CURRENT SCENARIO FOR MANAGEMENT ON COVID-19 – A GLOBAL REVIEW

Indra S¹, Vijayasankari A², Kalpana S³

^{1,2} MSc. Public Health, Dept. of Epidemiology, The Tamil Nadu Dr MGR Medical University, Guindy, Chennai.

³ Research Officer, Dept. of Epidemiology, The Tamil Nadu Dr MGR Medical University, Guindy, Chennai.

Article Info: Received 10 May 2020; Accepted 05 June 2020

DOI: <https://doi.org/10.32553/ijmbs.v4i6.1171>

Corresponding author: Indra S

Conflict of interest: No conflict of interest.

Abstract

New respiratory infections are rising every year. An outbreak occurred due to novel coronavirus and it's been recognized as a pandemic by the World Health Organization (WHO) on March 11. Across the nations, most of the countries affected by a coronavirus and facing huge challenges to manage the situation. Since there is no definite treatment available, complete lockdown is followed by every country to reduce this deadly virus spread. It affects all the age groups, but most of them are old age persons. Persons with chronic disorders, respiratory problems, hemodialysis, cancer, and other diseases like diabetes, obesity are at high risk to get affected by coronavirus easily. So, the health care workers facing a huge challenge to treat the patients affected by COVID 19 with comorbidities. Knowledge of treatment protocols and personal hygiene is mandatory to all the front line workers. Quarantine, social distancing, and personal hygiene were the preventive measures taken all over the world. Only preventive measures and symptomatic management are available. Vaccine trials are in the process in various countries all over the world. India is launching plasma therapy as an effective method of treatment. The country's leading medical research organization, the Indian Council of Medical Research (ICMR), is drawing up a protocol to start this process. Based on the severity of the disease, different treatment guidelines are followed for the management. Hence this review was written to show what are all the management strategies followed to manage the COVID19 cases.

Introduction

An outbreak occurred due to novel coronavirus and it's been recognized as a pandemic by the World Health Organization (WHO) on March 11. Globally 4,801,202 confirmed cases of COVID-19 including 106,662 new cases and 318,935 deaths occurred in 215 countries reported to WHO on 20 May 2020 at 7 pm. In India 63,624 confirmed cases and 3,435 deaths occurred which is reported by the Ministry of Health as of 21 May 2020. In India, 45,299 cases were cured/discharged. Case comparison by region-wise, America has the highest cases (2,105,670) followed by Europe (1,928,799), Eastern Mediterranean (371,521), Western pacific (169,955) and South East Asia (158,589). Since there is no vaccine or medicines available to this outbreak, several guidelines and treatment strategies have been followed for managing coronavirus throughout the world. Several studies carried out through the world and under process to find a vaccine to prevent this widely spread of this killing disease.

India is facing several major COVID-19 challenges. It is densely populated: 464 inhabitants per kilometer, compared to 206 in Italy, 90 in Spain, 52 in Iran, and 36 in the USA. There is an incredible amount of population: 1,380 million (USA 330 million, Iran 83 million, Italy 60 million, and Spain 46 million¹.

New respiratory infections are rising every year; to limit the spread of ailment, preventive measures ought to be taken². Since mid-December 2019, serious intense respiratory condition coronavirus 2 (SARS-CoV-2) has out broken in Wuhan and spread quickly to different territories in China and many nations and districts across the world, turning into the Public Health Emergency of International Concern. SARS-CoV-2 can primarily be transmitted by droplets or close contact and is commonly spreading in the group easily³.

A complete lock-down is followed in India from March 25th to April 14. A second cycle ends on May 3, the third cycle ends on May 17 and now the fourth cycle is followed around the nation. Hence, the reported confirmed cases in India is less than the other countries due to this early lockdown. While isolation helps reduce illnesses, decreased families, friends, and other social support structures contribute to loneliness and mental problems including anxiety and depression. In addition to psychological concerns such as depression, anxiety, and fear, the COVID-19 pandemic has posed a significant threat to people world wide's lives and physical health⁴.

The mortality rate for the elderly and those with co-morbidities is projected to range from 0.25 to 3 percent. According to existing statistics, children are less likely to be affected and the disorder less serious, but the situation may change⁵.

