Covid-19 Diagnosis, Treatment and Mortality Rate in India: A Review

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Abstract: The SARS-CoV-2 episode began in Wuhan City, China, in December 2019. It is currently a worldwide pandemic, with 7,820,023 affirmed cases, 430,694 deaths, and 3,729,054 recuperations (starting at 14 June 2020). The infection has the potential for fast and broad spread among individuals and nations. There is a great deal of misdirecting data and information holes on the recently risen SARS-CoV-2. Hence, we checked on the most recent updates about various angles including the study of disease transmission, wellbeing and security guidelines. The Wuhan wet market has since been shut down inconclusively (5). Starting at SARS-CoV-2, a novel crown infection from a similar family as SARS-CoV and infection ailment 2019 (COVID-19) are aware of. The most extreme of those are the MERS Corona virus (causes Center East Respiratory Disorder), the SARS Corona virus (causes Serious Intense Respiratory Condition), and the 2019 Novel Corona virus (the Wuhan Infection) (4). The Tale Crown Infection (Covid-19) prior referred to just as the Wuhan infection, extended its hover in South Korea, Japan, Italy, Iran lastly spreading its courses to India. It is given the name novel since it is a never observed change of creature corona virus. Starting at now, a specific wellspring of the flare-up is obscure. It is accepted that the infection may be connected with a wet market (with fish and live creatures) from Wuhan that was not agreeing to wellbeing and security guidelines. The Wuhan wet market has since been shut down inconclusively (5).

I. INTRODUCTION
The main human instances of COVID-19, the ailment brought about by the novel crown infection causing COVID-19, in this way named SARS-CoV-2 were first revealed by authorities in Wuhan City, China, in December 2019. Review examinations by Chinese specialists have recognized human cases with beginning of manifestations toward the beginning of December 2019 (1) Serious intense respiratory disorder crown infection (SARS-CoV)-2, a novel crown infection from a similar family as SARS-CoV and Center East respiratory condition crown infection, has spread overall driving the World Wellbeing Association to announce a pandemic. The infection brought about by SARS-CoV-2, crown infection ailment 2019 (COVID-19), presents flu-like manifestations which can get genuine in high-risk people. The disease is transmitted from human to human and through contact with defiled natural surfaces. Hand cleanliness is key to forestall sullying. Wearing individual defensive equipment is suggested in explicit situations. The fundamental manifestations of COVID-19 are fever, headache, weakness, slight dyspnoea, sore throat, cerebral pain, conjunctivitis and gastrointestinal issues (2) As per WHO, extra examinations are expected to decide how the patients were contaminated, the degree of human-to-human transmission, the clinical range of illness, and the geographic scope of disease. On 30 January 2020, the Chief General of WHO announced the 2019 nCoV flare-up a general wellbeing crisis of global worry under the Universal Wellbeing Guidelines (IHR) (2005). COVID-19 episode was announced as pandemic by WHO on 11 march 2020. As indicated by WHO it is a controllable pandemic and encouraged all nations to adopt far reaching strategy thinking about their conditions and with regulation measures as the focal column (3).

A. Origin of Crown infection
These varieties were first recognized in the mid-1960s, and as of right now, there are seven kinds of human corona viruses that we are aware of. The most extreme of those are the MERS Corona virus (causes Center East Respiratory Disorder), the SARS Corona virus (causes Serious Intense Respiratory Condition), and the 2019 Novel Corona virus (the Wuhan Infection) (4) The Tale Crown Infection (Covid-19) prior referred to just as the Wuhan infection, extended its hover in South Korea, Japan, Italy, Iran lastly spreading its courses to India. It is given the name novel since it is a never observed change of creature corona virus. Starting at now, a specific wellspring of the flare-up is obscure. It is accepted that the infection may be connected with a wet market (with fish and live creatures) from Wuhan that was not agreeing to wellbeing and security guidelines. The Wuhan wet market has since been shut down inconclusively (5).
B. Corona virus Taxonomy

