ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಸಂಖ್ಯೆ: ಆಕುಕ 152 ಅಮುಕಾ 2020

ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಸಚಿವಾಲಯ,
ವಿಕಾಸ ಸೌಧ,
ಬೆಂಗಳೂರು, ದಿನಾಂಕ:15.05.2020

ಸುತ್ತೋಲೆ

ವಿಷಯ: ಕೊರೋನ ವೈರಸ್ ಪ್ರಕರಣಗಳ ಹಿನ್ನೆಲೆಯಲ್ಲಿ, ಸಂಬಂಧಪಟ್ಟ ಆಸ್ಪತ್ರೆಗಳಲ್ಲಿ COVID-19 ಚಿಕಿತ್ಸೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಪಾಲಿಸಬೇಕಾದ ನಿಯಮಗಳ ಕುರಿತು.

ಉಲ್ಲೇಖ: COVID-19 Clinical Management Protocol approved by Expert Committee under the Chairmanship of Dr.Sacchidanand, Vice –Chancellor, RGUHS.

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ದೇಶದಲ್ಲಿ ಕೋವಿಡ್–19 ಸೋಂಕು ವ್ಯಾಪಕವಾಗಿ ಹರಡುತ್ತಿರುವ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ರಾಜ್ಯವು ಕೋವಿಡ್ ನಿಯಂತ್ರಣ ಸಂಬಂಧ ಹಲವು ಕ್ರಮಗಳನ್ನು ಕೈಗೊಳ್ಳಲಾಗುತ್ತಿದೆ. ಅಲ್ಲದೆ, ರೋಗಿಗಳಿಗೆ ನೀಡಲಾಗುತ್ತಿರುವ ಚಿಕಿತ್ಸಾ ವಿಧಾನಗಳನ್ನು ಹಾಗೂ ವೈದ್ಯಕೀಯ ಚಿಕಿತ್ಸಾ ಶಿಷ್ಟಾಚಾರ ವಿಧಾನವನ್ನು ಈಗಾಗಲೇ ತಿಳಿಸಲಾಗಿರುತ್ತದೆ.

ರಾಜ್ಯದಲ್ಲಿ ಕೋವಿಡ್–19 ಸೋಂಕಿಗೆ ತುತ್ತಾಗಿ ಮರಣ ಪ್ರಕರಣಗಳು ಹೆಚ್ಚಾಗುತ್ತಿದ್ದು, ಈ ಮರಣಗಳನ್ನು ತಡೆಯುವ ನಿಟ್ಟಿನಲ್ಲಿ ವೈದ್ಯಕೀಯ ಚಿಕಿತ್ಸೆಯಲ್ಲಿನ ಶಿಷ್ಟಾಚಾರವನ್ನು (treatment protocol) ಹೆಚ್ಚು ಪರಿಣಾಮಕಾರಿಯಾಗಿ ಮಾಡಲು ಹಾಗೂ ಕೋವಿಡ್–19 ಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಜಾಗತಿಕ ಮಟ್ಟದಲ್ಲಿ ಆದ ಸಂಶೋಧನೆಗಳು ಹಾಗೂ ಅನುಭವದ ಆಧಾರದ ಮೇಲೆ ನಮ್ಮ ರಾಜ್ಯದಲ್ಲಿಯೂ ಸಹ ವೈದ್ಯಕೀಯ ಚಿಕಿತ್ಸಾ ಶಿಷ್ಟಾಚಾರವನ್ನು ಉತ್ತಮಪಡಿಸಲು ಹಾಗೂ ಮರಣಗಳನ್ನು ಕಡಿಮೆ ಮಾಡುವ ನಿಟ್ಟಿನಲ್ಲಿ ಸಲಹೆ / ಸೂಚನೆಗಳನ್ನು ನೀಡುವಂತೆ ಉಪ ಕುಲಪತಿ, ರಾಜೀವ್ ಗಾಂಧಿ ಆರೋಗ್ಯ ವಿಜ್ಞಾನಗಳ ವಿಶ್ವವಿದ್ಯಾಲಯ ಇವರ ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿ ರಚಿಸಲಾದ ಸಮಿತಿಗೆ ಕೋರಲಾಗಿತ್ತು.

