

COVID-19: A Life Changing Pandemic

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ABSTRACT

A newly emerging viral zoonotic disease that was first reported in December 2019 in China and supposed to be spread from Huanan sea food market, Wuhan, China. The causative virus for disease is Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2), is a member of coronaviridae. The virus crosses the country border and spread very rapidly to other countries and World health organization declared this viral disease as a Public Health Emergency of International Concern (PHEIC) on 30 January 2020. Within a span of three months the virus cause more than 1 lakh clinical cases in 114 countries with a death toll of more than 4 thousand life. Due to its rapid human to human spread and infectious nature, WHO Director General characterized COVID-19 as a pandemic on 11 March. Upto 22 April 2020 the confirmed clinical cases were 24,71,136 with 1,69,006 deaths in more than 200 countries (WHO). The SARS-CoV-2 was isolated from the confirmed infected patients in the first week of January, 2020 by the scientists and characterizes the isolated virus by using reverse transcription polymerase chain reaction (RT-PCR) and next-generation sequencing (Zhu et al 2020). Though this virus is similar to SARS corona virus and MERS corona virus, but basic reproduction number (R_0) of the COVID-19 virus is higher than the other corona viruses. The basic reproduction number is important for epidemiological study of the infectious diseases to assess the risk of epidemic spread by an infectious agent (Liu et al 2020). The patients affected with the COVID-19 shows non-specific symptoms including the cough, labored breathing and body pain. The present paper is to highlighting the characteristics of the SARS-CoV-2 virus in general and clinical and diagnostics characteristics in particular to help

the corona warriors to combat the disease outbreak.

Key Words: COVID-19, Pandemic, Corona, SARS

INTRODUCTION

Large-scale outbreaks of contagious disease that can increase mortality over a world and cause significant economic, social, and political disruptions are called Pandemic. Pandemics have been increased over the past century due to increased global travel and urbanization (Jones and others 2008; Morse 1995). These circumstances can cause sudden, widespread mortality as well as social and economic disruption. The world has suffered several main pandemics, such as the Black Death, Spanish flu, and acquired immunodeficiency syndrome (HIV/AIDS). To overcome such conditions, situational awareness at all stages of a pandemic, i.e. pre-pandemic, spark, and spread periods are very necessary. For this, the support of health care resources including hospitals, doctors, nurses, diagnostic kits, and information and communication systems is required. The population has access to trust in the health care system of the nation. (Madhav *et al*, 2017). China's 7th most populous city, Wuhan witnessed the expansion of the COVID-19 epidemic and spreads throughout China and then it spreads in many countries of the world. Outside China, the first confirmed case was diagnosed on 13th January 2020 in Bangkok (Thailand). In short duration significant community transmission occurred in several countries

throughout the world, the WHO on the 11th of March 2020 declared it as a global pandemic (Hsu *et al*, 2020). Currently, there is no precise treatment for COVID-19, and no vaccine is available. The treatment is only symptomatic, and oxygen for severely infected patients, hemodynamic support is essential to manage septic shocks (Wang *et al*, 2020). The clinical aspects of COVID-19 vary from asymptomatic to causing several clinical conditions characterized by:

1. Severe respiratory failure
2. Support in an intensive care unit
3. Multiple organ failure and septic shock
4. Multiple organ dysfunction syndromes (MODS) (Lupia *et al*, 2020)

IMMUNE RESPONSE AND COVID 19

The human body has a self-defense mechanism in the form of a personal army at the cellular to the macro level. Each soldier of this army such as cell, tissue, and the organ plays an essential role in fighting with invading pathogens. The immune system includes innate and adaptive responses. Innate immune systems include natural barriers like skin, the mucous in the nose, and the acid in the stomach and adaptive immunity acquired over a lifetime by contact with natural pathogens and vaccines. A healthy lifestyle practice may help to boost up the immune system and it may be possible to tackle pathogens. The COVID-19 pandemic has drawn the world's attention towards the immune system (Weforum, 2020).

