Original Article

Frequency of Diseases among Flood Affected Individuals at Relief Camps of Karachi Pakistan

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ABSTRACT

Objective: To determine the frequency of diseases among flood affected individuals and facilities available at relief camps of Karachi Pakistan

Study Design: A cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Community Medicine, Sindh Medical College, DUHS, Karachi from July 2010 to Nov. 2010.

Materials and Methods: A cross sectional study was conducted and data was collected by using a structured questionnaire. A sample size of 300 flood affected individuals were drawn by using convenient sampling methods from four different flood camps located in Karachi.

Results: Out of the 300 cases studied 46.0% had malaria, 90.5% of malarial patients admitted that they did not use mosquito repellents or nettings to protect themselves. About 27.3 % suffered from diarrhea and 26.7% had skin infections. Adequate water supply was supplied to 66.7% of the patients.

Conclusion: This study concluded that malaria had higher frequency at relief camps of Karachi followed by diarrhea and skin infections.

Key words: flood affected, frequency, diseases, Pakistan

INTRODUCTION

In 2010 Pakistan floods began in July following heavy monsoon rains in the Khyber Pakhtunkhwa, Punjab, Sindh, Balochistan regions of Pakistan, affected the Indus River basin. one-fifth of Pakistan's total land area was underwater.[1,2,3] The number of individuals suffering from massive floods exceeds 13 million, more than the combined total of individuals affected by the 2004 Indian Ocean tsunami, the 2005 Kashmir earthquake, and the 2010 Haiti earthquake, according to the United Nations statement 9th August, 2010.[4] In mid-September, according to the Federal Flood Commission, the damage caused by the floods revealed 1,781 deaths, 2,966 people with injuries, and more than 1.89 million homes destroyed.[5]

The Aid agencies had warned that outbreaks of diseases, such as gastroenteritis, diarrhea, and skin diseases due to lack of clean drinking water and sanitation can pose a serious new risk to flood victims.[6,7] Already been pointed out that there is growing concern over rising cases of acute diarrhea, malaria and skin diseases.[8]

On 14th August, the first documented case of cholera emerged in the town of Mingora, striking fear into millions of stranded flood victims, who were already suffering from gastroenteritis and diarrhea[9,10,11] and Pakistan also faced a malaria outbreak.[12]

The risk factors for disease epidemics and deaths in disasters are associated primarily with population displacement complicated by inadequate provisions of safe water and proper sanitation, degree of crowding, an underlying health status of the population, inaccessibility to healthcare services and local disease ecology.[13] The risk of communicable disease outbreaks is more common in the recovery phase than in the acute phase of the disaster.[14]

Water-borne diseases that could result in diarrhea are cholera, typhoid, dysentery and gastroenteritis. Diarrhea illnesses have been recognized as the most lethal infections after disasters with population displacement.[14]

The frequency of vector-borne diseases is potentially increased during post flood period as experienced by Karachi in 2010 which observed an increase in malaria cases over non-disaster periods[15]. On 15th August 2010, the Pakistan Health Department mobilized medical teams to conduct daily clinical examinations on the flood victims and health teams to inspect flood relief centers with regard to prevent and control communicable diseases. These activities were continued throughout the post-flood phase which was up to a month, until 15th October 2010, after the flood water receded. The purpose of this study to determine frequency of diseases and services available to flood affected individuals at relief camps in Karachi so that

appropriate measures can be taken to reduce the frequency of diseases among flood affected individuals.

MATERIALS AND METHODS

A cross sectional was conducted during the months of June to September and data was collected of 300 individuals by using convenience sampling. A structured questionnaire was designed to obtain information after taking consent from the study participants. The camps included were located at Gulistan-e-Jauhar, Malir, Razzakabad and Gulshan-e-Maymar. The study participants were individually interviewed for demographic, socioeconomic and diseases and services available at relief camps.

The data was entered an analyzed by using Statistical Package for Social Sciences (SPSS) version 16.0.

RESULTS

Out of the 300 individuals studied, 46.0% had malaria, 27.3 % suffered from diarrhea and 26.7 % had skin infections.

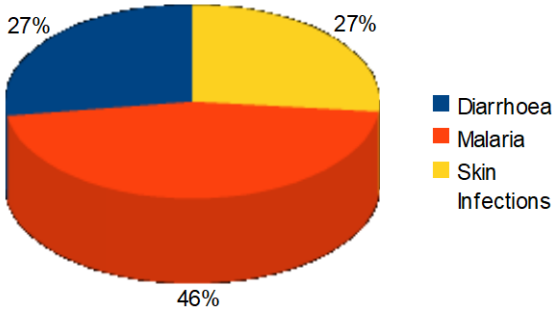

Figure 1: Frequency of diseases among flood effected

Result showed Malaria had the highest occurrence in the relief camps surveyed with a frequency of 46.0%.