ಅದರಂತೆ ಸಮಿತಿಯು ಕೂಲಂಕಷವಾಗಿ ಪರಿಶೀಲಿಸಿ ಹಾಲಿ ಇರುವ ವೈದ್ಯಕೀಯ ಚಿಕಿತ್ಸಾ ಶಿಷ್ಟಾಚಾರದ ಆಧಾರದ ಮೇಲೆ ಕೋವಿಡ್–19 ರೋಗಿಗಳಿಗೆ ನೀಡಬೇಕಾದ ಉತ್ತಮ ಚಿಕಿತ್ಸಾ ಪದ್ಧತಿಗಳ ಬಗ್ಗೆ ವರದಿ ನೀಡಿರುತ್ತಾರೆ (ಪ್ರತಿ ಲಗತ್ತಿಸಿದೆ). ಸದರಿ ವರದಿಯೊಂದಿಗೆ, ಕೋವಿಡ್ ರೋಗಿಗಳ ಚಿಕಿತ್ಸೆ ಹಾಗೂ ಸೂಕ್ತ ಮೇಲ್ವಿಚಾರಣೆಗಾಗಿ **ಒಂದು ಪರಿಶೀಲನಾ ಪಟ್ಟಿಯನ್ನು (ಚೆಕ್ ಲಿಸ್ಟ್)** ಇದರೊಂದಿಗೆ ಲಗತ್ತಿಸಲಾಗಿದೆ. **ಕೋವಿಡ್–19 ಸೋಂಕಿತ ರೋಗಿಗಳಿಗೆ ಚಿಕಿತ್ಸೆ ನೀಡಬೇಕಾದಲ್ಲಿ ವರದಿಯಲ್ಲಿ ನಮೂದಿಸಿರುವ ಚಿಕಿತ್ಸಾ ಶಿಷ್ಟಾಚಾರವನ್ನು ಹಾಗೂ ಚೆಕ್‌ಲಿಸ್ಟ್‌ನಲ್ಲಿರುವ ಅಂಶಗಳನ್ನು ತಪ್ಪದೇ ಅನುಸರಿಸುವಂತೆ ಸೂಚಿಸಿದೆ.**

(ಜಾವೇದ್ ಅಖ್ತರ್)
ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿ
ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಮತ್ತು
ವೈದ್ಯಕೀಯ ಶಿಕ್ಷಣ ಇಲಾಖೆ

ಇವರಿಗೆ:

1. ಎಲ್ಲಾ ಜಿಲ್ಲೆಯ ಜಿಲ್ಲಾಧಿಕಾರಿಗಳು
2. ಎಲ್ಲಾ ಸರ್ಕಾರಿ ವೈದ್ಯಕೀಯ ಕಾಲೇಜುಗಳ ಡೀನ್ ಮತ್ತು ಡೈರೆಕ್ಟರ್‌ಗಳು
3. ಎಲ್ಲಾ ಜಿಲ್ಲಾ ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಅಧಿಕಾರಿಗಳು
4. ಎಲ್ಲಾ ಜಿಲ್ಲಾ ಆಸ್ಪತ್ರೆಯ ಜಿಲ್ಲಾ ಶಸ್ತ್ರ ಚಿಕಿತ್ಸಕರುಗಳು

5. ವೈದ್ಯಕೀಯ ಅಧೀಕ್ಷಕರು, ಕೆ.ಸಿ.ಜಿ. ಆಸ್ಪತ್ರೆ, ಮಲ್ಲೇಶ್ವರಂ,/ಸಾರ್ವಜನಿಕ ಆಸ್ಪತ್ರೆ, ಜಯನಗರ/ ಸರ್ ಸಿ.ವಿ.ರಾಮನ್ ಆಸ್ಪತ್ರೆ, ಇಂದಿರಾನಗರ, ಬೆಂಗಳೂರು

<u>ಪ್ರತಿ:</u>

1. ಸರ್ಕಾರದ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಕರ್ನಾಟಕ ಸರ್ಕಾರ, ವಿಧಾನ ಸೌಧ, ಬೆಂಗಳೂರು.
2. ಡಾ॥ ಸಚ್ಚಿದಾನಂದ, ಅಧ್ಯಕ್ಷರು, ಕೋವಿಡ್-19 ಉನ್ನತ ಮಟ್ಟದ ತಜ್ಞರ ಸಮಿತಿ, ಬೆಂಗಳೂರು
3. ಆಯುಕ್ತರು, ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಸೇವೆಗಳು, ಬೆಂಗಳೂರು
4. ಅಭಿಯಾನ ನಿರ್ದೇಶಕರು, ರಾಷ್ಟ್ರೀಯ ಆರೋಗ್ಯ ಅಭಿಯಾನ, ಆರೋಗ್ಯ ಮತ್ತು ಕು.ಕ.ಸೇವೆಗಳು, ಬೆಂಗಳೂರು.
5. ನಿರ್ದೇಶಕರು, ಆರೋಗ್ಯ ಮತ್ತು ಕು.ಕ.ಇಲಾಖೆ, ಆನಂದರಾವ್ ವೃತ್ತ, ಬೆಂಗಳೂರು.
6. ಸಹ ನಿರ್ದೇಶಕರು (ಸಿಎಂಡಿ), ಆರೋಗ್ಯ ಮತ್ತು ಕು.ಕ. ಸೇವೆಗಳು, ಬೆಂಗಳೂರು
7. ಉಪ ನಿರ್ದೇಶಕರು (ಎಸ್ಎಸ್ಯು), ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಕಲ್ಯಾಣ ಸೇವೆಗಳು, ಬೆಂಗಳೂರು.
8. ಶಾಖಾ ರಕ್ಷಾ ಕಡತ/ಕಛೇರಿ ಪ್ರತಿ

