

Medi Quest BRS Hospital

A monthly News letter from BRS Hospital

FAQ's IN COVID 19

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1.What is the incubation period of SARS –Cov2 virus ?

The incubation period for COVID – 19 is thought to be within 14days following exposure, with most cases occurring approximately four to five days after exposure.

2.What is the period of infectivity for an individual diagnosed with COVID 19 prior to onset of symptoms?

The precise interval is uncertain SARS – Cov2 can be transmitted PRIOR to development of symptoms. Based on one study in China, which suggested that infectiousness started 2-3days prior to symptom onset and peaked 0.7days before symptom onset and declined within 7days.In a study from Singapore transmission in incubation period occurred 1-3days before onset of symptoms.

In a study of outbreak SARS –Cov 2 outbreak in a long term care facility infectious viruses was cultured by RT – PCR positive upper respiratory tract infection as early as six days prior to the development of symptoms.

3.How long does a person remain infectious after development of symptoms?

According to the CDC USA, patients continue to have detectable viral RNA in upper respiratory samples following clinical recovery, however by

three days after recovery, the RNA concentrations are generally at or below the levels at which replication competent virus can be reliably isolated; additionally isolation of infectious virus from upper respiration specimen more than 9days after symptom onset has not yet been documented.

4.What is the risk of transmission for one person to another?

The risk of transmission from an individual with SARS – Cov 2 infectious varies by the type and duration of exposure, use of preventive measures and likely individual factors.

Secondary infection have been reported in house old contacts congregations or health care setting where personal protective equipment was not used.

Studies have shown different rates of secondary infection .Most secondary infections occurred in household contacts with a secondary attack rate of 10 of 15% In the United states the symptomatic secondary attack rate was 0.45% among 445 closecontacts of10 confirmed patients, among household members the rate was 10.5%

5.How long does SARS – Cov 2 persist on surfaces?

Corona viruses can survive on inanimate surfaces. The following is a



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guide as to how long Corona viruses
live on surfaces.

Metal – 5days

Wood – 4days

Plastic – 3days

Stainless steel 2-3days

Cardboard 24hours

Copper 4hrs

Aluminum 2-8hrs

Glass – 5days

Ceramics – 5days

Paper variable

Some strain live for

a few minutes others live up to 5days

6.What is the time line of development of symptoms and complications in COVID 19 ?

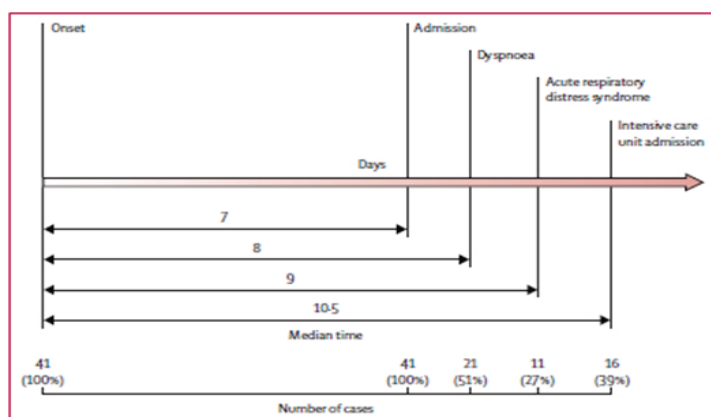


Figure 1: Timeline of 2019-nCoV cases after onset of illness

7. What is the mild, moderate, severe and critically ill disease?

Mild : Clinical symptoms are mild and no pneumonia in imaging

Mod : Fever and respiratory tract symptoms and pneumonic manifestation seen in images

Severe Disease : For epidemiologic purposes severe Covid 19 in adults is defined as dyspnea, respiratory rate of 30 or more breaths/min, a blood oxygen saturation of 93% or less, a ratio of the partial pressure of altered oxygen to the fraction of inspired oxygen ($PaO_2 : FiO_2$) less 300mm Hg or infiltrates in more than 50% of the lung field within 24-48hours in lung imaging

Critically ill:

Meeting any of the following criteria - occurrence of respiratory failure requiring mechanical ventilation ,presence of shock other organ failure that requiring monitoring and treatment in ICU.

8.What is the percentage distribution of COVID - 19cases ?

In a large cohort of patients with COVID-19 81% had a mild disease , 14% had severe disease and 5% became critically ill with organ failure. The mortality in the critically ill group was 49%.

9.What are the diagnostic tests Available in COVID 19 infection?

i. Tests to diagnose current infection

RT – PCR assay which is a nucleic acid amplification test (NAAT). Available in Private and Government Sector.

Various RT – PCR assays are used throughout the world, different assays amplify and detect different regions of the SARS Cov 2 genome.

Note : a) At present both a Nasopharyngeal swab and Oropharyngeal swab is taken.

b) False negative result on initial testing ranges from 11-29%, Repeated testing may be required.

c) RT PCR done 3-5 days after symptom onset has a better yield

ii. Tests to diagnose prior infection

Serologic tests detect antibodies to SARS-Cov 2 in the blood. Serologic tests less likely to be reactive in the first several days to weeks of infection hence have less utility in the acute setting. In a study of 173 patients with COVID -19, the median time from symptom onset to antibody detection was 12days for IgM and 14days for IgG. These tests use ELISA and Immunochromatographic method for **Card Test:**

At present serologic tests have not been approved by the Government of India – ICMR.



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10.What are the antiviral properties of HCQ ? All effects noted in in Vitro studies ?

- 1.Has immunomodulatory effects
2. Prevents endocytosis and Fusion of endosomes to Lysosomes by increasing the pH.
- 3..HCQ binds with Sialic acid which in turn prevents COVID from binding with ACE 2 Receptor
- 3.HCQ is a zinc ionophore allows entry of zinc into cell

11.What are the antiviral properties of Azithromycin ?

