Chronology of Corona Virus SARS-CoV-2 During First Wave in India

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Abstract

The recent COVID-19 pandemic outbreak had a great impact Worldwide. In India only initial sis months phase chronology has been discussed here while it was reported in China's Wuhan, and about 1,479,265 cases and 33,436 deaths were observed while 950,347 recovered till 27/07/2020 including all states and union territories. The timeline of Covid-19 events has been summarizing since provision of lockdown was implicated. In order to check the spread the highly contagious disease first Lock down covering almost all states was imposed in the month of March 24 2020. Since then, the cases continue to increase day by day resulted to put India on third position after US and Brazil among worst affected nations across the world very soon. Recovery rate was very high in India i.e., 96.55% while death rate 3.45%. In this review we have summarized COVID-19 size and diversity in different states especially highly affected in India. We find that Maharashtra is most affected state with 375799 cases while Tamil Nadu with 213723 cases is on second and Delhi is on third position with 130606 covid-19 cases till 27/07/2020 and number of deceased in Maharashtra 13656 Tamil Nadu 3494 and Delhi-3827 respectively. While till 22 April 2020 Maharashtra remain on first position with highest no 5229 cases, Gujarat with 2407 cases was on second and Delhi 2248 remain on third position and Tamil Nadu with 1596 cases was on fifth position indicating the graph of cases in Tamil Nadu has grown very fast during April to July 2020. Since January 2020 up to 18 March 2022 43,004,005 confirmed COVID-19 cases have been confirmed while 516,281 deaths have been reported in India only.

Keywords: COVID-19, Coronavirus in India, SARS-CoV-2

1. Introduction

COVID -19 after initial identification as novel corona virus firstly abbreviated as 2019-nCoV on 7th January 2020 by World Health Organization (WHO) [1]. Coronavirus on the basis of different homology belongs to Middle East Respiratory Syndrome (MERS) coronavirus, a family of viruses that range from the common cold to the severe acute respiratory syndrome (SARS) coronavirus [2]. Scientists from different parts in the World start working on different aspect of the disease and could conclude that the virus was having incubation period about 1-14 days (mean duration of 5-7 days), and typical symptoms that were observed includes peak viraemia occurring before the onset of symptoms [3].

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The most common presenting features of COVID-19 infection that was found in almost 80-90% (fever), 60-80% (cough) and 18-46% (dyspnoea) while myalgia, headache, nausea, vomiting sore throat, nasal congestion and diarrhoea ware also included symptoms [4]. It has been observed in study that about 14.19% COVID -19 patients needed ICU while 6.02% was having ventilator requirement. Hypertension (30.76%), was observed as major comorbidity while others included was diabetes (26.92%), kidney disease (23.07%) rest (19.25%) include others [5]. It was reported that about 50 % patients showed GI symptoms, loss of appetite and diarrhoea reported in almost 78.6% cases, while and vomiting (5%), and abdominal pain (2%) was observed less often [6]. For any Virus to enter and establish infection receptors play an important role in case of COVID-19 Angiotensin-converting enzyme 2 (ACE2) plays important role as a receptor and facilitate attachment and internalization of this virus into host cells [7]. For clinical treatment of Covid-19 patients, mainly Remdesivir, Hydroxychloroquine and

Chloroquine, Hydroxyquinone, Lopinavir-Ritonavir, Dexamethasone, and Favipiravir antiviral drugs have been used [8].

India is having population of about 1.3 billion and geographic area of 3,287,240 square kilometres [9]. In order to deal with COVID-19 outbreak Indian Council of Medical Research (ICMR) increased of testing capacity along with starting new laboratory as well as updated standard protocols and started online portal for patient records and reporting of results [10]. Further on March 17, 2020, the testing criteria and subsequently, on March 21, 2020, guidelines regarding protocol for testing by private laboratories were revised. A new plan by ICMR on April 12, 2020, stated the plan to fast-track COVID-19 testing including revised guidelines as well as use of TruNAT-beta-CoV tests on April 14 [11]. Indian states very with respect to geographic area and population some are quite large while others are quite small therefore it is difficult to present whole data on a single page and it may not provide us the right picture. It was January 2020 when COVID-19 was initially reported in India [12]. On March 31 suddenly Nizamuddin area in Delhi emerged as Coronavirus 'hotspots' in India with many attendees at a religious congregation were tested randomly and found positive for COVID-19. The risk of infection to medical, paramedical, nursing staff and other healthcare workers related to patient care directly or indirectly was very real; however, all healthcare professionals do not have the same risk. [13]. Apart from India, the number of infected patients were high including China, Italy, and USA [14]. Prime Minister Narendra Modi holds a digital meet with the chief ministers of all the states and discussed the lockdown extension issue as a result the nationwide lockdown was further extended till 3 May 2020 to control the spread of COVID-19. People were using different methods to enhance body immunity so that they could not ger the infection. *Lactobacillus helveticus* as a probiotic is known to have multifunctional activities including inhibition of angiotensin-1 converting enzyme (ACE), immunomodulation, mineral binding, and antioxidative and antimicrobial activities that could be explored for health benefits [15].

