Original Article

A STEP FORWARD TOWARD CONTROLLING LEPTOSPIROSIS: COMPREHENSIVE AND COLLECTIVE EFFORTS

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ABSTRACT

Introduction: Leptospirosis is a globally important bacterial zoonotic disease occurring in rural areas of South Gujarat. Primary prevention of Leptospirosis is very difficult. This study was planned for early detection and timely referral of cases; increase awareness in high risk population regarding primary prevention and early treatment seeking; and establish and strengthen case suspicion and referral network in the community itself.

Methodology: This intervention study was conducted in villages of Surat district with main focus on early recognition of symptoms of Leptospirosis and timely health care seeking. Multipronged approach including meeting with villages, local leader and local health functionaries were used as an intervention.

Results: Mass campaign resulted in early health seeking behavior for suspected symptoms which is evident from gross increase in case reporting compare to previous year. These cases were reported early in their clinical course and timely treatment resulted in decreased case fatality rate from 24% in year 2012 to 9.5% in 2013.

Conclusion: The comprehensive effort involving every strata of the community from health staff to Sarpanchs/local leaders to local community under one roof has desirable and positive impact on the implementation of leptospirosis control in form of early treatment seeking and timely referral.

Keywords: Leptospirosis, secondary prevention, early detection

INTRODUCTION

Leptospirosis is a globally important bacterial zoonotic disease[1-3], most commonly found in tropical or subtropical countries and prevalent in both urban and rural settings. In India, Leptospirosis is endemic in many areas, where epidemic outbreaks occur after flooding caused by heavy seasonal rain fall. In South Gujarat, Surat and Tapi districts are reporting maximum number of cases followed by Navsari and Valsad. There were 611, 919, 156 suspected cases and 124, 178, 26 suspected deaths from Leptospirosis in 2010, 2011 and 2012 respectively from the above districts.

Rodents and domestic mammals, such as cattle, pigs and dogs, serve as major reservoir hosts[4], but Leptospira has been isolated from virtually all mammalian species. Infected animals may excrete Leptospires intermittently or regularly for months or years, or for their lifetime.[4] Vaccinated animals may still shed infectious organisms in the urine.[4] Humans are accidental host and can become infected through contact with an environment contaminated with the urine of a shedder host, such as rodent. Leptospires gain entry into the blood stream via cuts, skin abrasions or mucous membranes. Leptospirosis has often been considered as an occupational disease, but recreational activities and traveling in endemic countries are also recognized as risk factors.[5] Significant exposure also occurs from normal daily activities, with high rates of infection during heavy rainfall and flooding.[6] Urban slum dwellers in areas with poor sanitation are at particularly high risk.[7] The spectrum of clinical presentations of human Leptospirosis ranges from asymptomatic to fatal. The majority of infections is subclinical or results in mild self-limiting systemic illness.[8] However, the case fatality rate in severe Leptospirosis may be as high as 20%.[8]

In South Gujarat most of the cases are occupationally farmer or working in animal husbandry. In general, primary prevention is the best method against any public health problem. But for Leptospirosis, primary prevention is very difficult to achieve. For the farm labourer, it is not possible to prevention exposure to farm field as is the only livelihood for most of the worker. It is also not practical for farm labourer to use glows and gumboot while working in the farm. Control of rodent population in whole South Gujarat is a gigantic task. So secondary prevention, i.e. early detection, prompt and adequate treatment is the main stay for control of Leptospirosis. This will help to reduce morbidity and mortality.

With this back ground, the current interventional activity was planned for early detection and timely referral of cases; increase awareness in high risk population regarding primary prevention and early treatment seeking; and establish and strengthen case suspicion and referral network in the community itself.

METHODOLOGY

The present study was the interventional study conducted in the villages of the Surat district. We collected the list of cases of leptospirosis for the current year 2013 and list of villages in which the cases of leptospirosis have occurred in the previous years in Surat district from the district office. From both these lists, we selected the villages in which the cases are constantly occurring or have taken place in the previous years. While planning the intervention, a keen attention was made to select high risk pockets of Surat district everyday so that a comprehensive awareness campaign takes place throughout the district.

After listing all the villages the concerned PHC was contacted two days before the visit of the team. The Medical officer was informed that meetings will take place at the PHC for the staff, a village meeting in the selected village and at the house of leptospirosis case and to keep all the staff to remain present at the centre. He was also informed to contact the Sarpanch and local leaders of the selected village to remain present in the village group meeting.

