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Effect of Covid-19 on India

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Abstract

India has oldest civilizations, spanning a period of more than 4000 years, witnessing of the fusion of several customs and traditions and have the rich culture and heritage in the world. Apart from this, India has encountered many epidemics and pandemics situation such as Influenza, cholera, polio, dengue, smallpox etc. However we were eradicate most of them and others are disappears with time. Currently India facing sudden and rapid outbreaks named COVID-19, which was originated from China, on November 2019. The present review reported the current situation of COVID-19 in India and its effect on Indian economy. It also includes the past pandemic situation faced by India and pathology of COVID-19.

Keywords: pandemic situation, Covid-19, economy, SARS Co V2

Introduction

India is the second country of world having large population around more than 130 crores, and faced so many pandemic situations since 1871 (Cholera), in 1896 (Bombay Plague), 1918 (Influenza), 1970 (Polio), 1974 (Small Pox), 2003 (Dengue and SARS), 2006 (Chikungunya), 209 (H1N1 Flu), 2015 (Indian Swine Flu), 2020 (COVID-19) and several others have been recorded throughout history, in some case we succeed eradicate and some are still present. However, some are the results of the malnutrition, lack of sanitation and lack of a proper public health system but some are uncommon and occurred sudden like COVID-19.

Past Pandemic Situation in India

India has suffered a variety of epidemics and pandemics such as influenza, cholera, dengue, smallpox and several others have been recorded throughout history. In year 1817, first epidemic condition named Chorea was identified in eastern and western costal area of India, on 23 august 1817 by the civil surgeon Jessore and caused around 40 to 50 million 'mortality in all over India. The second outbreak came in 1826 started from Bangle and affected north India from the river of the Bangle. It had a huge impact on Punjab after infecting United Provinces (UP) and Delhi in 1827. Very soon it crosses the country and spread in to China and literature stated that around 100 people were died every day. The third cholera pandemic started around 1852 and lasted long 1860. It is significant in the history because it infected those countries too which are not infected by Chorea till that time. Fourth Cholera Pandemic was started in 1852, major epidemic in Mecca in 1865and in year 1887 the Kumbh Mela at Hardwar has been considered to be responsible for the epidemic spread of cholera in different provinces of northern India. In Madras Presidency [1] in 1877, mortality due to cholera was around nearly 100,000 deaths and as per the data available around 148,193 deaths were reported till 1876 in all over India. However, the fifth Cholera Pandemic ^[2] was considered as the less fatal as compared to the four other Cholera pandemics. The duration of this pandemic is 1881 to 1896. Apart from this, a new type of plague was identified in September 1896 in colonial Bombay, the antiplague campaign was started to battle this epidemic and it was based on the belief that the focus of the infections was from the slums. The plague killed thousands and many people were forced out of the city. Cholera cases in India had begun rising since 1899 followed by and by the major outbreaks in Calcutta and Bombay in 1990.

There were 189,955 cholera deaths were reported in India and between 1905 and 1908, there was an average of about 526,000 deaths each year were recorded; nearly 150,000 deaths in the 1906 were reported in Kumbh Mela, Allahabad ^[3], India. In year 1918 a new pandemic situation was faced by Indiana named, around 20-50 million death were recorded in worldwide, caused by the H1N1 strain of Influenza. In year 1970, a new health emergency occurred in India, named polio, which soon get spared all the cities; however, Uttar Pradesh was the most infected state. In 1964 and 1965, Bombay and Vellore received the vaccine against respectively and in January ^[4] 2011 India was declared polio-free country. World health organization (WHO) in year 2003, reported more the 2000 case of dengue fever in Delhi and surrounding areas.

In year 2020, again India facing a new pandemic situation named, COVID-19 cause by virus SARSCoV-2, which is genetically 80 % similar to previous identified virus SARS in 2003, China. The first case of COVID-19 as reported in Wuhan city of China in 2019, and WHO declared public health emergency globally because it infected more than 693224 people worldwide and around more than 33106 deaths globally ^[5].

SARS Co V-2

Other than known SARS in 2003, there are six known coronaviruses in humans are HCoV-229E, HCoV-OC43, SARS-CoV, HCoV-NL63, HCoV-HKU1, and MERS-CoV and coronavirus has caused two large-scale pandemics in the last two decades named SARS and MERS. The new SARScoV-2, has single stranded RNA, zoonotic in nature and having symptoms fever, difficulties in breethig, nausea etc similar to the common cold, which make it more dangerous because it create confusion, weather person suffering from common cold or COVID-19, apart from this

some patients developed COVID-19 infection without showing any symptoms.

