**Class Note**

**4TH SEMESTER 2020 (M.Sc. Anthropology)**

 [Course Code: ANT 403B ; Course Name: Medical Anthropology]

Topic: Epidemiology of Selected Diseases (29.3)

**EPIDEMIOLOGY OF CHOLERA: ANTHROPOLOGICAL CONTRIBUTION (I)**

According to World Health Organization:

Cholera is an acute diarrhoeal infection caused by ingestion of food or water contaminated with the bacterium *Vibrio cholera.*1

It has been estimated that every year 1.3 million to 4 million cases of cholera are reported, and it claims 21,000 to 14300 lives every year.2

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| --- | --- | --- | --- | --- | --- | --- |
| **Country** | **Cases** | **Death** | **CFR** | **IWS%** | **SF%** | **CM%** |
| Angola | 10,511 | 243 | 2.3 | 51 | 58 | 35 |
| Nigeria | 5140 | 247 | 4.8 | 58 | 32 | 9 |
| Iraq | 925 | 11 | 1.2 | 61 | 51 | N.A. |
| Kenya | 1243 | 67 | 5.4 | 85 | 19(U) 48(R) | 31 |

[CFR – Case Fatality Rate, IWS- Population with Improved Water Source, Population with Sanitation Facility, CM – Chronic Malnutrition; Source: WHO, 2008 Data]

From the above table one can easily understand that the improved water source and appropriate sanitation facility play an important role in controlling cholera. The general health condition in the countries mentioned above is reflected in the data on chronic malnutrition. Chronic malnutrition increases the susceptibility to such diseases. Of the African countries, Angola reported two third of the total cases in the continent at one point of time. The poor civic conditions, also lead to high rate of CFR in that country in the subsequent years up to 2011. For a detail discussion on the trend and history of cholera pandemic in Indian subcontinent one may go through Shodhganga.inflibnet.ac.in materials (Attached separately).

The main symptom of this disease is the severe acute watery diarrhea. It leads to dehydration. If remains untreated it can be fatal for individual. The cholera outbreak may be pandemic.3



The cholera originated in Ganges delta. From this place it spread across the globe during 19th Century. The seventh pandemic took place in 1961 in South Asia, it reached Arica in early 1970s. In some parts of the world it has now become endemic.4

In the study of Cholera the anthropologists pay attention to the following issues:

In the present anthropological outbreak investigation of cholera in Latin America in 1991, focus is on the epidemic’s cultural, social, and political causes, as well as how professionals and laypersons reacted to it.

‘Diarrhea is divided into a large number of non-biomedical categories and is treated with diverse resources. Epidemiologists seeking accurate measures of the incidence or prevalence of diarrheal disease must take account of these popular categories or risk ignoring substantial proportions of perceived morbidity. In some places diarrhea is taken as a normal sign of growth and development. So-called teething diarrhea, for example, is associated with tooth eruption because it often occurs at this stage of a child’s physical development. Parents commonly do not link diarrhea to the changes in diet that occur when children’s teeth emerge, nor with the increasing possibility of contamination associated with children’s ability to move around on their own beginning at this age. The biomedical conception of diarrhea is not commonly understood among the populace of many developing countries.’(Trostle,100)

The term “diarrheal disease” describes one symptom that can be produced by a number of causes ranging from viruses to bacteria, parasites, mal-absorption of lactose, or immune deficiencies. And diarrhea is no simple label. An extensive anthropological literature (e.g., Kendall 1990, Nichter 1993, Scrimshaw and Hurtado 1988,Weiss 1988) documents the broad variety of terms used to describe and categorize diarrheal diseases around the world and efforts to use these terms in prevention programs. Depending on the locale, caretakers pay attention to and categorize diarrhea using color and form of stools, age of the child, presence of a variety of supernatural causes, and other clues.