During this outbreak, front-line workers are at high risk of contamination². It has become much more critical for health workers to adhere to guidelines for infection prevention and control (IPC). Stronger clean-ups and more severe cleansing routines are included in these guidelines, including the use of personal protective equipment (PPE) such as masks, face shields, and gowns, gloves, and clothes. It may be difficult and time-consuming in practice to follow these strategies. Health authorities and facilities should, therefore, consider the best way to support their implementation by healthcare workers⁶. Lack of adequate health care and human resources infrastructure, serious supply chain problems, and pervasive mistrust among patients and health workers has contributed to a challenge to patient care and safety. Throughout the globe, health systems had to work quickly together, relying on inadequate information and disease propagation models based on several hypotheses⁷.

Treatment measures

No definite treatment for COVID-19 is available. The most effective approach is accelerated isolation and disease-bearing steps to deter viral spread. The rapid spread of this infection leads to a complete lockdown globally. Health care systems facing major issues due to this deadly virus and lockdown. Health care workers and patients feeling frustrated. Management of COVID-19 infected patients is still a difficult process. Only symptomatic treatment is available for curing the patients. The patients affected by coronavirus with other comorbidity are at high risk to treat. Healthcare workers face a huge problem to treat patients with comorbidities. There are guidelines available to treat the COVID-19 infected patients according to their severity of the infection, signs, and symptoms. They are treated based on their clinical symptoms and many of them were cured fully and discharged to home.

Before the COVID-19 pandemic, telemedicine strategies were thought to be developed in Europe only if it could be demonstrated in long-term studies that the use of telemedicine contributes to substantial time and cost savings⁸. If telemedicine came into existence for treatment during this outbreak, it will reduce the virus spread. But there is no proper evidence to occur whether it is effective to implement and it's benefited to patients neither providers. Once the outbreak is over, visits to the outpatient clinics will be reduced.

Some of the known available management methods for treating COVID-19 were described below.

1. EMERGENCY MANAGEMENT: A license for the emergency use of investigational anti-viral medicinal remdesivir administered intravenously by health care

workers in adults and children hospitalized with serious illness has been issued by the U.S Food and Drug Administration for the treatment of suspected or laboratory-confirmed COVID-19. While there is limited knowledge on the safety and efficacy of remdesivir in-hospital treatment with COVID-19, a clinical trial showed that the investigational medicine was used to shorten the time needed to recover some patients⁹.

2. MEDICINE MANAGEMENT: Isolation of the patient is the first step to prevent this virus spread. Maintenance of the proper personal protective among health care workers is mandatory. To reduce the transmission of this disease among the general population, they need to follow hand hygiene and maintaining a distance of one meter from the infected persons with cough, fever, and cold. Avoiding social gatherings will also reduce the transmission rate. The most common symptoms were fever and dry cough.

However, there are studies from various parts of the world about the possible therapeutic value of developing medicines that have not been approved by the U.S. Food and Drug Administration in treating COVID-19. The pharmaceutical drugs presently at the forefront are chloroquine and phosphate hydroxyl-chloroquine. Recently the Indian Council of Medical Research constitutes the National task force for COVID-19 recommends the use of antimalarial medication hydroxychloroquine for prophylaxis in selected high-risk individuals of a serious acute respiratory syndrome-coronavirus 2 infection¹⁰. It may be useful to combine lopinavir and ritonavir, previously used in SARS-Cov and MERS-Cov¹¹. The combination of remdesivir and chloroquine may be effective for the treatment of COVID-19¹².

3. AIRWAY MANAGEMENT: Due to this novel coronavirus, most of the clients affected severe respiratory distress syndrome. Since 80 percent of the infected population has mild symptoms or asymptomatic and mostly infected are those having travel history to other countries¹³. The illness is severe in some patients cause respiratory distress syndrome and even cause death mostly in older aged people. For those clients, the Intensive Care Unit (ICU) is necessary to treat them. Health workers who are working in the ICU are at high risk of exposure for the infection¹⁴, for example while performing endotracheal intubation.

During intubation, more aerosol particles are released which can easily spread the infection to the health care workers. For the airway management team, a guideline in the UK advises using video laryngoscopy for the patients affected with COVID-19. Worldwide, reports show that 80 percent of intubations of these patients have been conducted using video laryngoscopes².