TREATMENT PROTOCOL FOR COVID-19 PATIENTS

NOTE: This Recommendation is derived from the prevailing trials published and collation of various guidelines. These guidelines would change with the evolving evidence.

COVID 19 RT-PCR POSITIVE PATIENT

1) Management of any COVID 19 patient mandates the Health Care Personnel (HCP) to be in full Personal Protection Equipment (PPE)

2) Patient is Categorized in to three groups

Colour	Type of patients who are provided treatment and care
Group A	Asymptomatic/Patients with mild symptoms
Group B	Symptomatic patient with Mild to Moderate Pneumonia with no signs of severe disease, RR 15-30 cpm or SPO2- 90 - 94% at Room Air
Group C	Symptomatic patient with Severe Pneumonia with RR>30 min or SPO2 < 90% Room Air or less than 94% with oxygen , ARDS, Septic Shock.

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INVESTIGATIONS- Patients should be subjected for the following investigations on admission and may be repeated whenever necessary.

INVESTIGATIONS COMMON TO ALL ON THE DAY OF ADMISSION:	CBC WITH N/L RATIO LFT RFT RBS ECG X-RAY (CHEST)
GROUP-A **GROUP-B** **GROUP-C**	**ADDITIONAL INVESTIGATIONS** CRP D-DIMER SERUM FERRITIN PROCALCITONIN LDH, TROP-T PT/INR ABG CT THORAX (IF AVAILABLE) Throat swab for H1N1 (optional for GROUP- B & C) Other Investigations should be done based on patient's Co-morbid status

IDENTIFICATION OF HIGH-RISK PATIENT:

CO MORBIDITIES	CLINICALLY	LABORATORY VALUE
Age>50	Hypoxia- SPO2<94%	Lymphopenia with Neutrophil/Lymphocyte ratio >3.5
Diabetes	Tachycardia>100/min	CRP>100mg/L
Hypertension	Respiratory Distress RR>30/min	Serum Ferritin>300microg/L
Lung Disease (COPD/Asthma/Post TB sequelae)	Hypotension BP<90 systolic	LDH >245
CKD/ Chronic Liver Disease	Altered Sensorium	D-Dimer >1000ng/ml
Immunosuppression /HIV/Malignancy		

Note: Calculation tool for predicting critically ill COVID-19 at admission can be used as reference tool. (Developmemt of Validation of Clinical risk score to predict the occurance of critical illness in hospitalized patient with COVID-19. JAMA internal Medicine-published online, may 12/5/ 2020)

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GENERAL MEASURES AND GUIDELINES

TREATMENT:

1) Categorize in to A, B, C - sub groups

2) Supportive Care:

- Normal feeding, No dietary restrictions, good oral hydration
- Maintenance IV fluids (**If indicated**).
- Maintain blood glucose levels <180 mg/dl.
- If Patient is on ACE inhibitors/ARBs, should be continued
- Avoid using NSAIDs other than Paracetamol Unless Absolutely Necessary
- Avoid using Nebulized drugs to avoid aerosolization of virus
- Antibiotic selection in case of superadded bacterial pneumonia should be according to institution antibiogram.
- **HFNC to be used if there is failed oxygen therapy and Non-invasive ventilation (NIV) to be used appropriately with two limb circuit expiratory filters.**
- **Methyl prednisolone** (1 mg/kg body weight for 5 days) may be considered only in case of refractory shock or cytokine activation syndrome or as per treating Physician particularly with abnormally elevated CRP and Serum Ferritin.
- **Finger Pulse Oximeter for continuous monitoring of Heart Rate and Oxygen Saturation.**
- **Mask Oxygen at Saturation 94% or lower.**
- **Counseling of COVID patients**

  (by Counselor/psychologist/Psychiatrist).

