



The history of pandemics and epidemics in India

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ABSTRACT

Intermittent contagious disease outbreaks have had significant and enduring socioeconomic impacts throughout history. These occurrences have profoundly influenced and also have hundreds of thousands of years of physical, political, and social facets of human society. Outbreaks of epidemics have developed some of clinical medicine's foundational values, which encourage the science world to evolve epidemiological, preventive, immunization and antimicrobial medicine concepts. Global public health is improving with leaps and bounds, but pandemics are not always unexpected. The diverse types of epidemiological shifts may be one of the key reasons in and around the world for such events. India has encountered several epidemics and pandemics throughout history. This paper talks about such outbreaks known to have occurred in the 19th – 21st century and are arranged in accordance with the chronology.

Keywords: Diseases, Contagious, Outbreak

1. INTRODUCTION

India is the third largest region in the world who has faced a number of epidemics and pandemics. According to several reports recorded over the past few centuries, India has faced with deadly diseases such as: measles, cholera, dengue, smallpox and many more. Out of these a few pathogens have been eradicated while some of them continue to affect the population. Such sudden and quick outbreaks are not rare in India, and several articles have found that certain developing countries exacerbate malnutrition, shortage of health care, and a lack of effective public health system.

Epidemics in a population or disease environment are irregular, distinctly in excess of predicted occurrences resulting to health-related activity or other medical activities. It is a rapid, serious and wide-ranging illness in the community, which pre-exists. The natural calamities also cause in increasing the post-disaster epidemics but the frequency in them has never been emphasised in India. The outbreak of cholera took place due to a disintegration of sanitation after natural disasters were gone. The research study indicates that the patterns in epidemics shift the transmission of the infection when the threshold level is crossed. On the other hand, pandemics which is caused due to illness affects millions of people across the globe. The public health issues, along with effective steps to prevent dissemination to others, have to be discussed and handled.

A variety of pandemics have occurred throughout the history of mankind. Amongst them the two major and symbolic pandemics are remembered for the devastation to human life that they had caused. One being the “Cholera” which had occurred during the 19th century and had recorded an increasing trend in the death toll each year and had revisited at the beginning of the 20th century, which while being short lived had nevertheless proved to be catastrophic. The second was H1N1 which was is also remembered for the death toll it took. Although the study of all pandemics and epidemics in Indian history is virtually impossible, attempts were made to include certain signature pandemics. (Swetha, Eashwar and Gopalakrishnan, 2019)

Timeline of the Pandemics and Epidemics in a chronological order

19th Century

1st Cholera Pandemic (1871)

It is considered the first major outbreak in British-colonized India in the 19th century and was described as the most frightening of all. A civil surgeon from Jessore registered the case on 23 August 1817. The total mortality rate was not traceable since the data collection started later in India, which is in the late 1860s. In relation to the geographical area, the fact that 1817 resulted in very extreme drought, which has contributed to such a rapid growth. Although in India the Europeans and the rich were not badly affected, rural poor and slum dwellers were the most affected. This undoubtedly resulted from the disparities in culture, personal grooming and discipline. (THE CHOLERA., 1871)

2nd Cholera Pandemic (1829)

In the year 1826 the second epidemic began in Bengal and spread through rivers in the northern India. Following its hold on the Utter Pradesh (UP) it has had immense consequences in the region around Punjab and Delhi. Cholera is prevalent, impacted many towns and villages along China's trading routes. It lasted a few weeks in every location, killing hundreds every day.

3rd Cholera Pandemic (1852)

This third pandemic of cholera began in 1852 and lasted until the end of the 1860s. It is a symbol of history due to its

introduction to areas that had not been affected before then. While India was not the main field of influence, small springs were noted in Bengal in the later phase of the pandemic. It has spread to numerous other countries such as Persia, Arabia and then Russia. The global distribution of El Tor Vibrio serotype, initially endemic to India, was the cause for this.

4th Cholera Pandemic (1863)

It started around 1863. Although some accept that Haj pilgrims from India carried the big cholera outbreak into Mecca in 1865, some did not agree that it was merely a revival. It is, however, accepted that the virus spread to a number of countries from Mecca. In April 1867, Kumbh Mela at Hardwar was seen as the cause of the cholera outbreak in northern India. The Madras presidency was the worst victim in 1877 and over 10 percent of the annual death toll was due to the cholera outbreak.

5th Cholera Pandemic (1881)

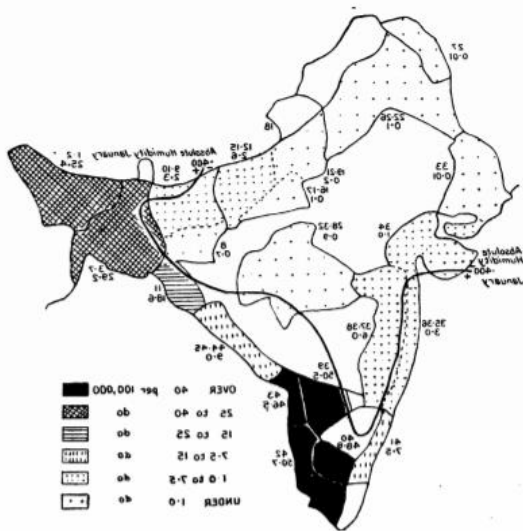
Compared to the previous four, the TSC cholera pandemic was slightly less lethal. It was during this pandemic (1881-1869) that Robert Koch discovered that after his study of outbreaks in Calcutta and Egypt, cholera was spread along the fecal-oral route. It travels to the United Provinces and Punjab and then to other countries such as Afghanistan, Persia, Russia and Europe.