4. **CANCER MANAGEMENT:** Following conflicting findings from China, some cancer centers have drug-scaled their facilities, indicating that Covid-19 outcomes are substantially worse in cancer patients⁷. Tumor patients are at high danger of this pathogen on account of their weakened insusceptible capacity³. There is a high priority given to patients with a possible disease who may significantly benefit from care, while the care of patients who have been palliatively treated, especially those who are expected to benefit slightly from treatments, is delayed. Decisions on individual patient care are taken by compensating for the possibility of patients contracting Covid-19 due to cancer treatment-related exposures and the likelihood of complications if achieved with the aid of the potentially lifesaving cancer treatment⁷. While cancer often does not endanger life immediately, treatments are not completely optional, and delaying care may be dangerous. For treating cancer patients need to drawing up prioritization criteria to guide treatment decisions.

5. **PEDIATRIC MANAGENT:** The setting of ambitious goals tends to be instrumental in achieving success in conventional diabetes treatment in addition to a multidisciplinary team. COVID-19's challenges foster the autonomy of both young people and their parents in the data analysis and decision-making. The joint setting of individualized goals is essential for maintaining glycemic regulation during times of social isolation and weeks without learning. Reduced exercise, altered habits, and increased food consumption are common explanations for the treatment regime to be adjusted. Digital advances in the treatment of type 1 diabetes have also existed initially in pediatric diabetes care, starting with pumps and now expanding to sensor integration, automatic insulin delivery, or dosage advisors. As in many other healthcare fields, the COVID-19 crisis could provide an opportunity to put these resources into action, by creating a virtual diabetes clinic to supplement routine outpatient care⁸.

6. **MENTAL HEALTH MANAGEMENT:** According to WHO, there are more than 20 suicide attempts following each suicide in a population. Data from the 2008 economic crisis showed that the spike in suicides mirrored the real increase in the unemployment rate¹⁵. Therefore, in the light of the COVID-19 pandemic, the number of psychologically ill individuals who may be seeking assistance from mental health providers may be expected to increase. Health care providers have to give mental support to the patients affected by coronavirus as well as to the general population. Hence the general public was more depressed due to the lockdown and social distancing and the lack of income and stock supplies to daily living. For every individual, these are emotionally challenging. More awareness regarding mental health needs to be

increased via social media. More counseling and mental health tips to cope with depression and anxiety.

The COVID-19 epidemic challenge could carry with it a chance to advance the suicide prevention sector and thereby save lives. Such efforts on suicide prevention will be incorporated into the overall COVID-19 crisis response program. The medical community needs to ensure online services can determine suicide risk and offer effective strategies for suicide prevention¹⁵.

7. **PLASMA THERAPY:** Convalescent plasma therapy is based on the passive immunity principle, where antibodies of some disease produced in a person are used to treat others. Plasma in the blood contains antibodies that help fight foreign pathogens. Once a certain type of foreign element has been dealt with, some blood cells act as a memory cell and store information. Once again, when they come into contact with the same type of pathogen, they quickly identify and defect it by producing the same antibodies.

8. **VITAMIN D PROPHYLAXIS:** Vitamin D has immunomodulatory, anti-inflammatory, antioxidant, and anti-fibrotic effects that may affect immune-mediated disease activity and outcome¹⁶. Protective immune responses in the early stages of the disease are responsible for removing the virus and thus techniques for enhancing immune reactions are significant. Vitamin D is needed to be considered as adjuvant therapy in treating patients with obesity¹⁷, and older age persons and immunocompromised patients¹⁸ and smokers. Their immune system is weak compared to others. Severe deficiency of vitamin D (< 25nmol / L) is linked to disease progression and an increased death rate in autoimmune hepatic disease patients¹⁹. More than half of COVID-19 cases were observed in Chicago with around 70% of COVID-19 deaths in Afro-Americans²⁰ who are at higher risk of vitamin D deficiency. This trait has a pathogenic component in vitamin D that can be measured, regulated, and manipulated for the control measure in COVID-19.

9. **MANAGEMENT IN AYUSH:** Licorice's root (*Glycyrrhiza glabra*) is known to possess high antiviral capacity¹¹. This plant is native to Asia and Europe and has been recognized as a weed. This plant has shown antiviral activity of several viruses, including SARS-related coronavirus, HIV-1, and respiratory syncytial viruses²¹. Therefore, it may be useful to control COVID-19 with an aqueous extract of this plant alongside other plants as mentioned above. On 29 January 2020, the Government of India issued an advisory on the Indian traditional medicine practices of Ayurveda, Homeopathy, and Unani, New Delhi¹¹.