Etiology of Covid-19

Chinese Center for Disease Control and Prevention (CDC), reported a novel virus belonging to coronavirus (CoV) family in November 2019, named 2019-nCoV3 and International Committee on Taxonomy of Viruses (ICTV) coined it as SARS-CoV-2 virus, and its disease "COVID-19" in Feb 2020. It is highly contagious and spreads quickly via human-to-human transmission and infected more than 100 countries caused one lakhs cases and thousands of deaths globally. The word coronavirus originated from coronam means crown, it has single strand RNA, crown-like microscopic appearance, belongs to Coronaviridae family, having N S proteins, and has 89% nucleotide similarity with bat SARS as shown in figure 1. Literature reports stated that, new COVID-19 is approximately 80 % similar to SARS-CoV and 50 % identical to MERS-CoV, 90 % to bat-SL-CoVZC45 and 88 % of bat-SL-CoVZXC21. However, COVID-19 S-protein interacts with human ACE2 receptor. The most common symptoms of COVID-19 are fever, cough, myalgia or fatigue, pneumonia, and complicated dyspnea, whereas less common are headache [6], diarrhea, hemoptysis, runny nose, and phlegm-producing cough. However, mild symptoms were reported after 1 week and recovered soon, while severe

symptoms like, respiratory failure (alveolar damage) which may lead to death especially in elderly and pre-existing diseases patients.

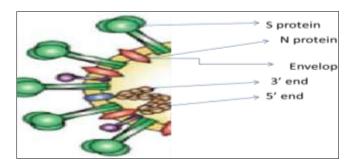


Fig 1: Structure of Covid-19

Covid-19 in India

According to data obtained from Ministry Health Affair, govt of India and WHO data base dashboard, the total number of confirmed ^[7] cases in India are 10,071 and 29 deaths from reported till 30 March 2020 from all over India. However, in India it infects younger people unlike others countries and the ratio of infected people in various cities, age wise distribution, sex wise patients in India is shown in Fig 1,2 and 3 respectively.

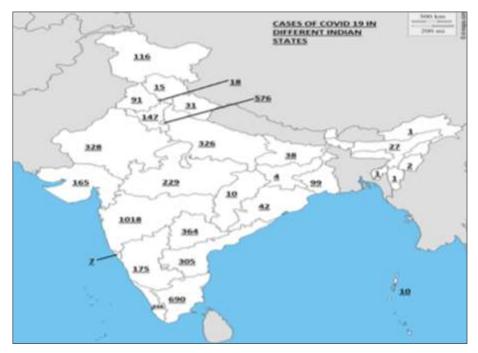


Fig 2: Confirmed cases COVID-19 in different cities of India.

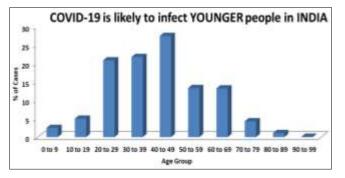


Fig 3: COVID-19, age wise infected population in India.

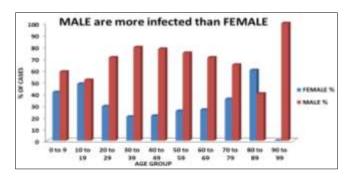


Fig 4: Male and female percentage ratio of infected people in India.