Crown infections are encompassed, icosahedra symmetric particles, roughly 80–220 nm in Width containing a non-sectioned, single-strand, positive-sense RNA genome of around 26–32 kb in size (6) Crown infections are in the domain: Riboviria; phylum: Increato sedis; and request: Nidovirales. The Corona viridae family gets its name, to some degree, in light of the fact that the infection surface is encircled by a ring of projections that seem like a sun based crown when seen through an electron magnifying lens. (7) Crown infection is round or pleomorphic, single abandoned, wrapped RNA and secured with club molded glycoprotein. Crown infections are four sub types, for example, alpha, beta, gamma and delta crown infection. Every one of sub type crown infections has numerous serotypes. Some of them were influence human of other influenced creatures, for example, pigs, winged animals, felines, mice and dogs (8)

II. CURRENT SITUATION IN INDIA

The first instance of COVID19 in Quite a while was accounted for on 30 January 2020 beginning from China. The Service of Wellbeing and Family Government assistance of India affirmed the nation's first Covid-19 case on 30 January in an understudy who showed up in Kerala state from Wuhan (9) The episode has been proclaimed as a pandemic in excess of twelve states and Association Domains, where arrangement of the Scourge Illnesses Act, 1897 have been conjured, and instructive organizations and numerous business foundations have been closed down (10)

As on June 11, 2020 India announced a record of 9,996 new corona virus cases in the course of recent hours with wellbeing administrations in the most noticeably awful hit urban communities of Mumbai, New Delhi and Chennai getting overwhelmed by the rising contaminations. Cases in India are relied upon to keep expanding as social separating measures are being loose before observing a steady decrease in new every day cases. In Asia and the Center East Iran, India, and Russia are the main three nations with the most announced passing due to Covid-19 (11)

Figure-2: Distribution of cases across various states and UTs of India
Source-National Commission on Population Ministry of Health & Family Welfare
(Updated data available on: https://www.covid19india.org/)
During the most recent 24 hours, an aggregate of 7,135 COVID-19 patients have been relieved. In this manner, up until this point, a sum of 1, 54,329 patients have been relieved of COVID-19. The recuperation rate is 49.95% among COVID-19 patients. Directly, there are 1, 45,779 dynamic cases and all are under dynamic clinical management. ICMR's trying limit with respect to identifying the novel Corona virus in tainted people is ceaselessly being inclined up. The quantity of government labs has been expanded to 642 and private labs has been expanded to 243 (An aggregate of 885). Over the most recent 24 hours, 1, 43,737 examples were tried. The all out number of tests tried up to this point is 55, 07,182. (12) Posted On: 13 JUN 2020 4:26PM by PIB Delhi

III. INDICATIONS

A. Mellow Illness
Patients with mellow ailment may give indications of an upper respiratory tract viral infection. These incorporate dry hack, gentle fever, nasal blockage, sore throat, headache, muscle agony, and disquietude. It is additionally described by the nonattendance of genuine manifestations, for example, dyspnea. The lion's share (81%) of COVID-19 cases is gentle in seriousness. Furthermore, radiograph highlights are additionally missing in such cases. Patients with mellow ailment can rapidly break down into extreme or basic cases.

B. Moderate Infection
These patients present with respiratory side effects of hack, brevity of breath, and tachypnea. Be that as it may, no signs and indications of serious infection are available.

C. Extreme Ailment
Patients with extreme ailment present with serious pneumonia. Intense respiratory trouble condition (ARDS), sepsis, or septic shock. Diagnosis is clinical, and complexities can be excluded with the assistance of radiographic investigations. Clinical introductions incorporate the nearness of serious dyspnea, tachypnea (respiratory rate > 30/minute), respiratory pain, SpO2 ≤93%, PaO2/FiO2 < 300, as well as more prominent than half lung penetrates inside 24 to 48 hours Even in extreme types of the ailment, fever can be missing or moderate [13]

IV. DIAGNOSE STRATEGY

As of now, a few exploration organizations have begun related examination. The Chinese Places for Sickness Control and Prevention, Wuhan Organization of Virology, Chinese Foundation of Sciences, Zhejiang College, and a few different establishments have effectively separated the infection strains of SARS-CoV-2 and began significant immunization improvement. Moreover, Codagenix, Inc. declared the coordinated effort with the Serum Organization of India, Ltd. to build up a live-weakened antibody against SARS-CoV-2. They utilize viral deoptimization to blend "judiciously structured" live-lesserened antibodies. This innovation beginning with the succession of the viral genome and takes into consideration the fast age of different immunization up-and-comers against the virus (14)