PATHOGENESIS OF COVID-19

When the virus enters the body, it gets attached to a special receptor, called Angiotensin Converting Enzymes₂, denoted by ACE₂. It is present on the surface of the alveolar cells in the lung. The ACE₂ is present on type 2 of these cells. Corona virus envelope proteins help in binding the virus. After this association, the genetic material inserted in the cell and the cell is pressurized to produce viral proteins, then the virus multiplies and the cell dies. When type 2 alveolar cells die, they release

specific inflammatory mediators, which stimulate the immune cells to secrete cytokines: 1. Interleukin₁ (IL₁) 2. Interleukin₆ (IL₆) 3. Tumor Necrosis Factor (TNF_α). These substances cause the symptoms after entering the bloodstream, such as an expansion of the blood vessels, vasodilation, and increased capillary permeability leads to hypoxia and shortness of breath. The new corona virus spreads through respiratory droplets from an infected person mouth or nose after coughing and breathing. When these are inhaled or ingested by healthy individuals, or transferred by hand from a contaminated surface to his nose, eyes, and mouth. Several pieces of evidence showed that the corona virus can remain for a long period on various surfaces. There are also indications that asymptomatic individuals also transmit it to other healthy individuals, as per WHO (India Today). Several kinds of tests are used to detect severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). These can be categorized into two categories: molecular diagnosis i.e. polymerase chain reaction PCR based testing kit and serological testing kit. But an inadequate amount of sample may sometime reduce the test sensitivity (Omer, 2020).

INDIAN PERSPECTIVES OF COVID-19

WHO has been working on measures for COVID-19, such as scrutiny and contact tracing, test and laboratory diagnosis, infection prevention, risk communication, implementation of Containment plans, hospital preparedness, and control. India already made various precautionary measures and visionary strategies to alleviate the disease in the beginning stage, but the denser population of India will make it complex to regulate the same for community spread. To date India has successfully reduced the transmission of COVID-19, the credit goes to well-coordinated measures of the government to tackle and fight the epidemic. India has expertise in pharmaceuticals production and

health research and science; In India, mass public awareness was carried with digital platforms. In such a medical emergency disaster, there is a need for united work and partnership between the countries. India takes the lead for this issue. The stronger network between countries is so necessary to design a full proof strategy for entire Asia. Countries like India may witness better healthcare and management facilities. New social and behavioral regulations were implemented such as maintaining hygiene, physical distancing, wearing masks, etc. New trade standards, e-commerce, new certifications, and the networks may emerge, including trade facilitation over digital platforms and paperless trade. In this situation, there is continued automation in the field of transportation and data analytics (Prabir, 2020). The whole world is still waiting for the prominent solution to resolve this pandemic disaster. Lockdown is essential for preventing transmission of the Corona virus but long term isolation is not the best situation for the economy of the developing country. Indians are not suitable for this situation, due to their money related problems and scarcity of basic needs. To cope up with this scenario, the government should provide confidence to needy peoples for their basic livelihood requirements. Public health emergencies may affect the health, safety, and well-being of both individuals and communities such as insecurity emotional isolation, confusion. Economic loss, work closures, inadequate medical resources deficient distribution of necessities lead to an unstable condition in communities. These effects result in violent reactions non-cooperativeness with public health services. Some groups of individuals that are susceptible than others to the pandemics have some psychosocial effects. Such as elderly peoples or with suppressed immune function or people with pre-existing medical, psychiatric, problems are at increased risk for adverse psychological behaviors. There must be an implementation of preventive efforts such as psychosocial support, screening for mental health

problems. A recent study based on samples of quarantined people and of health care providers revealed that numerous emotional violations, mental stress, depression, fear, confusion, frustration, boredom, and anger may be the outcome of quarantine. The mental state of health care providers can also be disturbed by inadequate testing material, limited treatment, insufficient PPE kits, and other medical facilities. They suffered from prolonged work pressure, and family and social concerns in case of a communicable disease like COVID-19. These factors lead to stress and reduce their working potential. For healthcare providers, monitoring of their stress reactions, and giving proper assistance for physical and mental well-being with personal and professional responsibilities is essential. Health care systems should manage operations by regular monitoring and performance analysis, by altering assignments and work schedules, and designing strategies to offer psychosocial support. (Betty, 2020).