2. Material and Methods

2.1 Collection and data Availability

Data were collected from the electronic medical records. Publicly available datasets were analyzed in this study. This data can be found on https://www.mohfw.gov.in/ [16] and https: // www.icmr.gov.in/ [17].

2.2 Analysis of data

Statistical analysis was used to analyse data. Descriptive statistics was used for analysis of recent data collected from published clinical data. Medians and interquartile ranges (IQRs) were used to report the collected data. We tried to report all available in terms of counts and percentages. The data were presented without imputation. We performed analyses with the help of Graph Pad Prism software V7.0.

3. Results

Since the January 30 when first person was identified to have COVID-19 at Kerala in number of cases was increasing day by day. The total number of COVID-19 positive cases on April 10 in the country reached to 7,600 with 249 fatalities and with till April 14th confirmed cases could reach up to 10,000 [18]. Except Dadar Nagar Haveli and Sikkim, all states and UTs of India reported minimum one case of COVID -19 up to 22 April 2020, with 2,30,000 individuals infected with 4.7% positivity ratio of tested individuals. If we look upon state wise figures Maharashtra reported was highly affected state with highest 5,229 number of cases second highly affected state was Gujarat with 2,407 cases, while Delhi with 2,248 case was on third position, others including Rajasthan (1,888), Madhya Pradesh (1,552), Tamil Nadu (1,596), and Uttar Pradesh (1,449) respectively [19] (Fig.1). According to the Ministry of Health average number of days to double the infected cases was estimated to be 7.1, while it was higher i.e., 4.1 after religious event took place in Delhi [20].

The total estimated positive cases number in the country up to 4 May 2020 was 42,533 and there have been 1,391 fatalities. States hit with most cases in India at this time also Maharashtra was having highest no of cases (12,974), followed by Gujarat (5,428), Delhi (4,549), Madhya Pradesh (2,846), Rajasthan (2,886), Tamil Nadu (3,023), and Uttar Pradesh (2,645). The fifth phase of the coronavirus induced lockdown begins from first June even as India continues to witness a dramatic rise in the number of COVID-19 cases. June 2020 takes the country's tally to 194,504 as indicated in figure-1 with more than records 5,000 deaths. Total number of coronavirus cases could exceed the 600,000 mark and around 17,495 people have died from the fatal disease till 1 July 2020. We find that Maharashtra is most affected state with 375799 cases while Tamil Nadu with 213723 cases is on second and Delhi is on third position with 130606 covid-19 cases till 27/07/2020 and number of deceased in Maharashtra 13656 Tamil Nadu 3494 and Delhi-3827 respectively.
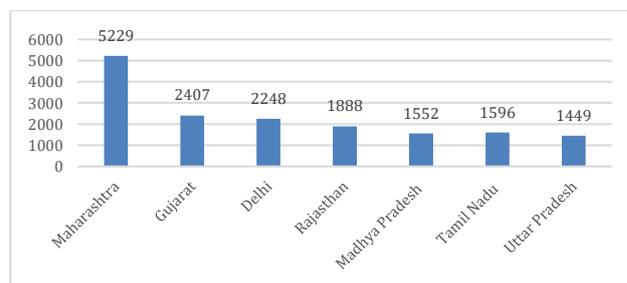

Figure: 1. COVID-19 Cases in most hit city in India till 22/04/2020

4. Discussion

Third phase of its nationwide lockdown was started on May 4th 2020. According to MHA guidelines, there were considerable relaxations in districts that fall in the Green and Orange Zones. The total no of cases per million populations in India was 1,073 while it was 2,121 worldwide. Moreover, deaths per million populations in India are only 24 while it is more than 83 as observed worldwide. Since the beginning graph of Covid -19 cases is rising day by day as on 27/07/2020 a total no 1480012 confirmed cases with 33439 deaths and 951217 recovered in India (Table-1). Maharashtra that is most affected state with 375799 cases while Tamil Nadu with 213723 cases is on second and Delhi is on third position with 130606 covid-19 cases till 27/07/2020 and number of deceased in Maharashtra-13656 Tamil Nadu- 3494 and Delhi-3827 respectively. (Fig-2) While up to 22 April 2020 Maharashtra remain on first position with highest no 5229 cases, Gujarat with 2407 cases was on second and Delhi 2248 remain on third position and Tamil Nadu with 1596 cases was on fifth position indicating the graph of cases in Tamil Nadu has grown very fast during April to July and has replaced Gujarat that was on second position on 22April 2020.