A. Molecular Test
The WHO suggests gathering examples from both the upper respiratory tract (nasal and additionally pharyngeal examples) and lower respiratory tract, for example, expectorated sputum, end tracheal suction, or bronchoalveolar larvae. The assortment of BAL tests should just be acted in precisely ventilated patients as lower respiratory tract tests appear to stay positive for a progressively broadened period. The examples require capacity at four degrees Celsius. In the research facility, enhancement of the hereditary material extricated from the spit or bodily fluid example is through an opposite polymerase chain response (RT-PCR), which includes the combination of a twofold abandoned DNA particle from a RNA shape.

When the hereditary material is adequate, the quest is for those segments of the hereditary code of the CoV that are rationed. The tests utilized depend on the underlying quality succession discharged by the Shanghai General Wellbeing Clinical Center and School of General Wellbeing, Fudan College, Shanghai, China on Virological.org, and ensuing corroborative assessment by extra labs. On the off chance that the test outcome is sure, it is suggested that the test is rehashed for confirmation. In patients with affirmed COVID-19 conclusion, the research center assessment ought to be rehashed to assess for viral leeway preceding being discharged from perception. The accessibility of testing will change dependent on which nation an individual lives in with expanding accessibility happening almost every day (15)
B. Recommended Test
Real time or Conventional RT-PCR test is recommended for diagnosis. SARS-CoV-2 antibody tests are not recommended for diagnosis of current infection with COVID-19. Dual infections with other respiratory infections (viral, bacterial and fungal) have been found in COVID-19 patients. Depending on local epidemiology and clinical symptoms, test for other potential etiologies (e.g. Influenza, other respiratory viruses, malaria, dengue fever, typhoid fever) as appropriate. For COVID-19 patients with severe disease, also collect blood cultures, ideally prior to initiation of antimicrobial therapy (16)

C. Wellbeing Methods During Specimen Assortment
Ensure that social insurance laborers who gather examples stick thoroughly to disease avoidance and control guidelines. Specific WHO between time directions has been distributed (17)

Box-1 Highlights of COVID-19 laboratory bio safety
1) All procedures must be performed based on risk assessment and only by personnel with demonstrated capability, in strict observance of any relevant protocols at all times.
2) Initial processing (before inactivation) of specimens should take place in a validated biological safety cabinet (BSC) or primary containment device.
3) Non-propagative diagnostic laboratory work (for example, sequencing, nucleic acid amplification test [NAAT]) should be conducted at a facility using procedures equivalent to Bio safety Level 2 (BSL-2).
4) Point of care (POC) or near-POC assays can be performed on a bench without employing a BSC, when the local risk assessment so dictates and proper precautions are in place.
5) Propagative work (for example virus culture or neutralization assays) should be conducted in a containment laboratory with inward directional airflow (BSL-3).
6) Appropriate disinfectants with proven activity against enveloped viruses should be used (for example, hypochlorite [bleach], alcohol, hydrogen peroxide, quaternary ammonium compounds, and phenol compounds)
7) Patient specimens from suspected or confirmed cases should be transported as UN3373, “Biological Substance Category B”. Viral cultures or isolates should be transported as Category A, UN2814, “infectious substance, affecting humans”.

D. Infection Separation
Infection separation in cell culture and introductory portrayal of viral operators recuperated in societies of SARS-CoV-2 examples should just be directed in a Bio safety Level 3 (BSL-3) lab utilizing BSL-3 practices. Site-and action explicit bio safety hazard appraisals ought to be performed to decide whether extra bio safety measures are justified dependent on situational needs.

E. Purification
Purify work surfaces and hardware with fitting disinfectants by utilizing an EPA-confirmed disinfectant for SARS-CoV-2 external symbol. Following the maker's suggestions for use, for example, weakening, contact time, and safe dealing with.