Treatment

In December of 2019, a cluster of patients with pneumonia of unknown cause was observed in Wuhan, China. A novel coronavirus was identified as the causative pathogen 1-6, provisionally named as 2019 novel coronavirus (2019nCoV) by the World Health Organization (WHO). On Feb 11, 2020, WHO named this novel coronavirus pneumonia as "COVID-19" (Corona Virus Disease 2019). Based on phylogeny, taxonomy, and established practice, the Coronavirus Study Group (CSG) of the International Committee on Taxonomy of Viruses formally recognizes this virus as a sister to Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and renamed it as SARS-CoV-2 7. SARS-CoV-2 belongs to species of Severe Acute Respiratory Syndrome Related Coronavirus (SARSr-CoV) and genus Betacoronavirus 2 In December of 2019, a cluster of patients with pneumonia of unknown cause was observed in Wuhan, China. A novel coronavirus was identified as the causative pathogen 1-6, provisionally named as 2019 novel coronavirus (2019-nCoV) by the World Health Organization (WHO). On Feb 11, 2020, WHO named this novel coronavirus pneumonia as "COVID-19" (Corona Virus Disease 2019). Based on phylogeny, taxonomy, and established practice, the Coronavirus Study Group (CSG) of the International Committee on Taxonomy of Viruses formally recognizes this virus as a sister to Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and renamed it as SARS-CoV-2 7. SARS-CoV-2 belongs to species of Severe Acute Respiratory Syndrome Related Coronavirus (SARSr-CoV) and genus Betacoronavirus 2 In December of 2019, a cluster of patients with pneumonia of unknown cause was observed in Wuhan. China. A novel coronavirus was identified as the causative pathogen 1-6, provisionally named as 2019 novel coronavirus (2019nCoV) by the World Health Organization (WHO). On Feb 11, 2020, WHO named this novel coronavirus pneumonia as "COVID-19" (Corona Virus Disease 2019). Based on phylogeny, taxonomy, and established practice, the Coronavirus Study Group (CSG) of the International Committee on Taxonomy of Viruses formally recognizes this virus as a sister to Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and renamed it as SARS-CoV-27. SARS-CoV-2 belongs to species of Severe Acute Respiratory Syndrome Related Coronavirus (SARSr-CoV) and genus Betacoronavirus 2 In December of 2019, a cluster of patients with pneumonia of unknown cause was observed in Wuhan, China. A novel coronavirus was identified as the causative pathogen 1-6, provisionally named as 2019 novel coronavirus (2019-nCoV) by the World Health Organization (WHO). On Feb 11, 2020, WHO named this novel coronavirus pneumonia as "COVID-19" (Corona Virus Disease 2019). Based on phylogeny, taxonomy, and established practice, the Coronavirus Study Group (CSG) of the International Committee on Taxonomy of Viruses formally recognizes this virus as a sister to Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and renamed it as SARS-CoV-27. SARS-CoV-2 belongs to species of Severe Acute Respiratory Syndrome Related Coronavirus (SARSr-CoV) and genus Betacoronavirus 2 A recent retrospective study 9 indicated that a total of 1716 health workers were infected, accounting for 3.84% of total cases A recent retrospective study 9 indicated that a total of 1716 health workers were infected, accounting for 3.84% of total cases A recent retrospective study 9 indicated that a

total of 1716 health workers were infected, accounting for 3.84% of total cases A recent retrospective study 9 indicated that a total of 1716 health workers were infected, accounting for 3.84% of total cases Unfortunately currently there is no treatment available yet, however researchers and other healthcare professional searching the new therapeutics worldwide. Some treatment are under pipeline which are Remdesivir (broad-spectrum antiviral drug), Chloroquine (antimalrial drug), Lopinavir and ritonavir (used to treat HIV), Hydroxychloroquine alone or in combination with Azithromycin reduced detection of SARS-CoV-2 globally⁸.

Impact on Indian Economy

Covid-19 becomes a pandemic situation very soon with more than 33106 deaths and around 58411 new confirmed cases worldwide. Apart from health, it also causes severe impact on the economy of the infected country; China is the host country of COVID-19, and responsible for its spreading all over the world. Total number of cases in China of COVID-19 are 82447 with around 3310 deaths, affects the manufacturing in China and also its associated countries not in term of manufacturing but also in term of trade, as per the Asian Development Bank (ADB) report on COVID-19 showed the losses in between \$387 million and \$29.9 in personal consumption in India only. Only in India, the trade impact in various sectors is chemicals sector (129 million dollars), textiles (64 million dollars), leather industry [6] (13 million dollars) etc. this happens because India purchase 1/3 machinery, 65 to 70% of active pharmaceutical ingredients, 90% mobile phones and two-fifths of organic chemicals from China only.

Conclusion

As per the latest reports received from WHO and Ministries of Health of various countries revealed that more than 33106 deaths and around 58411 new cases were observed globally, however in India COVID-19 around 10,071 and 29 deaths were reported till 30 March 2020. Literature reports also revealed that in India younger age group (30- 40 years) especially males are more infected than female and other age group. According to Asian Development Bank (ADB) report around 200 million dollars losses observed in India from the chemical, textiles, regular trade. However, our conclusions are limited towards this new pandemic condition and we only hope for the best.

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Authors Contribution

All authors have contributed equally.

Conflict of Interests

Nil

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