Table: 1 Active COVID-19 data of cases in India and Worldwide till 27/07/2020

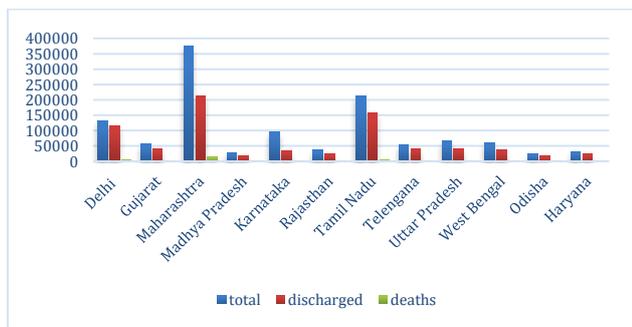|	India	World
Total cases	1480012	16527201
New cases	43993	116241
Total deaths	33439	653973
New death	627	2092
Total recovered	951217	10117019
Active cases	495356	5756209
Serious critical	8944	66389
Total cases/ 1M population	1,073	2,121
Total deaths/ 1M population	24	83.9

Figure: 2. Status of COVID-19 in India till 27/07/2020

A total number of 33439 deceased were noted with COVID -19 in India till 27/07/2020. The mortality in different state was observed variable as stated in top ten states with 13656 people deceased only in Maharashtra 45%, 3827 in Delhi 13%, 3494 in Tamil

Nadu 11%, 2326 in Gujarat 8%, 1878 in Karnataka 6%, 1426 in Utter Pradesh 5%, 1372 in West Bengal 4%, 811 in Madhya Pradesh 3%, 621 in Rajasthan 2%, and 463 in Telangana less than two percent (Fig-3).
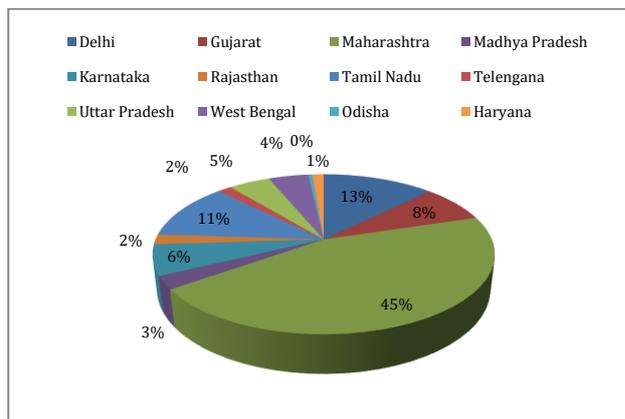

Figure: 3. Deceased COVID-19 in different states till 27/07/2020

Conclusion

Delhi, Chennai and Mumbai were ready to declare victory against Covid 19 according to the number of cases reported on 26 July 2020, Mumbai reported 22536 active COVID-19 cases. A month ago it was 10000 active cases higher indicating a slow curve downwards. In Delhi also there are just 11904 active cases as on 26 July a month ago it was 16000 active cases higher, indicating a faster curve downwards. While Tamil Nadu continues to be ravaged, Chennai has just 13747 active cases as on 26 July. A month ago, that was about 25000. Indicating a gradual trend downwards indicating that these major cities has touched the peak level if the cases does not increase in near future. We must also remember that of the three cities, Chennai was the most affected (per million people), followed by Delhi and then Mumbai. In terms of deaths, Mumbai reported 6093 deaths, Delhi 3827 deaths and Chennai 2008 deaths. Overall, Delhi performed the best on this count. We can say that reduction in number of Covid 19 cases does not mean life gets back to normal overnight. All 3 cities receive millions from the surrounding towns and cities which are still suffering from high growth in cases. Things yet not have return to normal and will take time as the number of cases is on the rise. However, the big message seems to be that at some point in time, a combination of the virus finding it difficult to propagate due to immunity as well as Government authorities improving their response prevents the rapid growth of cases. With the analysis of number of cases in different state it can be said that decision of lockdown could help in controlling the spread and growth rate of infected cases, while it was observed if uncontrolled mass level events were organised it could lead to negative impact on spread of infection. With the help of exponential and polynomial regression modelling, the predictions of up

to 75000 cases have been done by the end of April 2020. [21] That was controlled and figure could cross only 33000 as a result of lockdown and 1000 deaths by the end of April 2020. A total vaccine doses of 1,805,830,505 have been given till 14 March 2022 in India to prevent from COVID -19.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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