F. Research Waste Management
Handle lab squander from testing suspected or affirmed COVID-19 patient examples as all different bio hazardous squander in the research facility. As of now, there is no proof to recommend that this research facility squander needs any extra bundling or sterilization systems

G. Specimen Pressing and Delivery
Pack and boat suspected and affirmed SARS-CoV-2 patient examples, societies, or disconnects as UN 3373 Organic Substance, Class B, as per the present version of the Worldwide Air Transport Affiliation (IATA) Hazardous Products Regulations external symbol. Work force must be prepared to pack and boat as per the guidelines and in a way that relates to their capacity explicit duties (18)

V. INFECTION PREVENTION AND CONTROL MEASURES
Infection prevention control (IPC) is a critical and integral part of clinical management of patients and should be initiated at the point of entry of the patient to hospital (typically the Emergency Department). Standard precautions should always be routinely applied in all areas of health care facilities. Standard precautions include hand hygiene; use of PPE to avoid direct contact with patients’ blood, body fluids, secretions (including respiratory secretions) and non-intact skin.
Standard precautions also include prevention of needle stick or sharps injury; safe waste management; cleaning and disinfection of equipment; and cleaning of the environment (19). Ministry has issued an updated clinical management protocol for COVID-19 which can be accessed at [https://www.mohfw.gov.in/pdf/ClinicalManagementProtocol forCOVID19.pdf](https://www.mohfw.gov.in/pdf/ClinicalManagementProtocol forCOVID19.pdf). Advisory for testing are being assessed and refreshed occasionally (09/03/2020, 16/03/2020 and 20/03/2020). The testing technique is assessed by the National Team established by Secretary DHR and DG, ICMR and Led by Prof. V. K. Paul, Part, NITI Aayog. (20)

A. Counteraction and Safeguard of COVID-19

Individuals should remain mindful of the most recent data on the COVID-19 episode gave by WHO and Follow the headings of your neighborhood wellbeing authority and forestall auxiliary contaminations, interfere with human-to-human transmission to your nearby contacts, social insurance laborers and forestall further worldwide spread. the majority of the individuals who tainted, experience mellow ailment and recoup it, yet its contamination can be progressively serious for others. To deal with your wellbeing and ensure others make the resulting strides (21, 22). We here sum up the current information to control potential COVID-19 treatment alternatives. It is critical to alert puruses that new information refreshing almost consistently with respect to clinical qualities, analyze, treatment choices, and results for COVID-19. In any case, improved strong consideration remains the foundation of treatment and the clinical adequacy for the resulting operators is still under scrutiny or in EJMO 121 clinical trials. Most standing clinical and preclinical information on antiviral treatment is taken from different infections, including SARS-CoV-1, Center East Respiratory Syndrome, and non-corona viruses (Ebola) (23)

VI. TREATMENT

A. General Treatment

The general treatment systems incorporate bed rest and strong treatment; guaranteeing adequate calorie and water consumption; keeping up water electrolyte parity and homeostasis; checking imperative signs and oxygen immersion; keeping respiratory tract unhampered and breathing in oxygen when essential; estimating blood schedule, pee schedule, C-receptive protein, and other blood biochemical lists including liver and kidney work, myocardial compound range, and coagulation work as per patients' conditions. Blood gas investigation and ideal reevaluation of chest imaging ought to be performed when important (24)

B. Suggestive Treatment (24, 25, 26)

The patients with high fever ought to be effectively controlled. On the off chance that patients' internal heat level surpasses 38.5 °C with evident distress, physical cooling (warm water shower, utilization of antipyretic fix, and so forth.) or antipyretic medication treatment ought to be performed. Normal medications include: ibuprofen orally, 5–10 mg/kg without fail; acetaminophen orally, 10–15 mg/kg unfailingly. Keep youngsters calm and administrate tranquilizers quickly when spasms or seizure happen.

C. Oxygen Treatment

At the point when hypoxia shows up, effective oxygen treatment ought to be given promptly including nasal catheter, cover oxygen. Nasal high-for oxygen treatment and non-obtrusive or intrusive mechanical ventilation ought to be attempted when fundamental.

D. Antiviral Treatment

1) Interferon α: Interferon-α can diminish viral burden in the beginning time of contamination which can assist with mitigating side effects and abbreviate the course of malady. View of our clinical examination and (3–5 days). The suggested portion of methyl prednisolone ought not to surpass 1–2 mg/kg/day.