**Onset and Nature of Infection**

‘Applying this natural history model to the case of cholera, individuals most susceptible to infection are those who have not previously been exposed to the *V. cholera*. In addition, O blood group or low stomach acidity caused by malnutrition makes certain individuals more susceptible to infection (Glass and Black 1992). People are usually exposed to *V. cholera* through drinking contaminated water, although some types of food may also carry the organism. Following ingestion in water or food, the *V. cholera* organism adheres to the small bowel wall and secretes a toxin. The toxin causes the intestinal cells to secrete water and electrolytes into the intestine in sudden and massive quantities. This is the onset of the pathologic changes caused by the organism. Clinical and epidemiologic studies show that 30 to 50% of those infected with *V. cholera* never develop symptoms. For those who do, the most visible symptom caused by cholera is loss of body fluids through diarrhea and vomiting. Of those people who manifest symptoms, most have mild to moderate diarrhea and vomiting. In about 10% of cases, however, the loss of body liquids continues and becomes severe. This extensive fluid loss causes eyes to become sunken; skin to become hot, dry, and less elastic; and consciousness to become dulled. If the body fluids are not replaced through some form of external rehydration, death from cholera can occur within days. In very severe cases, death can arrive within 24 hours after the onset of symptoms. By the end of 1995, five years after the epidemic began in Peru, more than 1.3 million cases and 11,000 deaths had been reported in Latin America. Cholera has become a major public health threat in the region and is now considered *endemic* there, meaning a self sustaining epidemic.

**Socio-cultural History of Disease:**

Trostle presented a Model of Socio-cultural history of the spread of disease.

Exposure Epidemic onset Crisis recognition Intervention

Ecological Individual & Recovery or

 social risk Care-seeking Recrimination

susceptibility

**Figure:** A sociocultural history of disease.

The model shown in Figure of the *sociocultural* history of disease is applicable to an entire society. In this diagram, pointers above the horizontal timeline refer to events critical to the progression of disease in a population, whereas bars below the timeline refer to different stages of disease in populations. We can apply this model of the sociocultural history of disease to the case of cholera. This population model requires that we consider how environments themselves influence susceptibility to disease. In an environment with a well-chlorinated water system and intact water and sewer pipes, the cholera agent meets a hostile reception and cannot spread. In another, where aging water systems allow cross contamination between leaking water and sewer pipes, cholera can flourish. This is why cholera was common in the southern United States in the middle of the nineteenth century, when open sewers ran down streets and buried water pipes had plenty of cracks. The risk of disease in a group exposed to a pathogenic agent also is differentially distributed: even those with unhealthy individual habits may never contract a disease like cholera if they live in clean environments; those with healthy individual habits in polluted environments may still become sick. This is the stage of a socio-cultural history of disease that Trostle calls individual and social risk. Risk is individual because motivations matter.’(Ibid, 105-106)

*Factors responsible: The Latin American Case*

1.The cholera responsible for Latin America’s outbreak is said by some to have been discharged from the bilges or ballast tanks of a freighter that had previously visited other infected cities, possibly in Bangladesh or China.

Thus, it is a common way of attributing an enemy from the east.

2. It grew well in the warmer water of Peru due to global warming.

3. Cholera in Latin America encountered a deteriorating public infrastructure conducive to its growth. This phase of cholera’s development can be called “ecological susceptibility.”

4. Human populations create environments hostile or conducive to different types of diarrheal disease burdens and organisms. Environments characterized by rapid urbanization, crowding, poor water supply, and poor sanitation tend to have massive fecal contamination and therefore rampant bacterial, viral, and protozoa pathogens causing diarrhea .

5. Slow implementation of development works contributed to the degradation of the situation. Peru and Ecuador were in particularly perilous condition in the early 1990s. For example, a $5.5 million U.S. development project to install 420 water supply systems in Peru by the end of 1985 had completed only 10 and had started 20 by 1983 (USGAO 1983). Peruvian citizens were caught in a war between government soldiers and Shining Path guerrillas. One analyst has commented, “The processes leading to a cholera epidemic in Peru in early 1991 are linked to decades of chronic inflation that weaken a society’s life-preserving systems” (Gall 1993:11). The country was suffering under hyperinflation that at one point raised prices by 7650% in one year, and this was accompanied by a decline in gross domestic product, reduction in per capita income, halving of public health expenditures, declining access to drinking water, and population growth in peri-urban slum communities.

Foot note *:*

1. [www.who.int/news-room/fact-sheet accessed on 21.3.2020](http://www.who.int/news-room/fact-sheet%20accessed%20on%2021.3.2020)
2. Ibid.
3. Pandemic is a condition of spread for a disease when it crosses international boundaries and affects a large number of people.
4. Cholera endemic area is an area where confirmed cholera cases were detected during the last three years with evidence of local transmission i.e. cases are not imported from elsewhere.

**Reading:**

References. / Bibliography/ Reading:

*Basic Epidemiology* – R.Beaglehole and R.Bonita,1993

*A Dictionary of Epidemiology* – M. Porta,2008

*Culture and Health* – M.Winkelman,2009

*Epidemiology and Culture* –J.A. Trostle ,2005

*Epidemiological and Molecular Aspects on Cholera -* T. Ramamurthy · S.K. Bhattacharya

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