EXPERIENCE OF EMERGENCY MEDICAL RELIEF WORK FROM A FIELD AREA IN SOUTH INDIA

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ABSTRACT

BACKGROUND

Floods pose a disaster-like situation and can lead to many infectious diseases like leptospirosis and viral hepatitis. In Kerala after floods, teams were deployed to mitigate the risk of such disaster.

MATERIALS AND METHODS

A questionnaire-based approach with personal investigations were done to assess relief work and chemoprophylaxis in the affected areas.

RESULTS

Due to prompt public health measures, no outbreak was detected. Laboratories mostly had diagnostic facilities for detecting Dengue and Leptospirosis.

CONCLUSION

A three-pronged approach of public health specialist, microbiologist and entomologist along with health inspector was found to be very effective in monitoring and managing the situation.

KEY WORDS

Public Health, Microbiology, Entomology, Disaster.

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BACKGROUND

Natural calamities and disasters like flood and earthquake pose a grave risk of impending infectious diseases, which are public health emergencies.^[1] During the past 20 years, natural disasters have killed millions of people worldwide, adversely affected the lives of billions and resulted in substantial economic losses.^[2] Floods lead to contamination of drinking water and can lead to diarrhoeal diseases.^[1] Sociodemographic factors are also important, in that global population growth, poverty, land shortage and urbanisation in many countries have led to increase in the number of people living in areas prone to natural disasters and multiplied their public health impacts.^[3] The potential impact of communicable diseases is often presumed to be very high in the events that follow natural disasters like floods.^[4] Preparedness is essential and preventive measures are required like vaccination, distribution of medicines in camps, vector control and ensuring safe burial or cremation of the deceased.^[3] We here have tried to emphasise the three-pronged approach of public health measure, infection control and management and vector control as one of the key methods to prevent infection following such emergencies.

MATERIALS AND METHODS

This work and study were conducted in Malappuram, a large district of North-Eastern part of Kerala in South India as Emergency medical teams were deployed in that area. Flood was there at the end of August with high degree of waterlogging following heavy rain. Lots of casualties were reported. Flood water receded after 2 weeks. State and Central disaster relief team reached the area, set up camps and distributed food and essential medicines. The district terrain was variegated. Eastern part was hilly, but Western part had coastline. The coastal areas were mostly affected. Four rivers were in the district, all of which flowed above the danger mark. At start of September a Central Emergency Medical Relief team comprising of a public health specialist, a microbiologist and an entomologist were sent to the area. Many adjoining districts were also affected, and teams were also sent there. Upon reaching there, team started its work. House-to-house visit, and survey was done to review infection control measures, vector control situation and general health of inmates. Inmates were questioned whether they were taking chemoprophylaxis for Leptospirosis, what pets they had, whether they were consuming well water and if so whether the water was chlorinated and whether residual chlorine was checked. Nearby Government PHC or CHC with their laboratories were also visited to review whether they were carrying out diagnostic tests for infections like Leptospirosis, Malaria, Viral hepatitis and Dengue. It was also asked whether all the equipment were working properly and how many diagnostic kits were in stock. Their insecticide stock, which was supplied by the State Government was also assessed. Fifty (50) houses were covered each day. Visiting team was accompanied by Health inspector and other staff

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from the concerned Primary Health Centre for better interaction with the locals. If vector breeding was found in premises of any house, it was immediately noted down and householders were cautioned and instructed how to remove breeding of mosquitoes and clean containers. This work was carried out for 15 days consecutively in different areas in different blocks of the district. Filled survey form was sent every day to the District Medical Officer and State Public Health Department, after monitoring the disease trends (increasing or decreasing) by matching daily IDSP (Integrated Disease Surveillance Program) reports.

RESULTS

In most of the houses, people were consuming chemoprophylaxis (Doxycycline for adults). However, children and pregnant and lactating women were mostly not taking any chemoprophylactic medicine. Chlorination was rigidly carried out in almost all wells of all the households. There was no outbreak or early warning signal of infections like Leptospirosis, Dengue, Viral hepatitis or acute Diarrhoeal diseases. Most people told that they were consuming well water, but only after boiling it. Possibly that was why viral hepatitis or diarrhoea was not commonly found. People in worst affected areas had vacated their houses and moved to camps set up by the Government during floods, but returned after that. A vast majority of the houses were pucca houses. Some houses had dogs and hens as pets mostly, while some houses especially in tribal areas had goats as pets, while a minority of houses had cows as pets. However, there was no history of pet-related illnesses and all pets were healthy. Moreover, possibly since pets like dogs and hens were kept in cages at some distance away from the house, infections arising from them were not common. Some isolated cases of fever and myalgia were reported, but were mostly non-reactive for Leptospirosis. Persons who were not provided with chemoprophylaxis earlier were provided with the same during these house visits. The team surveyed a total of 742 houses and found total 19 houses positive for *Aedes* breeding and few houses were positive for *Culex* larvae, but no febrile illnesses were found at that time in those houses. In 2 houses adult *Culex quinquefasciatus* mosquitoes were found. *Armigeres* mosquitoes were also found in three households. In the PHCs and CHCs mostly insecticides were well in stock-like Temephos, Malathion, Cyfluthrin, Deltamethrin, liquid pyrethrum extract, pyrethrum and abate. Positive breeding sites of *Aedes* mosquitoes were present in the form of plastic containers, planted pots, earthen pots, unused tyres, coconut shells with water, grinding stone, rubber bowl, unused cisterns, unused wash basins, unused plastic containers and empty ice cream cups in surrounding areas of houses. In laboratories, most of the equipment were working. Card test was done for Leptospirosis and Dengue, which was available in almost all PHC and CHC laboratories. The district had 3 district level hospitals, where cases were referred for diagnosis (In cases where no *Leptospira* detection was done) or for confirmation (Where only card test was done). Almost all PHCs had Laboratories with technician. All the CHCs had public health wing. In most labs, however, old Biomedical waste disposal guidelines were being followed. However, waste disposal was excellent and all PHCs and CHCs were neat and clean.

Inside PHC Lab

Search for Culex Larva

DISCUSSION

Disasters affect a community in numerous ways. For example roads, telephone lines and other transportation and communication links are often destroyed; public utilities and energy supplies may be disrupted.^[5] Substantial numbers of victims may be rendered homeless and portions of the community's industrial or economic base may be destroyed or disrupted.^[5] Casualties may need medical care and damage to food sources and utilities can create public health threats.^[5] This study emphasises the fact that a joint team comprising public health specialist, microbiologist, entomologist with health inspector from local PHC or CHC can be a pivotal force to assess the health risks following such natural calamities and to control emergencies if they arise. Proper and timely action and a concerted and systematic approach can be a key to control such situations. Timely inputs by the team to the officials can only help in reducing the health hazards and morbidity and mortality of the infections that can arise after such disasters. Wherever possible, the team should encourage people to adopt healthy measures like chemoprophylaxis for Leptospirosis, like it did without criticising anyone or each other. Such good teamwork, free of prejudice should go a long way in conducting successful medical relief work.

CONCLUSION

A concerted and targeted approach should be key for good relief work and to pick up early warning signals of any outbreaks lest they arise.

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