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GROUP A	
TREATMENT	**PRECAUTIONS**
• CAP OSELTAMIVIR 75MG BD FOR 5 DAYS • TAB AZITHROMYCIN 500 MG OD FOR 5 DAYS • TAB HYDROXY CHLOROQUININE (HCQ) 400MG OD FOR 1 DAY Followed by 200MG 1-0-1 X 4 DAYS • INJ. LOW MOLECULAR WEIGHT HEPARIN (ENOXIPARIN 40MG, S/C, OD FOR 7 DAYS (IF D-DIMER IS MORE THAN 1000NG/ML (OR) X-RAY/CT THORAX SHOWING GROUND GLASS OPACITIES) **SUPPORTIVE THERAPY-** • TAB ZINC 50 MG 0-1-0 X 7 DAYS • TAB VITAMIN C 500 MG 1-1-1 X 7 DAYS	• CATEGORIZATION SHOULD BE REASSESSED REGULARLY • CONTRAINDICATION FOR HCQ- 1)QT INTERVAL > 500MS 2)PORPHYRIA 3)MYASTHENIA GRAVIS 4)RETINAL PATHOLOGY 5)EPILEPSY 6)HYPOKALEMIA (K^+ < 3 MEq) • PREGNANCY IS NOT A CONTRAINDICATION FOR HCQ

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GROUP B (MODERATELY SICK PATIENTS)	
• CAP OSELTAMIVIR 75MG BD FOR 5 DAYS • TAB AZITHROMYCIN 500 MG OD FOR 5 DAYS • TAB HYDROXY CHLOROQUININE (HCQ) 400MG BD FOR 1 DAY followed by 200MG 1-0-1 X 4 DAY • INJ ENOXAPARIN 40MG S/C 1-0-0 x 7 DAYS • IV ANTIBIOTICS ACCORDING TO LOCAL ANTIBIOGRAM **SUPPORTIVE THERAPY-** • TAB ZINC 50 MG 0-1-0X 7 DAYS • TAB VITAMIN C 500 MG 1-1-1 X 7 DAYS • TAB N-ACETYL CYSTEINE 1-1-1 IN PATIENTS WITH COUGH	• PATIENT SHOULD BE REASSESSED REGULARLY AND CONTINOUS MONITORING OF OXYGEN SATURATION IS ADVISED. • IF SPO2 ≤ 94% START ON OXYGEN - FACE MASK 5L/MIN OR NASAL PRONGS 2-5 L/MIN

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GROUP C (CRITICALLY SICK PATIENTS)	
• CAP OSELTAMIVIR 75MG BD FOR 5 DAYS • TAB AZITHROMYCIN 500 MG OD FOR 5 DAYS • TAB HYDROXY CHLOROQUININE (HCQ) 400MG BID FOR 1 DAY followed by 200MG 1-0-1 X 4 DAYS • INJ CEFTRIAXONE 1 GM IV 1-0-1 AND CAN BE ESCALATED ACCORDING TO LOCAL ANTIBIOGRAM OR TREATING PHYSICIAN • INJ ENOXAPARIN 1 MG/KG BODY WEIGHT S/C 1-0-1 X 7 DAYS **SUPPORTIVE THERAPY-** • TAB ZINC 50 MG 0-1-0X 7 DAYS • INJ. VITAMIN C 1.5GM IV 6 HOURLY X 5DAYS • TAB N-ACETYL CYSTEINE 1-1-1 IN PATIENTS WITH COUGH • CONSIDER SEPSIVAC (IF AVAILABLE) 0.3ml INTRADERMAL ONCE A DAY FOR 3 DAYS IN CASE OF SEPTIC SHOCK	• PATIENT SHOULD BE CONTINOUSLY MONITORED • HIGH FLOW NASAL OXYGEN(HFNC) SHOULD BE GIVEN AND IF PATIENT DETERIORATES, EARLY INTUBATION SHOULD BE CONSIDERED. • LOPINAVIR/RITONAVIR SHOULD BE USED ONLY ON A COMPASSIONATE GROUND AFTER INFORMED CONSENT IF THERE IS NO RESPONSE FOR PRIMARY TREATMENT. • IF GROUP-C PATIENT PROGRESS TO ARDS/SEPTIC SHOCK, NOVEL THERAPY CAN BE TRIED. • ABG TO BE DONE REGULARLY FOR MONITORING OF ACIDOSIS AND HYPOXEMIA • IONOTROPHIC SUPPORT (NORADRANALINE- TITRATE ACCORDING TO MEAN ARTERIAL PRESSURE) • CORRECTION OF ACIDOSIS • CORRECTION OF ELECTROLYTE ABNORMALITIES • MAINTAIN Hb% GREATER THAN 8 gm%
NOVEL THERAPY AS PER THE CLINICAL JUDGEMENT/ DISCRETION OF TREATING PHYSICIAN • TOCILIZUMAB • REMDESIVIR • CONVALESCENT PLASMA	IF GROUP-C PATIENT PROGRESS TO SEPTIC SHOCK, NOVEL THERAPY CAN BE TRIED