2) Immunoglobulin: Immunoglobulin can be utilized in extreme situations when demonstrated, yet its efficacy needs further assessment.

E. Treatment of Severe and Critically ill Cases

It is normal that all COVID-19 immunizations will require cautious wellbeing assessments for immune potentiating that could prompt expanded infectivity penetration. Other than this, a COVID-19 antibody target item profile must address immunizing in danger human populaces including forefront medicinal services laborers, people beyond 60 years old, and those with hidden and incapacitating incessant conditions. Among the immunization innovations under assessment are entire infection antibodies, recombinant protein subunit immunizations, and nucleic corrosive immunizations. Every current antibody methodology has unmistakable focal points and drawbacks. In this way, it is foremost that different techniques be progressed rapidly and afterward assessed for security and adequacy. At last, the wellbeing studies to limit undesired immune potentiating will turn into the most noteworthy bottleneck as far as time (27)
Summary of drugs/treatment registered for clinical trials against SARS-CoV-2

<table>
<thead>
<tr>
<th>Drug/Treatment</th>
<th>Mode of Action</th>
<th>Antiviral Activity against COVID-19-Related Viruses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oseltamivir</td>
<td>Neuraminidase inhibitor</td>
<td>- Anti-influenza drug</td>
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<tr>
<td></td>
<td></td>
<td>- Combination of oseltamivir and remdesivir is more effective in the treatment of ferrets infected with influenza virus compared to oseltamivir monotherapy.</td>
</tr>
<tr>
<td>Steroid treatment</td>
<td>Anti-inflammatory</td>
<td>- Commonly used for the treatment of SARS patients suffering from severe pneumonia.</td>
</tr>
<tr>
<td>(Methylprednisolone)</td>
<td></td>
<td>- Because these drugs are immunosuppressive, they may delay viral clearance if given before viral replication is controlled.</td>
</tr>
<tr>
<td>Convalescent plasma</td>
<td>SARS-CoV2-neutralizing antibodies</td>
<td>- Immunotherapy combined with antiviral drugs is efficient against COVID-19</td>
</tr>
<tr>
<td>Mesenchymal Stem Cells</td>
<td>Anti-inflammatory and immunomodulatory</td>
<td>- Enhances recovery in COVID-19 patients.</td>
</tr>
<tr>
<td>Ivermectin</td>
<td>Anti-parasitic and antiviral</td>
<td>- Inhibits the in vitro replication of SARS-CoV-2 on Vero-HLSLAM cells with 5000-fld reduction in viral RNA in 48 hours</td>
</tr>
</tbody>
</table>

Table.1 source- J. Clin. Med. 2020, 9, 1225

VII. RELEASE AND DISCHARGE CRITERIA
Clinical examples of any suspect/plausible case* of nCOV will be sent for research center affirmation to assigned labs. The case will be kept in segregation at wellbeing office till the hour of receipt of research center outcomes and given indicative treatment according to existing rules. On the off chance that the lab results for nCOV are negative, the release of such patients will be administered by his temporary/affirmed analysis and it is up to the getting doctor take a choice. The case will at present be checked for 14 days after their last contact with an affirmed 2019-nCoV case. On the off chance that the research facility results are sure for nCOV, the case will be overseen according to the affirmed case the executive’s convention. The case will be released simply after proof of chest radiographic freedom and viral leeway in respiratory examples after two specimens test negative for nCOV inside a time of 24 hours (28) protocol is available here: https://www.mohfw.gov.in/pdf/Corona%20Discharge-Policy.pdf

VIII. MORTALITY RATE IN INDIA
The complete affirmed Covid-19 cases on Friday remained at 320,922 in India, with the expansion of 11,929 new cases in the previous 24 hours. The number patients who have recuperated yesterday are 8,049, while the fatalities rose to 9,195 with 311 announced in the previous 24 hours. The all out dynamic cases in the nation presently remain at 149348 (29)
While the quantity of Covid-19 cases in India is currently increasing at a speedy rate, there is a major positive measurement which has gone to a great extent unnoticed in the midst of all the turmoil and frenzy. The nation's death rate (passing/cases as a rate) is still among the most minimal on the planet when contrasted and other significant nations grasped by the pandemic. The death rate is, by a wide margin, an increasingly huge proportion as it quantifies the real loss of lives and keeping in mind that questions may be raised about India not testing enough, it is for all intents and purposes difficult to cover up (nowadays of media and web based life) a high number of passing (30)

