)

1. For asymptomatic individuals :

- All cases shall undergo regular temperature and pulse oximetry checks
- They shall be discharged if the following criteria is met at time of discharge;
 - No symptoms
 - No fever (recorded temperature $\leq 37.5^\circ$ or $\leq 99.5^\circ$ F)
 - Maintains saturation above 95%
 - Respiratory rate less than 24 per minute.
- Asymptomatic individuals with a positive COVID-19 test report, who continues to remain asymptomatic during their stay in the hospital, **shall be discharged 10 days after the positive test for COVID-19**
 - For example, if swab was collected on 1st August 2020 and tested positive for COVID-19, then the patients shall be discharged after 10

days from the date of swab collection i.e on 11th August 2020. It is important that during this period, the patient shall remain free of any symptoms.

- There is no need for RT-PCR/CBNAAT/TruNAT test before discharge of the patient
- At the time of discharge, the patient will be advised to isolate himself at home and self-monitors their health for further 7 days.
- His /her health will again be followed up through tele-conference on 14th day.
- After discharge from the facility, if he/she again develops symptoms of fever, cough or difficulty in breathing, he/she will contact the hospital or Apathamithra helpline 14410 immediately.

2. For Mild and Moderate cases:

- All cases shall undergo regular temperature and pulse oximetry checks.
- The patient **shall be discharged after 10 days of onset of symptom /s** only if the following criteria is met :
 - No Fever and No Symptom/s for the last 3 consecutive days before discharge (without antipyretics)
 - Maintains saturation above 95% for the last 4 consecutive days (without oxygen support)
 - Resolution of breathlessness
 - Resolution of clinical signs / symptoms (based on the report of investigations)
 - Repeat inflammatory markers (S.Ferritin, S.LDH, D-Dimer & CRP) at the time of discharge. These should be in normal range/decreasing trend
- For example, if a patient developed symptoms on 1st August 2020 and tested positive for COVID-19,
 - **Example 1:** If patient had symptoms for 1-7 days, the patient shall be discharged after 10 days from date of onset of symptoms i.e on 11th August 2020 (minimum 10 days for all symptomatic patients)
 - **Example 2:** If patient had symptoms for 14 days, the patient shall be discharged after 14 days + 3* days = 17 days from date of onset of symptoms, i.e on 17th August 2020 (* no Symptom/s for the last 3 consecutive days before discharge)
- There is **no need for RT-PCR/CBNAAT/True-NAT test** before discharge of the patient
- At the time of discharge, the patient will be advised to isolate himself at home and self-monitor their health for further 7 days.

3. For persons in Home isolation/ Home care

- Patient under home isolation will stand discharged (released from home isolation/ home care) after 10 days of symptom onset (or date of sampling, for asymptomatic cases) and no fever for 3 days. Thereafter, the patient shall be advised to isolate at home and self-monitor their health for further 7 days. There is no need for testing after the home isolation period is over
- They shall be released if the following criteria are met:
 - No symptoms
 - No fever (recorded body temperature $\leq 37.5^{\circ}\text{C}$ or $\leq 99.5^{\circ}\text{F}$)
 - Maintains oxygen saturation above 95%
 - Respiratory rate less than 24 per minute
- There is no need for any COVID-19 test (RT-PCR/CBNAAT/True-NAT/Rapid Antigen test) after the period of home isolation/home care is over
- The person shall be allowed to resume duty only after satisfactory completion of home isolation/ home care

A fitness certificate shall be issued by the concerned area medical officer (PHC/UPHC/CHC/GH)/ treating physician/family doctor. Alternatively, an e-certificate may be issued in the prescribed format by tele-monitoring team

Transfer of clinically improved patients from COVID hospitals to COVID-19 Care Centres(CCCs)

o In view of surge in COVID-19 cases in the state and to ensure prudent use of hospital beds both in government and private for moderately and severely ill COVID-19 patients, it is necessary to transfer clinically improved patients to COVID Care Centres (CCC) as per criteria mentioned below:

o No Fever and No Symptom/s for the last 3 consecutive days (without antipyretics) before transfer to CCC, and

o Maintaining oxygen saturation above 95% for the last 4 consecutive days (without oxygen support)

Those who fulfil these criteria in the COVID hospitals shall be transferred to the CCC by the treating physician after a careful clinical evaluation of the patient.

The above guidelines of admission, discharge, and transfer shall be followed in all DCHCs, DCHs, both in government and private in the state.