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NOTE:

1) **ENOXAPARIN:**

- Pro Coagulant factors are increased in COVID-19 infection and associated with increased risk of thrombosis
- Pneumonia and sepsis are complicated by DIC, but although COVID-19 patients do have abnormalities of coagulation and are not atypical of DIC.
- The most marked abnormality is an elevation of D-Dimer but without a parallel fall in platelet or prolongation of clotting time, this suggests that local rather disseminated thrombin generation and fibrinolysis is taking place
- The site of thrombin and fibrin formation appears to be in the lung, based on post-mortem and CT scan findings

2. **SEPSIVAC** 0.3ml intradermal once a day for 3 days
(Refer product monogram or expert guidance)

3. **LOPINAVIR/RITONAVIR**

- If CAT C patient progresses to ARDS/ MODS while on HCQS/chloroquine plus azithromycin, addition of Lopinavir/ritonavir may be considered in case of progressive worsening as Remdesivir is not available in India.
- This is to be used on a compassionate ground after taking informed consent explaining the possibility of life threatening QTc prolongation and cardiac arrhythmias

Criteria for Administration of Lopinavir/ Ritonavir

- **Symptomatic patients with any of the following:**

i. Hypoxia

ii. Hypotension

iii. New onset organ dysfunction (one or more)

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a) Increase in creatinine by 50% from baseline, GFR reduction by >25% from baseline or urine output of <0.5 ml/kg for 6 hours.

b) Reduction of GCS by 2 or more.

c) Any other organ dysfunction

Contraindication:

1) Hypersensitivity

2) Drugs contraindicated with lopinavir/Ritonavir - Antiarrhythmics (amiodarone, flecainide, propafenone, quinidine), ergot derivative, sildenafil, ranolazine.

3) Hepatic impairment

Dosage:

Lopinavir/Ritonavir 400/100mg- 1 tablet every 12 hours for 14 days or for 7 days after becoming asymptomatic whichever is earlier

NOVEL THERAPY: Consider Novel therapy as part of clinical trials)

1) **CONVALESCENT PLASMA THERAPY:**

- ICMR has approved Convalescent Plasma transfusion as part of multicentric clinical trial in moderate to severe case of COVID-19 patients after IEC approval.
- FDA is accepting Convalescent plasma which is administration of plasma from donors who had completely recovered from COVID-19 infections
- Studies have showed that patient had decreased viral load, decreased severity score and improved oxygenation by 12 days after transfusion.
- Not Recommended as a regular therapeutic agent.

2) REMDISIVIR

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- Remdesivir is a novel nucleotide analogue that has activity against SARS-CoV-2
- Dosage- 200 mg IV on Day 1 f/b 100mg for 10 days

Contraindication:

- ALT > 5 times upper limit
- CKD with creatinine clearance less than 50ml/min
- Pregnancy and breast feeding

TOCILIZUMAB:

- Tocilizumab is a recombinant humanized monoclonal antibody against IL-6 receptor.

Rationale for use of Tocilizumab in COVID-19:

- Pro-inflammatory cytokine levels are elevated in COVID-19 infection. Predictors of mortality from a retrospective, multicentre study of 150 confirmed COVID-19 cases in Wuhan, China included elevated ferritin and IL-6. This suggests that virus induced hyper inflammation is contributing to the mortality
- Tocilizumab has been found useful in severe or life-threatening cases of cytokine release syndrome (CRS).

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Guidelines and Recommendations

Recommendations for COVID-19 Clinical Management, National Institute for the Infectious Diseases, Italy :

- Tocilizumab: 8 mg/kg (maximum 800 mg/dose)
  OD (1 -hour infusion) Second dose should be administered after 8-12 hours. (if poor Clinical outcome)