IMPACT OF COVID-19 ON YOUNGSTERS

COVID-19 has affected all aspects of human lives. Lockdowns and school closures imposed many children and youngsters to spend their all-time at home. Due to online teaching and digital resources available, much of that time may be online. These may incorporate valuable opportunities for learning, playing, and being connected socially, with friends. However, this spending time online called 'screen time', poses a high risk. Parents must communicate with their children about safe and age-appropriate platforms, websites, and social media, that keep children safe offline. Encouraging positive social values such as respect, good communication, and conflict resolution, can help to keep children safe online. There is a need for technological skills to explore useful resources online that can share with children. Parents must be aware of online safety tools.

CONCLUSIONS

COVID-19 is a viral disease and to date no specific treatment or vaccine is available. Awareness is quite good but still needs intense health education facilities for creating awareness in all areas of a pandemic from rural to urban. Health Professionals should develop communication messages for the mass population. In Indian perspectives, this situation is handled with future strategic planning and accurate time implementation. Some more sectors should work for poor peoples to fulfill their livelihood needs and for problems of migrants from different parts of the country. More to do to secure well-being of healthcare providers and boost up their mental status and positive thinking, so that they can do their best to treat the patients. The psychologist should give online services to tackle the mental stress problems at all levels of society. Extra care should be taken in case of child mentality and loneliness. Let's come together to conquer over the COVID-19 pandemic.

REFERENCES

1. Balaji Krishnakumar Sravendra Rana, COVID 19 in INDIA: Strategies to combat from combination threat of life and livelihood, Journal of Microbiology, Immunology and Infection, 2020. <https://doi.org/10.1016/j.jmii.2020.03.024>
2. Betty Pfefferbaum, M.D., J.D., and Carol S. North, M.D., M.P.E., Mental Health and the Covid-19 Pandemic, The New England Journal of Medicine, 2020. <https://doi.org/10.1056/NEJMp2008017>
3. Hsu, L.Y.; Chia, P.Y.; Lim, J.F. The Novel corona virus (SARS-CoV-2) epidemic. *Ann. Acad. Med. Singap.* 2020, 49, 1–3. <https://doi.org/10.1088/1475-7516/2020/02/002>
4. Jones K E, Patel NG, Levy MA, Storeygard A, Balk D., and others. 2008. "Global Trends in Emerging Infectious Diseases." *Nature* 451 (7181): 990–93. <https://doi.org/10.1038/nature06536>
5. Lupia, T.; Scabini, S.; Mornese Pinna, S.; Di Perri, G.; De Rosa, F.G.; Corcione, S. 2019 novel corona virus (2019-nCoV) outbreak: A new challenge. *J. Glob. Antimicrob. Resist.* 2020, 21, 22–27. <https://doi.org/10.1016/j.jgar.2020.02.021>
6. Madhav N, Oppenheim B, Gallivan M, et al. *Pandemics: Risks, Impacts, and Mitigation.* In: Jamison DT, Gelband H, Horton S, et al., editors. *Disease Control Priorities: Improving Health and Reducing Poverty.* 3rd edition. Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2017 Nov. https://doi.org/10.1596/9781-4648-0527-1_ch17
7. Omer SB, Malani P, del Rio C. The COVID-19 Pandemic in the US: A Clinical Update. *JAMA.* Published online April 06, 2020. <https://doi.org/10.1001/jama.2020.5788>
8. Prabir De, COVID-19, New Normal and India, April 9, 2020, 11:27 AM IST Economic Times in ET Commentary.
9. Wang, H.; Wang, S.; Yu, K. COVID-19 infection epidemic: The medical management strategies in Heilongjiang Province, China. *Crit. Care* 2020, 24, 107. <https://doi.org/10.1186/s13054-020-2832-8>

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