



**COVID-19 Outbreak Control and Prevention State Cell
Health & Family Welfare Department
Government of Kerala**

GUIDELINES TO OPTIMIZE COVID TREATMENT OUTCOMES IN KERALA

NO: 39/ 31/F2/2020/Health- 6th Aug 2021

As per the order No 38/31/F2/2020/ Health dated 5th Aug 2021 a revised treatment protocol is issued for follow up in Kerala. In order to strengthen patient management in the COVID Hospitals a four-pronged strategy has been drawn up to improve the treatment outcomes.

1. Diagnosing COVID 19 in those with very high-risk factors at the earliest so that they can be administered monoclonal antibodies [casirivimab and imdevimab] in a timely fashion to prevent disease progression.
2. Encouraging and facilitating vaccination of those with co-morbidities in 18 to 45 age group including pregnant women at the earliest. Till they are fully vaccinated encouraging them to adopt reverse quarantine measures and to stick to SMS at all points of time.
3. Augmenting the surveillance of those in home care by creation of empowered home care monitoring clusters and by facilitating laboratory investigations for those who remain in home care.
4. Since the clinical outcomes of seriously ill patients with COVID 19 is directly related to optimization of glycaemic control, implementation of glycaemic optimization bundles will help in bringing down COVID 19 related mortality as well as incidence of COVID associated mucormycosis.

A. BRINGING DOWN MORTALITY IN THOSE WITH HIGHEST RISK OF COVID 19 PROGRESSION

After analyzing the pattern of deaths during the peak of Covid 19 second wave in Kerala, it was observed that majority of deaths did occur in those with high risk factors like chronic kidney disease, coronary artery disease, those with uncontrolled diabetes mellitus, systemic arterial hypertension, those on chemotherapy for malignancy, chronic obstructive pulmonary disease, cerebrovascular disease, morbid obesity, chronic liver disease and among unvaccinated elderly. The only way to prevent disease progression in the highest risk groups is to identify COVID 19 at the earliest and to administer monoclonal antibody cocktail [Casirivimab plus imdevimab] before they develop hypoxia. As of now monoclonal antibody cocktail [Casirivimab plus imdevimab] is the only drug which can prevent hospitalization and progression to severe disease among high risk groups.

ACTION POINTS

1. All patients belonging to the high risk groups should be educated about the need to get COVID 19 diagnosed at the earliest if symptomatic. If they are high risk contacts, they should be monitored for symptoms and hypoxia every day. Once symptomatic, COVID 19 RTPCR should be done at the earliest, if asymptomatic RTPCR should be done on day 8 of contact.
2. Once diagnosed to have COVID 19, they should be referred to the nearest Government COVID 19 hospital where casirivimab and imdevimab are available.

High-risk individuals who will benefit from Monoclonal antibody cocktail

- Body mass index (BMI) ≥ 35
 - Chronic kidney disease stage with eGFR < 60 ml/min especially in those on MHD.
 - Diabetes mellitus [HBA1C > 10] or diabetes with end organ damage.
 - Chronic liver disease
 - Immunocompromising conditions.
 - Currently receiving immunosuppressive treatment
 - Age ≥ 65 years
 - Cardiovascular disease
 - Chronic respiratory diseases.
 - Malignancies with chance of survival.
 - Other indications as deemed fit by institutional medical board.
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- In those between 12 to 17 years with BMI ≥ 85 th percentile for their age and gender Mab cocktail may be considered in
 - Sickle cell disease
 - Congenital or acquired heart disease
 - Neurodevelopmental disorders (e.g., cerebral palsy)
 - A medical-related technological dependence that is not related to COVID-19 (e.g., tracheostomy, gastrostomy, positive pressure ventilation)
 - Asthma or a reactive airway or other chronic respiratory disease that requires daily medication for control.

B] BRINGING DOWN COVID 19 RELATED MORTALITY IN PERSONS WITH CO-MORBIDITIES IN 18-45 AGE GROUP

Encouraging and facilitating vaccination of those with co-morbidities in 18 to 45 age group including pregnant ladies at the earliest. Till they are fully vaccinated they have to be encouraged to adopt reverse quarantine measures and to stick to SMS at all points of time.

C] CREATION OF EMPOWERED HOME CARE MONITORING CLUSTERS AND FACILITATING LAB INVESTIGATIONS

It has been noted that despite repeated instructions, many patients with high risk factors continue to remain in home care and are reluctant to get

admitted. This has resulted in delayed presentation to hospitals outside the therapeutic window of opportunity resulting in adverse clinical outcomes. In order to optimize outcomes in this category, empowered home care guidelines had been issued.