CRITERIA-(IF ANY 1 IS PRESENT)

a) Pa02/Fi02 ratio < 300

b) Rapid worsening of respiratory gas exchange with or without availability of non-invasive or invasive ventilation

c) IL-6 levels >40 pg./ml (if not available, see D-dimer levels >1000 ng/ml

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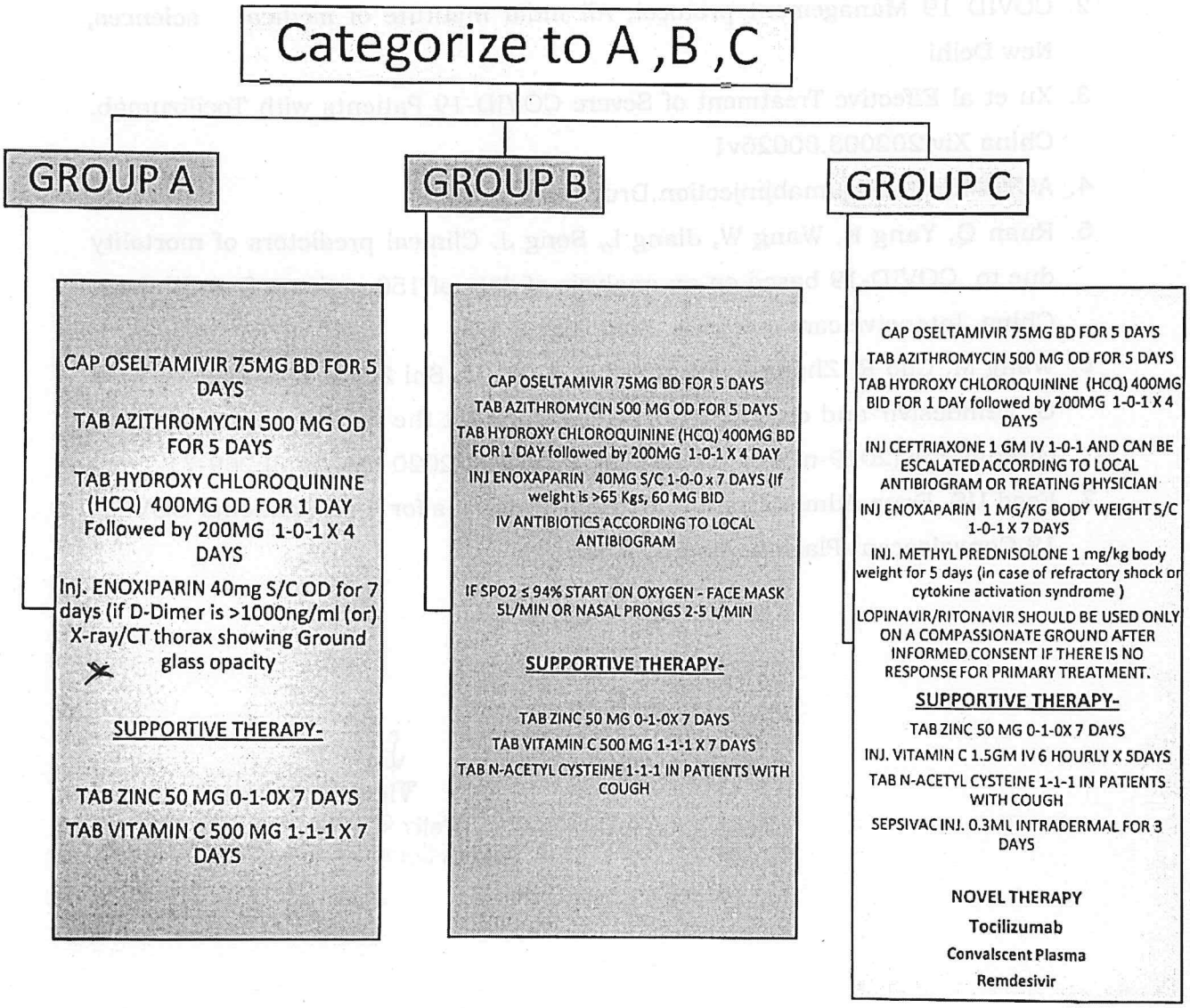
SUMMARY OF TREATMENT OF COVID-19 PATIENTS



NOTE: CONTINUOUS MONITORING OF OXYGEN SATURATION BY PULSE OXIMETER AND EARLY DIAGNOSIS OF HYPOXEMIA IS ESSENTIAL IN ALL GROUP OF PATIENTS

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6. Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M, Shi Z, Hu Z, Zhong W, Xiao G. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. Cell research. 2020 Mar;30(3):269-71.
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Name: Age Patient No:

CHECKLIST FOR COVID-19

Sl no	Parameter	√
1.	CBC	
2.	RFT	
3.	RBS	
4.	ECG	
5.	Chest X Ray	
6.	Lactic Dehydrogenase	
7.	D Dimer	
8.	Serum Ferritin	
9.	TROP-T	
10.	Procalcitonin	
11.	ABG	
12.	PT/INR	
13.	CT Scan (Optional)	
14.	Continuous Monitoring of Oxygen saturation by Pulse Oximeter	