Bombay Plague Epidemic (1896)

This plague started in September 1896, and created a lot of social and political hysteria in colonial Bombay. The exponential growth in trade in Bombay has led to a population increase and an enormous population. In order to tackle this outbreak, the movement for anti-pests was initiated and founded on the assumption that the emphasis was on the slums. Thousands of civilians were killed and hundreds of others driven out of town. (THE PLAGUE IN BOMBAY, 1896)

6th Cholera Pandemic (1899)

Around 1899, the sixth cholera pandemic began; in Bombay, Calcutta, and Madras significant outbreaks occurred. The O1 serotype of vibrio cholera and con mucosa caused the outbreak in the 20th century primarily in Asia, but unexpected problems emerged with the sixth cholera pandemic. The consequence of this cholera outbreak was an untreated V. cholera non-O1 serotype, which was propagated to many nations, including the U.S. About 25 years elapsed (1899-1973), the sixth pandemic.



1-2, Assam. 3-7, Lower Bengal. 8-11, Bihar and Orissa. 12-21, United Provinces. 25-26, Punjab. 27, N.W. Frontier Province. 28-32, Central Provinces. 33-34, Sind and Gujerat. 35-36, Bombay Coast. 37-38, Bombay Deccan. 39-40, Central Madras. 41, Malabar Coast. 42-45, East Coast, Madras.

20th Century

Influenza Pandemic (1918)

It's estimated to have caused about 20–50 million deaths worldwide and is considered the most destructive. It's also the Spanish influenza of 1918–19. The H1N1 strain of In Tienza was responsible for this and was serious. The early episode of the disease originated in early 1918 and continued spreading across the world later in the autumn, when India was known as the centre. In 1918, the second wave of the attack originated in Bombay and extended to other areas of northern India and Sri Lanka. Improved virulence and intensity of the virus strain and humidity of the monsoon is regarded as key factors in rising incidence and spread. (INFLUENZA PANDEMICS, 2002)

Polio Epidemic (1970-1990)

India was the hardest hit by polio in developed countries before the end of the 1990s, after the introduction of the EPI. In both urban and rural areas, polio in India was highly prevalent and the state of Uttar Pradesh was the most affected. Her worst series was post-war paralysis and some 6/1000 pre-school children in the district of Vellore were affected. The oral polio vaccine was introduced in Bombay in 1964 and Vellore in 1965. India was given the choice to select between Salk's IPV and Sabin's OPV. No development was seen for 10 years even after the launch of the OPV in EPI. But the expected results were accomplished with improved surveillance and India was declared polio-free in January 2011 and a priority on holding guard to avoid resurgence was placed on. (McAlpin, 1983)

Small Pox Epidemic (1974)

It is regarded as one of 20th century's deadliest small pox epidemics. Around 85% of this outbreak has been caused by India. This disease occurred in three separate villages in western Bengal, Bihar and Odissa, but it was difficult to create a friendship between the citizens. The disorder has been introduced from numerous sources in various fields. Thousands of patients have survived, but most of them, though over 15,000 people died during this outbreak. The WHO Little Pox Eradication Campaign eradicated tiny pox. It was the world's first epidemic and was officially eradicated by the WHO in 1980. (Jones, 2014)

Surat Plague Epidemic (1994)

Pest cases in Surat have been confirmed to the rest of India in Sept 1994. Less than 1200 individuals were reported as being hopeful and lived less than two weeks, but due to its high mortality and worldwide effects, it is considered significant. It is said that doctors are first unable to detect it, but when they do, all the steps required to keep it from spreading are taken. (Ramalingaswami, 2001)

21st Century

Plague of Northern India (2002)

In the Himachal Pradesh district of Shimla, in February 2002, the plague in North India exploded. It was a minor outbreak that was less serious. In addition, urgent steps such as fumigation, evacuation and chemoprophylaxis were taken as soon as the disease was detected and better infection prevention is accomplished.