In homeopathy, very low concentrations of arsenic are considered beneficial for several diseases including viral infections. The AYUSH Directorate, New Delhi, India issued

an order dated 30 January 2020 to take prophylactic medicine to prevent coronavirus infection. The board suggested taking 4 pills of Arsenic Album-30 medicine once daily in an empty stomach for 3 days. Arsenic Album-30 is a highly diluted trioxide of arsenic and works as homeopathic prophylaxis.

On 1 May 2020, the Central Drugs Standard Control Organization granted permission to homeopathic practitioners to conduct research at the COVID-19 quarantine centers and to combat the virus. Arsenicum Album-30 was declared a "preventive" against COVID-19 by the Ayush Ministry²².

10. DEAD BODY MANAGEMENT: During this outbreak, dead body management is very important all over the world. There is no proper evidence for getting an infection from the coronavirus affected dead body. Proper personal hygiene is maintained while disposing of the body. There is a guideline available for dead body management by the government of India. It is mandatory to remove all the tubes and sharp materials from the dead body. While handling this, we need to be very careful because leakages may occur while removing sharp materials like intravenous catheters. This may prone to spread the virus. After that, all the orifices are cleaned with a 1% sodium hypochlorite solution with a semi-permeable membrane. Guidelines also advised that a dead body kept in a leak-proof plastic body bag. If the relatives want to see the face of the dead body they should wear proper personal protective materials. The persons those handling the dead body and working in the mortuary need to be very careful while shifting and transporting the body. After that, they should clean the doors, handles, floors, and used materials with a 1% sodium hypochlorite solution.

Conclusion

The cases keep rising in all countries. Nations around the world have closed their frontiers and enforced a strict lock-up so the increasingly strained medical care system cannot be placed under further pressure. With more than 4.1 million cases worldwide and close to 283,876 fatalities, the COVID-19 graph continues to grow. At the same time, scientists and researchers all over the world are competing against the time to develop a vaccine for the novel coronavirus. As of today, almost 100 research groups are working around the clock to develop a potential vaccine for COVID-19. Health care workers need to find medicine as soon as possible to prevent this deadly spread of this virus. As we discussed various management followed globally. Quarantine, social distancing, and personal hygiene were the preventive measures taken all over the world. Only preventive measures and symptomatic management are available. Vaccine trials are in the

process in various countries all over the world. India is launching plasma therapy as an effective method of treatment. The country's leading medical research organization, the Indian Council of Medical Research (ICMR), is drawing up a protocol to start this process.

References:

1. Kamath S, Kamath R, Salins P. COVID-19 pandemic in India: challenges and silver linings. *Postgrad Med J*. 2020 Apr 16; PMID: 32300058
2. Jong AD, Pardo E, Rolle A, Bodin-Lario S, Pouzeratte Y, Jaber S. Airway management for COVID-19: a move towards universal videolaryngoscopy? *Lancet Respir Med* [Internet]. 2020 May 5 [cited 2020 May 6];0(0). Available from: [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(20\)30221-6/abstract](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30221-6/abstract)
3. Zhao N, Shi J, Zeng L, Yang S. [Clinical Characteristics and Coping Strategies of Neoplasms with 2019 Novel Coronavirus Infection]. *Zhongguo Fei Ai Za Zhi Chin J Lung Cancer*. 2020 Apr 20;23(4):261–266. PMID: 32316713
4. Hiremath P, Suhas Kowshik CS, Manjunath M, Shettar M. COVID 19: Impact of lock-down on mental health and tips to overcome. *Asian J Psychiatry*. 2020 Apr 10;51:102088. PMID: PMC7151434
5. Sankar J, Dhochak N, Kabra SK, Lodha R. COVID-19 in Children: Clinical Approach and Management. *Indian J Pediatr*. 2020 Apr 27; PMID: PMC7183927
6. Houghton C, Meskill P, Delaney H, Smalle M, Glenton C, Booth A, Chan XHS, Devane D, Biesty LM. Barriers and facilitators to healthcare workers' adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases: a rapid qualitative evidence synthesis. *Cochrane Database Syst Rev* [Internet]. 2020 [cited 2020 May 8];(4). Available from: <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013582/full?highlight=Abstract=covid%7Cmanagement%7Cfour%7C19%7Cfor%7Cmanag>
7. Pramesh CS, Badwe RA. Cancer Management in India during Covid-19. *N Engl J Med*. 2020 Apr 28; PMID: 32343498
8. Danne T, Limbert C. COVID-19, type 1 diabetes, and technology: why paediatric patients are leading the way. *Lancet Diabetes Endocrinol* [Internet]. 2020 May 5 [cited 2020 May 6];0(0). Available from: [https://www.thelancet.com/journals/landia/article/PIIS2213-8587\(20\)30155-8/abstract](https://www.thelancet.com/journals/landia/article/PIIS2213-8587(20)30155-8/abstract)
9. Commissioner O of the. Coronavirus (COVID-19) Update: FDA Issues Emergency Use Authorization for Potential COVID-19 Treatment [Internet]. FDA. 2020 [cited 2020 May 17]. Available from: <https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-issues-emergency-use-authorization-potential-covid-19-treatment>
10. Badyal DK, Mahajan R. Chloroquine: Can it be a Novel Drug for COVID-19. *Int J Appl Basic Med Res*. 2020 Jun;10(2):128–130. PMID: PMC7189906
11. Ali I, Alharbi OML. COVID-19: Disease, management, treatment, and social impact. *Sci Total Environ*. 2020 Apr 22;728:138861. PMID: PMC7175909
12. 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 Res*. 2020 Mar;30(3):269–271.
13. Gupta N, Agrawal S, Ish P, Mishra S, Gaiind R, Usha G, Singh B, Sen MK, Covid Working Group SH. Clinical and epidemiologic profile of the initial COVID-19 patients at a tertiary care centre in India. *Monaldi Arch Chest Dis Arch Monaldi Mal Torace*. 2020 Apr 10;90(1). PMID: 32290644

14. Phua J, Weng L, Ling L, Egi M, Lim C-M, Divatia JV, Shrestha BR, Arabi YM, Ng J, Gomersall CD, Nishimura M, Koh Y, Du B. Intensive care management of coronavirus disease 2019 (COVID-19): challenges and recommendations. *Lancet Respir Med*. 2020 May 1;8(5):506–517. PMID: 32272080
15. Kawohl W, Nordt C. COVID-19, unemployment, and suicide. *Lancet Psychiatry*. 2020 May 1;7(5):389–390. PMID: 32353269
16. Czaja AJ, Montano-Loza AJ. Evolving Role of Vitamin D in Immune-Mediated Disease and Its Implications in Autoimmune Hepatitis. *Dig Dis Sci*. 2019 Feb 1;64(2):324–344.
17. Dhaliwal R, Mikhail M, Feuerman M, Aloia J. The Vitamin D Dose Response in Obesity. *Endocr Pract*. 2014 Aug 6;20(12):1258–1264.
18. Ebadi M, Montano-Loza AJ. Perspective: improving vitamin D status in the management of COVID-19. *Eur J Clin Nutr*. 2020 May 12;1–4.
19. Ebadi M, Bhanji RA, Mazurak VC, Lytvyak E, Mason A, Czaja AJ, Montano-Loza AJ. Severe vitamin D deficiency is a prognostic biomarker in autoimmune hepatitis. *Aliment Pharmacol Ther*. 2019;49(2):173–182.
20. Yancy CW. COVID-19 and African Americans. *JAMA* [Internet]. 2020 Apr 15 [cited 2020 May 17]; Available from: <https://jamanetwork.com/journals/jama/fullarticle/2764789>
21. Fiore C, Eisenhut M, Krausse R, Ragazzi E, Pellati D, Armanini D, Bielenberg J. Antiviral effects of Glycyrrhiza species. *Phytother Res*. 2008;22(2):141–148.
22. BOOM. Homoeopathy Can Be Used As Adjuvant To COVID-19 Treatment: Dr Anil Khurana [Internet]. 2020 [cited 2020 May 11]. Available from: <https://www.boomlive.in/coronavirus-outbreak/homoeopathy-can-be-used-as-adjuvant-to-covid-19-treatment-dr-anil-khurana-7997>