Hospital: District:

Clinical Management of COVID 19

Sl no	Parameter	√
15	**Medications for all group of patients** Cap Oseltamivir 75mg BD for 5 days Tab Azithromycin 500 mg OD for 5 days Tab Hydroxy Chloroquinine (HCQ) 400mg OD Day1 followed by 200mg 1-0-1 Day 2 - 4 Inj. Low molecular weight heparin (Enoxaparin 40mg, s/c, OD for 7 days (if d-dimer is more than 1000ng/ml (or) x-ray/ct thorax showing ground glass opacities) **Supportive therapy** Tab zinc 50 mg 0-1-0 for 7 days Tab vitamin c 500 mg 1-1-1 for 7 days	
16	**Additional for Group B** IV Antibiotics according to local antibiotic policy Inj Enoxaparin 40MG S/C 1-0-0 for 7 Days If SPO2 ≦ 94% is Oxygen started Tab N-ACETYL CYSTEINE 1-1-1 for cough	
17	**Additional for Group C** Inj. Methyl prednisolone 1 mg/kg body weight X 5 days (in case of refractory shock or cytokine activation syndrome) Inj Ceftriaxone 1 GM IV 1-0-1 or antibiotic policy If SPO2 ≦ 94% is Oxygen started Tab N-acetyl cysteine 1-1-1 for cough Inj. vitamin c 1.5gm iv 6 hourly for 5 days consider sepsivac (if available) 0.3ml intradermal once a day for 3 days in case of septic shock * Lopinavir/Ritonavir if indicated **Novel Therapy in case of deterioration of pt if given** Tocilizumab / Convalscent plasma / Remdesivir	

Signature of treating Physician

TREATMENT PROTOCOL FOR COVID-19 PATIENTS

This Recommendation is derived from the revailing trials published and collation of various guidelines. These guidelines would change with the evolving evidence.

COVID 19 RT-PCR POSITIVE PATIENT

1) Management of any COVID 19 patient mandates the Health Care Personnel (HCP) to be in full Personal Protection Equipment (PPE).
2) Patient is Categorized in to three groups.

Colour	Type of patients who are provided treatment and care
Group A	Asymptomatic/Patients with mild symptoms.
Group B	Symptomatic patient with Mild to Moderate Pneumonia with no signs of severe disease, RR 15-30 cpm or SPO2- 90%- 94% at Room Air.
Group C	Symptomatic patient with Severe Pneumonia with RR>30 min or SPO2 < 90% at Room Air or less than 94% with oxygen, ARDS, Septic Shock (Confusion, Drowsiness, Decrease in Urinary Output, Low Blood Pressure, Tachycardia).

INVESTIGATIONS : Patients should be subjected for the following investigations on admission and may be repeated whenever necessary.

INVESTIGATIONS COMMON TO ALL:	ECG X-RAY (CHEST) CBC WITH N/L RATIO	LFT RFT RBS
GROUP B & GROUP C (Additional Investigations)	D-DIMER SERUM FERRITIN CRP PROCALCITONIN LDH, TROP-T	PT/INR ABG CT THORAX (IF AVAILABLE) ECHO

Other Investigations should be done based on patient's Co-morbid status.

IDENTIFICATION OF HIGH-RISK PATIENT:

CO MORBIDITIES	CLINICALLY	LABORATORY VALUE
Age>60	Hypoxia- SPO2<94%	Lymphopenia with Neutrophil/ Lymphocyte ratio >3.5
Diabetes	Tachycardia>125/min	CRP>100mg/L
Hypertension	Respiratory Distress RR>30/min	Serum Ferritin>300microg/L
Lung Disease (COPD/Asthma)	Hypotension BP<90 systolic	LDH>245 D-Dimer > 1000ng/ml
CKD/ Chronic Liver Disease	Altered Sensorium	
Immunosuppression/ HIV/Malignancy		

GENERAL MEASURES AND GUIDELINES :

TREATMENT :

1) Categorize in to A, B, C - Sub Groups.
2) **Supportive Care :**
   - Normal feeding, No dietary restrictions, good oral hydration
   - Maintenance IV fluids, if indicated.
   - Maintain blood glucose levels <180 mg/dl.
   - If Patient is on ACE inhibitors/ARBs, should be continued.
   - Avoid using NSAIDs other than Paracetamol Unless Absolutely Necessary.
   - Avoid using Nebulized drugs to avoid aerosolization of virus
   - Antibiotic selection in case of superadded bacterial pneumonia should be according to institution antibiogram.
   - **Non-invasive ventilation (NIV) should be avoided in patients with COVID-19 positive individuals, as there is high risk aerosol generation.**
   - **Methyl prednisolone** may be considered only in case of refractory shock or cytokine activation syndrome or as per treating Physician particularly with abnormally elevated CRT and Serum Ferritin i.e., 40mg BID for 5 days.
   - **Finger Pulse Oximeter for monitoring of Heart Rate and Oxygen Saturation.**
   - **Mask Oxygen at Saturation 94% or lower.**
   - **X-Ray Chest for all.**