Azithromycin pH of golgi apparatus and endosome which interfere with viral intra cellular activities and in addition brings about glycosylation of ACE II receptor which inhibits SARS – Cov 2 from binding to host cell, reduces production of inflammatory cytokine and reduces Furin an enzyme which facilitates entry of COVID

12 What is the current advisory on the use of HCQ ? WHO on May 20th

Has advised against the use of HCQ as prophylaxis or treatment in COVID 19 and argued against its use outside of clinical trials.

Lancet:

Published a large observational study on 14,888 COVID patients. 1868 received Chloroquine, 3783 received Chloroquine + Macrolide, 3016 received HCQ, and 6221 received HCQ and a Macrolide. The researchers were unable to confirm of benefit of HCQ or Chloroquine when used alone or in combination with a Macrolide . Each of these drug regimens were associated with decreased in hospital survival and increased frequency of ventricular arrhythmias when used for COVID treatment.

ICMR

May 22 ndreleased advisory advises HCQ prophylaxis in COVID 19 based on 3studies conducted by it for asymptomatic household contacts and HCW .

HCW include asymptomatic persons working

in COVID and non COVID hospitals, asymptomatic front line workers such as surveillance workers deployed in containment zones as well as para military and police personnel . This is in conflict with data from WHO, Lancet and Jama.

At the time of going to press the LANCET article has been retracted. HCQ is still in the race .

13.What are the other antiviral agents which are have been used in COVID -19 ?

- 1.Remdesivir
- 2.Lopinavir, Ritonavir
- 3.Faripiravir

Trials are in progress for the above mentioned drugs

14.What are the results for the antiviral drugRemdesivir from NIAID trial released May 23rd 2020. ?

Hospitalised patients with COVID 19 who received Remdesivir had a median recover recover time line of 11days versus 15days with placebo. In this study 200mg loading dose was given on day 1 followed by 100mg daily for 9days IV. Remdesivir mechanism of action is by blocking the replication of virus. Independent observers noted that drug seemed more effective when given to patients who weren't as severely ill as earlier in the course of disease. Anemia, hyperglycemic and pyrexia with the adverse effects noted with Remdesivir.

15.What is cytokine storm in COVID 19 ?

A subgroup of patients with COVID 19 have cytokine storm.The over production of early response pro inflammatory cytokines , TNF, IL-6, IL-1Beta results of in, what has been described as cytokine storm leading to an increased vascular permeability and multi organ failure.

16.What are the features associated with cytokine storm?

Increased amount of cytokines were associated with pulmonary inflammation extensive lung damage and pulmonary intravascular

coagulopathy ultimately resulting in clinical phenotype of refractory ARDS.

17. What is the pathophysiology of pulmonary intravascular coagulopathy ?

COVID-19 sepsis is associated with a marked MAS like picture, due to the Cytokine storm. The inflammatory cytokines trigger acute endothelial cell activation resulting in a ThromboInflammatory process. There is enhanced thrombin generation and Fibrin deposition within bronchoalveolar system leading to immuno thrombosis.

18. What is the clinical Implication of pulmonary intravascular coagulopathy ?

Expert recommendations for the use of anticoagulants reflecting the recognition of clotting dysregulation. Prophylactic low dose Heparin should be used in hospitalised patient to prevent venous thrombo embolism and those with significantly raised Dimer concentration due to concern of thrombi in pulmonary circulation.

19. What are the immune based agents which have been used in COVID 19 to counteract the cytokine storm ?

- i. Steroids
- ii. Convalescent plasma
- iii. Interleukin – 1 inhibitors – Anakinra
- iv. Interleukin- 6 inhibitors – Tocilizumab

I. Corticosteroids:

The initial enthusiasm for steroids has waned considerably. Systematic review of Literature regular use of Corticosteroids in COVID-19 published in Frontiers in medicine states that some findings suggest methylprednisolone could lower mortality in more severe forms of this condition such as in ARDS, but cautions against routine use of corticosteroids and that larger clinical trials are needed.

ii. Convalescent plasma:

A type of passive antibody therapy in which blood plasma is isolated from people who have recovered from disease of interest and is administered to those with the disease to suppress Viraemia and improve clinical symptoms.

2 small studies done in China have shown convalescent plasma therapy was shown to be safe and clinical outcomes improved.

More trials are under way with Hyper immune globulin is concentrated therapy where antibody of several donors are pooled together

iii. Anakinra:

Corona viruses can induce the production of IL 1 Beta, IL6 and TNF and other cytokines. It has been postulated that anakinra a recombinant IL-1 receptor antagonist, might help neutralize the SARS – COV2 hyper inflammatory state which is one of causes of acute respiratory distress among patients with COVID 19.

A study from France used Anakinra in SARS-Cov2 confirmed patient by RT – PCR or typical radiological features on CT scan chest or Saturation of 93% or less under 6L/min of Oxygen. The dose of Anakinra was 100mg subcutaneous BD for 72hrs followed by 100mg daily for 7 days.

Need for Mechanical ventilation or death occurred in 25% of Anakinra group compared to 73% in control group which suggests that Anakinra might represent an effective treatment for the severe forms of COVID-19 related Pneumonia requiring oxygen therapy.

iv. Tocilizumab:

Tocilizumab is an IL6 inhibitor. A retrospective study of 25 patients with confirmed severe COVID-19 who received Tocilizumab plus investigation antivirals showed patients who received Tocilizumab experienced a decline in inflammatory markers, radiological improvement and reduced ventilatory support requirements.