- For better monitoring it will be optimal to create empowered home care monitoring clusters under all PHCs so as to ensure implementation of empowered home care guidelines strictly and to facilitate blood investigations /imaging in those patients with high risk factors who are reluctant to get hospitalized.
- Blood investigations including CRP, D-dimer, LDH and ferritin should be done on day 7 from onset of symptoms to identify progression to hyperinflammatory stage in patients with high risk factors who continue to be in home care.
- Those without risk factors in home care with fever more than 5 days should also be facilitated to do blood investigations and to get hospitalised.
- **THOSE WITH HIGH RISK FACTORS SHOULD BE ENCOURAGED TO GET HOSPITALISED AND IT SHOULD BE ENSURED THAT THOSE IN HOME CARE WITH RED FLAG SIGNS ARE HOSPITALIZED AT THE EARLIEST**

Patients with the following risk factors should be hospitalized on diagnosis of SARS COV 2

- Body mass index (BMI) ≥ 30
- Chronic kidney disease stage with eGFR <60 ml/min especially in those on MHD.
- Diabetes mellitus patients on insulin/diabetes mellitus with end organ damage/those without glucometer.

- Chronic liver disease
- Immunocompromising conditions.
- Currently receiving immunosuppressive treatment
- Age ≥ 65 years
- Cardiovascular disease
- Chronic respiratory diseases.
- Malignancies .
- Persisting fever more than 5 days in those without risk factors .
- Patients without access to pulse-oximeter.

D] OPTIMIZATION OF GLYCAEMIC CONTROL IN PATIENTS WITH COVID 19 THROUGH TARGETED INTERVENTIONS

Since the clinical outcomes of seriously ill patients with COVID 19 is directly related to optimization of glycaemic control, implementation of glycaemic optimization bundles will help in bringing down COVID 19 related mortality as well as incidence of COVID associated mucormycosis

Screening for diabetes in undiagnosed and glycemic status in diagnosed diabetes patients with and without COVID 19 infection

- 1) **Non-Diabetic- No COVID infection-** All subjects above 30 years age should get a random blood glucose/sugar (RBS) test done by self , at least using a glucometer. If found more than 140 mg/dl they should undergo Fasting blood glucose (FBS)/ post prandial blood glucose (PPBS) to know whether he/she is diabetic or not.
- 2) **Known Diabetes but not having COVID 19 Infection-**All diabetic subjects across the state included in the NCD registers of primary health centers and in the e-health-Kerala database should immediately get a FBS and PPBS (one time measure) at least using a glucometer.

- 3) **No Known Diabetes but Now infected with COVID 19-** All patients diagnosed with COVID 19 and not having diabetes diagnosed earlier must undergo a random blood glucose (RBS) test at diagnosis of COVID 19. If found more than 140 mg % they should undergo FBS, PPBS (and HbA1c if possible), if found high (FBS \geq 126, PPBS \geq 200 and HbA1c \geq 6.5 should get an online consultation for blood glucose control with an endocrinologist/physician.
- 4) **Known Diabetes now diagnosed COVID -19-** All diabetic subjects should undergo FBS, PPBS (and HbA1c if possible), if found above targets (FBS \geq 140, PPBS \geq 180 and HbA1c \geq 7) should get an online consultation for blood glucose control with an endocrinologist- HR management suggestions below).
- 5) **Known Diabetes started on steroids- Check FBS and PPBS after 24 hrs. as well as 48 hours after first dose.**
- 6) **Not diabetic but started steroid- Check PPBS after 48 hours.**
- 7) **Diabetic subjects on steroids** should not be managed at home.
- 8) **Diabetic subject with mild COVID 19 not on steroids-** can be managed at home provided his/her blood glucose levels are within target range (FBS < 140, PPBS < 180 mg). They should be able to check blood glucose levels once in 3-5 days using glucometer till 15th day of COVID symptoms/Diagnosis.
- 9) **In all the COVID hospitals- To ensure optimal standard of care to diabetic subjects separate high care wards should be opened solely for uncontrolled Diabetes patients with COVID 19 infection. Here intensive blood glucose monitoring (before and 2 hour after meals) and insulin dosages can be ensured by using the services of a staff nurse under directions from an endocrinologist / physician through telemedicine.**
- 10) **Glucometers and strips-** All hospital administrators should ensure that there is a glucometer available for each 20 diabetic patients and uninterrupted glucometer sensor strips corresponding to the glucometer brands are available (at least 4 strips per day per diabetic patient).

- 11) **Adherence to Guidelines** - The state guidelines already published on 24.4.21 regarding diabetes monitoring should be strictly adhered to. Doubts of doctors regarding diabetes control in COVID 19 protocol can be cleared telephonically at 0471-2528952 (Department of Endocrinology, GMC Thiruvananthpauram).
- 12) **Basal Bolus Therapy for inpatients** - Should be promoted as the regimen most likely to give best blood glucose control in hospitalized uncontrolled hyperglycemic patients.
- 13) **Infusion Pumps**- are important in the proper management of hyperglycemia and ketoacidosis when insulin infusion is required. Availability of this equipment can be ensured wherever possible.
- 14) **Insulin availability**- All hospitals should ensure adequate supply of Regular and NPH varieties of human insulin which are the cheapest, freely available and still as efficacious as other costly insulins available in the market.


PRINCIPAL SECRETARY