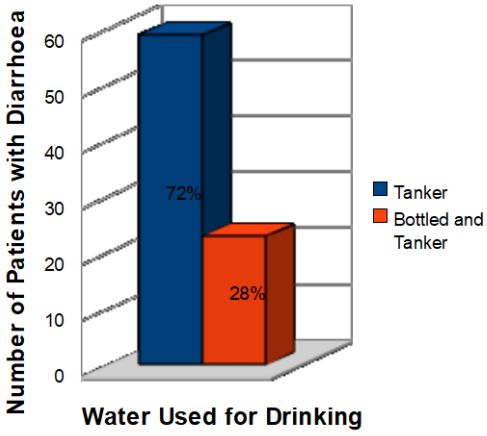

Figure 2: Type of water used for drinking

Result shows 72% of diarrhea patients were continuously ill because of drinking contaminated tanker water

Services available at relief camps:

Only 48.3% of the diseased people were provided with adequate medications, a worrying figure of 45.3% had inadequate medicine supply and 6.3% did not receive any medications at all. Regarding checkups, 79.3% of the patients were satisfied with being regularly checked by doctor whereas 20.7% were found discontented. About 100% people were satisfied that the food they were taking was hygienic. Adequate water was supplied to 66.7% of the individuals to meet their daily demands whereas 33.3% had complaints of inadequacy of water supply. When asked about the contamination of water supply, only 35.3% said that it was contaminated whereas 64.7% stated it was clean. About 5% of the people disagreed on having a specified site for disposal of house hold wastes. About 55.7% said that the disposal site was at a safe distance from their dwelling site. About 100% people agreed on having proper toilets in their camps out of which 89% were satisfied with their sanitation whereas 11% were not satisfied

Practices of individuals at relief camps:

A staggering 90.5% of malarial patients admitted that they did not use mosquito repellents or nettings to protect themselves. Among those suffering from skin conditions, 62.5% used only tanker water while 32.5% used both tanker and tap water for bathing and washing clothes. About 37.3% of the diseased did not wash their hands before eating or after using the toilets, whereas 62.7% said they did wash. About 51% of the affected people did not use any method for purification of water. Out of the remaining 49%, it was seen that 28.3% used boiling, 12.3% chlorine tablets, 6% filtering and 2.3% used lengthy storage in pots as methods of purification of water.

DISCUSSION

Diarrhea had the second highest incidence in Karachi relief camps, with a frequency of 27.3% among 300 individuals. The highest occurrence of 35.7% was noticed in Gulistan-e-Jauhar camp, where 73.2% of the inhabitants drank tanker water and 12.5% drank either tanker or bottled water. Patients presenting during flood-associated epidemics were more severely dehydrated than those presenting during non-flood periods. This may be caused by an increase in the number of cases of secretory diarrhea or to the inherent difficulty of seeking medical attention during a flood situation. Unexpectedly, none of the affected mentioned any sanitary issues yet our team personally assessed and concluded that the washrooms and surroundings did not fulfill the proper sanitary requirements. Also unexpected was the complete satisfaction with the hygiene of their food. Diarrhea disease outbreaks, which are potentially fatal, have been reported in other countries after the flooding periods as a result of consuming contaminated potable water.

Cholera had been found to be responsible for more than 16,000 diarrheal cases in the West Bengal flood disaster in 1998 and partly responsible for more than 17,000 cases in the Bangladesh flood disaster in 2004.[16,17]

In Mozambique in 2000, diarrhea was one of the prominent illnesses observed during the post-flood

period. When the Hurricane Katrina hit the United States in 2005, diarrheal illness was reported among the evacuees. During the Johore flood disaster in 2006, a total of 1,996 acute gastroenteritis cases and 46 food poisoning cases (diarrhea as one of the main symptoms) were reported. Following the Muzarabani, Zimbabwe flooding in 2007, 46 cases of diarrhea and 14 cases of dysentery were recorded by World Vision International. In 2008, widespread flooding in southern Angola caused an upsurge in cholera, with 150 deaths and 4,500 cases of the waterborne disease treated. Flooding has been shown to cause epidemics of vector-borne disease. The same monsoon rainfalls which caused flooding also resulted in pools of stagnant water which acted as favorable breeding sites for the mosquitoes. Malaria therefore showed an overall highest occurrence of 46% in the relief camps surveyed.

99.3% of the patients agreed on the presence of a substantial number of mosquitoes in the vicinity of water bodies, yet 90.5% of them denied the use of mosquito repellents or netting of any kind.

In Sri Lanka, the floods in 1934 were followed by a malaria epidemic during which 1,000,000 people were affected and at least 125,000 died. Malaria outbreaks have been reported in Muzarabani, Zimbabwe where preceding the floods in 2007, the World Vision International had recorded 85 cases of malaria. After the Namibia floods in 2009, malaria cases have increased, with 2,000 known to have contracted the disease of which 25 have died. Crowding, as a consequent of population displacement during disasters, facilitates the spread of communicable diseases especially those of an airborne and direct contact modes of transmission. Non-specific skin infections were the third highest incidence of disease, with 26.7% detected among the flood victims resulting mainly from direct skin contact with the contaminated tanker water or affected person. The majority of the cases, 49.4%, were reported in Malir camp where 42.9% and 50% of the sufferers used tanker water for bathing and washing clothes respectively, while 47.6% and 33.3% used either tanker or tap water for bathing and washing clothes respectively. A sad lacking of personal hygiene was also observed among the patients, regarding the number of times they bathed and washed their clothes weekly.

After the Hurricane Katrina struck in New Orleans, some of the evacuees were found to suffer from bacterial dermatologic conditions, whereas fungal infections were the main skin infections diagnosed among the rescue workers. During the floods occurring in Johore, Malaysia in 2006, skin infections consisted of 25.9% of the cases of communicable diseases, ranking second in incidence.

CONCLUSION

The study concluded that malaria had the highest frequency in the relief camps of Karachi, with diarrhea and skin infections coming up second and third respectively. The increased risk of these diseases is associated primarily with contamination of water supply, specifically tanker water, followed closely by inadequate medications and treatment as well as a lack of personal hygiene.

The study shows improper sanitation played an important part in this epidemiology; the patients seemed unaware of this. It can thus be safely assumed that better anticipation of the needs of the flood victims could have been made and managed through enhanced public health control programmer by reinforcing the existing stocks of medications, oral rehydration salts (for treating diarrhea), increased medical staff, family hygiene kits and water treatment units.

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