Dengue Epidemic (2003)

An outbreak of DF / DHF took place in Delhi in 2003 in September. It hit its peak from October to November and continued until the beginning of December. The death rate was about 3%. Amid extensive prevention measures to monitor DF, it became a major outbreak in India. (Ali, 2013)

SARS Epidemic (2003)

SARS (Severe acute respiratory syndrome) is recognised as a major infectious disease of the 20th century, and is considered a significant infectious disease of the 20th century. The disease began in the Guandong Province in 2003 and spread steadily through Asia, America and Europe to nearly 30 countries, affecting a total of 8,439 cases and 812 deaths within 7 to 8 months. (Vázquez, 2003)

Meningococcal Meningitis Epidemic (2005)

In Indian meningococcal meningitis cases a sudden increase was recorded in early 2005. Cases from Delhi and the neighbouring countries Uttar Pradesh and Maharashtra have been registered. As of June 2005, there were about 430 cases of meningococcal meningitis. Case control, early surveillance identification was planned to deter dissemination. (Massenet, Vohod, Hamadicko and Caugant, 2011)

Chikungunya Outbreak (2006)

In Ahmedabad in 2006, about 3.4 million Chikungunya deaths have been reported, estimated at 2.944. Compared to the last four years, the death rate in 2006 outbreak was greatly increased. Another disease in the south of India took place in December, affected by the states of Andhra Pradesh, Karnataka and Tamil Nadu. It was the herd immunity to the then isolated genotype that was due to its unpredictable nature. A variety of advertising programmes have begun for TV and print media. Mosquito prevention was made a big initiative. (Cordel and the Investigation Group, 2006)

Dengue Outbreak (2006)

The outbreak started in early September 2006, with the nearest case from Delhi registered. It started spreading to Rajasthan, Kerala, Gujarat, Chandigarh and Uttar Pradesh in late September. The Ministry of Health has created a monitoring room for the outbreak and has provided professional support to handle the disease efficiently.

Gujarat Jaundice Epidemic (2009):

The epidemic of hepatitis B occurred in Modasa city in Gujarat in 2009. This is signic, as virus hepatitis E is feco-orally transmitted in virtually every viral hepatitis outbreak in India. It was a long-term disease and mass media recognition and preventive programmes became a way of regulating it.

H1N1 Flu Pandemic (2009)

In May of 2009, the H1N1 flu pandemic originated and spread across the world until July 2009. By August 2010, the pandemic had been confirmed and some 18,500 deaths worldwide were confirmed. Three strains of the serum-infection viruses circulated at the time, mainly the H1N1 strain replaced the viruses Inf A (H1N1) and Inf A (H3N2). (Dhawale and Jayant, 2016)

Odisha Jaundice Epidemic (2014)

The outbreak started in Kantalbai, a remote town of Odisha in November 2014. This led to an inquiry at the district level which was called jaundice caused by Hepatitis E. This Odisha

Jaundice epidemic in 2014 was one of the most recent HEV outbreaks in Odisha. This is enterically transmitted and has affected a number of people, especially of the low socioeconomic class. The regulation system was introduced for management of drinking water and sanitation. (EPIDEMIC CATARRHAL JAUNDICE., 1927)

Indian Swine Flu Outbreak (2015)

This relates to the 2009 H1N1 oscillation of a pandemic in India that had been underway since March 2015. This 2015 epidemic is known to be an illness revival and the possible causes are low temperatures, reduced host immunity and post-2010 decline in the vaccine programme. According to NCDC info, the worst affected states in India during this pandemic have been Rajasthan, Maharashtra, and Gujarat. (Pathak and Batni, 2020)

Nipah Outbreak (2018)

The virus was detected in Singapore and Malaysia at the end of the 1990s. The natural host for this disease is the bat of fruit, and direct interaction between people is transmitted. The epidemic of Nipah virus started in Kozhikode District, Kerala in May 2018. This is the — and the third known — epidemic of Nipah virus in Kerala, with the last epidemic occurring in 2007. Expanding knowledge of the virus, separation from the infectious disease and tracking after the outbreak contributed to the containment of this outbreak. (Chatterjee, 2018)

Covid-19 outbreak (2019)

The pandemic COVID-19 in India is a global coronavirus 2019 pandemic (COVID-19) due to serious acute respiratory disease coronavirus 2 (SARS-CoV-2). This pandemic happens in India. On 30 January 2020, the first COVID-19 event in India emerged in China. India is actually the most active case in Asia and has the highest number of confirmed cases globally after the USA with a record of 100 000 marks being crossed on 19 May and 1 000 000 confirmed cases on 17 July 2020. India is the world 's second most confirmed case after the US. (Zafar, 2020)

2. CONCLUSION

India has been heavily influenced by a variety of pandemics and epidemics. Good medical attention and productive studies have allowed any infection to be eradicated and, fortunately, we were able to eliminate a few. Many infectious diseases have spread over the years primarily because of lack of sanitation and a crowded climate. It can be seen that the hot climate and erratic rainfall in India is also another significant cause in the past and several more outbreaks of vector-borne infections. While due to the shortage of fuels usable data and data retention mistakes, genuinely attempts have been made to list all epidemics and pandemics, most relevant and substantial efforts have been put into this area. This is written in the hope that doctors can consider how they have suffered or how they have succeeded in containing an epidemic in the past. It is also a sad fact that India will face many more such outbreaks over the next few days, but there is a big need to be preparedness and surveillance of spread should be the first priority for physicians and other healthcare staff.

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