Fig-3 Source- Ministry of Health and Family and Testing data from ICMR

The chart underneath show the advancement of the malady in a nation once the quantity of all out tainted people crosses the 100 imprint. Since the pandemic has begun in various nations at various occasions, it is hard to think about them. We have balanced beginning stage of a nation to a typical multi day when every one of them crossed the 100 imprint for absolute contaminated. In this gathering of nations, as Italy began before others, it has been given the beginning date of 0, which in schedule terms was 23rd February. The table underneath the graph shows how long behind Italy they are. In the diagrams for all out passing 5-day moving normal of new contaminations, rather than 100 imprint for tainted, 10 for passing and new tainted have been utilized as the benchmark.
A. Statistics

This section is an excerpt from: [COVID-19 pandemic in India/Statistics](https://wikipedia.org/wiki/COVID-19_pandemic_in_India)

Total confirmed cases, active cases, recoveries and deaths

B. Daily new deaths

[Fig.5 Source- wikipedia.org/wiki/COVID-19_pandemic_in_India](https://wikipedia.org/wiki/COVID-19_pandemic_in_India)

[Fig.6 Source- wikipedia.org/wiki/COVID-19_pandemic_in_India](https://wikipedia.org/wiki/COVID-19_pandemic_in_India)
IX. BOOST YOUR IMMUNITY SYSTEM

Adjusted eating routine, oral wellbeing, satisfactory exercise, standard rest, dodging unnecessary weakness, and boosting invulnerability are the amazing measures to forestalling disease, just as keeping up passionate security and emotional well-being. Inoculation is an effective method to forestall infection disease.

X. CONCLUSION

A pneumonia flare-up with obscure etiology was accounted for in Wuhan, Hubei territory, China, in December 2019, related with the Huanan Fish Discount Market. The causative operator of the flare-up was recognized by the WHO as the serious intense respiratory disorder coronavirus-2 (SARS-CoV-2), delivering the malady named corona virus ailment 2019 (COVID-19). The infection is firmly related (96.3%) to bat corona virus RaTG13, in view of phylogenetic examination. Human-to-human transmission has been affirmed even from asymptomatic transmitters. The infection has spread to in any event 200 nations, with monstrous worldwide increments in the quantity of cases day by day. Along these lines, the WHO has pronounced COVID-19 a pandemic. The sickness is described by fever, dry hack, and chest torment with pneumonia in serious cases. At the outset, the world general wellbeing specialists attempted to annihilate the illness in China through isolate yet are currently changing to counteraction systems worldwide to defer its spread. Until this point, there are no accessible immunizations or explicit helpful medications.

STAY SAFE, STAY AT HOME

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[10] Novel Coronavirus (COVID-19) in India: Current Scenario International Journal of Research and Review Vol.7; Issue: 3; March 2020 Website: www.ijrrjournal.com Review Article E-ISSN: 2349-9788; P-ISSN: 2454-2237
[14] Progress and Prospects on Vaccine Development against SARS-CoV-2
Dear sir/madam,

I wish to submit an original research article entitled “[Covid-19 diagnosis, Treatment and Mortality rate in India: A review]” for consideration by [Indian Journal of Applied Research].

I confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere.

We believe that this manuscript is appropriate for publication.

Data about the brooding time frame can help in setting up a powerful isolate for asymptomatic bearers, subsequently forestalling the infection spread. From our points of view and dependent on the at present accessible data about the infection and it’s the study of disease transmission, the control of the SARS-CoV-2 requires a powerful and worldwide sickness coordination exertion including multidisciplinary research endeavours (One-Wellbeing approach) through joint effort between governments, disease transmission specialists, virologists, wellbeing specialists, veterinarians, and doctors. At this phase of the ailment flare-up, creating antibodies is vital to constrain the spread of the disease.

We have no conflicts of interest to disclose.

Please address all correspondence concerning this manuscript to me at [lfclub.ruchi@gmail.com].

Thank you for your consideration of this manuscript.

Sincerely,

[Ruchi Singh]