GROUP A

TREATMENT	PRECAUTIONS
• CAP OSELTAMIVIR 75MG BD for 5 days. • TAB AZITHROMYCIN 500 MG OD for 5 days. • TAB HYDROXY CHLOROQUININE (HCQ) 400MG OD for 1 day Followed by 200MG 1-0-1 X 4 days. **SUPPORTIVE THERAPY-** • TAB ZINC 50 MG 0-1-0 x 7 days. • TAB VITAMIN C 500 MG 1-1-1 x 7 days.	• CATEGORIZATION should be Reassessed every 12 hrs. • CONTRAINDICATION for HCQ- 1) QT INTERVAL > 500MS. 2) PORPHYRIA. 3) MYASTHENIA GRAVIS. 4) RETINAL PATHOLOGY. 5) EPILEPSY. 6) HYPOKALEMIA (K+ < 3 MEq). • **pregnancy is not Contraindication for HCQ**

GROUP B (MODERATELY SICK PATIENTS)

TREATMENT	PRECAUTIONS
• CAP OSELTAMIVIR 75MG BD for 5 days • TAB AZITHROMYCIN 500 MG OD for 5 days • TAB HYDROXY CHLOROQUININE (HCQ) 400MG BD for 1 day followed by 200MG 1-0-1 X 4 day • INJ ENOXAPARIN 40MG S/C 1-0-0 x 7 days (If weight is >65 Kgs, 60 MG BID • IV ANTIBIOTICS according to local antibiogram • LOPINAVIR/RITONAVIR should be used only on a Compassionate ground after informed consent, if there is no response for primary treatment LOPINAVIR/RITONAVIR 200/50 MG twice daily for 7 days. **SUPPORTIVE THERAPY-** • TAB ZINC 50 MG 0-1-0X 7 days • TAB VITAMIN C 500 MG 1-1-1 X 7 days • TAB N-ACETYL CYSTEINE 1-1-1 in patients with cough	• Patient should be reassessed every 12 hrly and continous monitoring of saturation. • IF SPO2 ≤ 94% START ON OXYGEN - FACE MASK 5L/MIN OR NASAL PRONGS 2-5 L/MIN **Note:** **Informed consent to be taken before administering LOPINAVIR / RITONAVIR.**

GROUP C (CRITICALLY SICK PATIENTS)

TREATMENT	PRECAUTIONS
• CAP OSELTAMIVIR 75MG BD for 5 days • TAB AZITHROMYCIN 500 MG OD for 5 days • TAB HYDROXY CHLOROQUININE (HCQ) 400MG BID for 1 day followed by 200MG 1-0-1 x 4 days • INJ CEFTRIAXONE 1 GM IV 1-0-1 and can be escalated according to local antibiogram or treating physician. • INJ ENOXAPARIN 40 MG S/C 1-0-1x 7 days (if body weight is >65 kgs, 60 MG BID) • LOPINAVIR/RITONAVIR 200/50 MG twice daily for 7 days • INJ. METHYL PREDNI-SOLONE 40mg BID for 5 days (in case of high CRP and elevated FERRITIN levels) • **REMDESIVIR DOSAGE :** INJ 200 MG IV ON DAY 1 INJ 100 MG IV for 7 days (if available) **SUPPORTIVE THERAPY-** •TAB ZINC 50 MG 0-1-0X 7 days •INJ. VITAMIN C 1.5GM IV 6 hourly x 5days •TAB N-ACETYL CYSTEINE 1-1-1 in patients with cough	• High flow nasal oxygen (HFNC) should be given and if patient deteriorates intubation should be considered early • Patient should be continuously monitored • ABG to be done • IONOTROPHIC SUPPORT NORADRANALINE 0.02 mcg/kg/min (IF SYSTOLIC BP < 90 mmHg) • CORRECTION OF ACIDOSIS • CORRECTION OF ELECTROLYTE ABNORMALITIES • MAINTAIN Hb% AT 10 gm% • CONSIDER SEPSIVAC (if Available) 0-3ml INTRADERMAL once a day for 3 days in case of septic shock.