The major focus areas in this meeting were broadly divided under 3 headings IEC campaign, early case detection (Secondary Prevention) and Primary prevention. Under the IEC campaign, activities conducted are group meetings with the villagers, meetings with PHC staff for motivation and reinforcement meetings with local leaders like sarpanch, Panchyat members etc.,. In secondary prevention, activities conducted are active Surveillance of Fever and other common symptoms by health workers, regular contact with local traditional healers like 'bhuva', 'bhagat', 'ojha', etc. and referral of cases from local private practitioners. The activities conducted under the primary prevention are health education to villagers in group meeting regarding primary prevention, DOTS for Doxycycline prophylaxis and liberal use of Povidone iodine ointment among high risk population.

Intervention at PHC

The meeting was started with the general description of the leptospirosis. The health staff were explained that whenever they go in a community for fever surveillance, they should also pay attention on other symptoms of leptospirosis like weakness, bodyache, frontal headache, anorexia, exposure history of case etc. In some cases of leptospirosis, fever may not be found as a first clinical symptom so there is a possibility that we may miss these cases during fever surveillance. The health workers were informed to track such cases and refer them to the primary health centre.

Secondly, there are many traditional healers locally known as bhuva and bhagat found in villages. The village people have great belief in these traditional healers and use their services in times of illnesses. They are usually involved in the treatment of jaundice, fever and other common illnesses. We explained to our health workers to develop a good rapport with these traditional healers. These traditional healers could serve as good source in finding the cases of leptospirosis. In this way, we can generate conducive environment for both active and passive tracking of the cases in the villages.

Thirdly, many villagers directly contact to the private practitioners when they get ill. These practitioners can serve as a good source of cases of leptospirosis. The health workers were explained to regularly visit their clinics every 2-3 days and ask for any suspected cases of leptospirosis. They were also explained to distribute IEC pamphlets to these practitioners so that they can distribute it to their patients and their relatives. In this way more referral of the suspected leptospirosis cases can be achieved. About the Doxcycline prophylaxis, each worker was explained to ensure that every villager consumes the tablet in front of them. They were advised to distribute the Doxycycline by DOT strategy.

Another strategy was to provide povidone iodine ointment to each and every household of the village. Through these cuts, while working in the rice or sugarcane field or during walking on the kachcha roads leptospira may enter in their body. Povidone iodine ointment will help in the early healing of these cuts or injuries. The application of this ointment may act as a physical barrier thus preventing the invasion of leptospira in the human body. The health workers were advised to distribute this ointment in every household by house to house visit through anganwadi workers or ASHA workers. They were explained to advice every household the directions of use of this ointment.

Intervention at Village

The village meeting was done in the temple, or some open places, or under the tree or in the courtyard of any house according to the feasibility. The village

leaders and Sarpanch were made available during these meetings to get greater involvement from their side also. The local health staff for that village was also present in the meeting. The case of leptospirosis that was treated and discharged from the hospital was also made present in the meeting. All the villagers were explained in detail about the epidemiology of leptospirosis in the local knowledge. They were also explained about the how leptospiral enters in their body, clinical features of leptospirosis, application of povidone ointment regularly even if they do not have cuts or injuries in hands and feet as most of the times minor cuts remain unnoticed, consumption of Cap. Doxycycline as prophylactic and preventive measures like wearing chappals or boots while walking on the roads in the village even if they have to travel a short distance. If they have any health related problems, they were also explained to contact health worker or reach PHC at earliest as early diagnosis of leptospirosis is an important aspect for successful treatment. We appealed to the villagers to leave the habit of alcohol.

Intervention with Sarpanch

Sarpanchs were made aware of the leptospirosis control activity. They were informed to give both active and passive support in the leptospirosis control activity. The Sarpanch will also take note of the activity of the health staff thereby he can also provide his support in the leptospirosis control activity. We explained them the importance of sanitation and removal of local collection of water around the village roads and from pits.

OBSERVATION AND DISCUSSION

The leptospirosis control activity was conducted during the monsoon season with the primary objective of early detection of the suspected cases; prompt and complete treatment; and improvement in the awareness in the community. In the previous year i.e. 2012, 33 cases of leptospirosis were detected in Surat district with 8 deaths making case fatality rate of 24.2%. During the present year 2013, the total confirmed cases were 115 with 11 deaths making case fatality rate of 9.6%.

The important observation from this result is increase case detection compared to previous year and decrease in case fatality rate to about 15 percentage points from the previous year. Improved case detection rate can be due to the comprehensive awareness campaign conducted by us involving all the levels of health care. The health staff; doctors; traditional healers; sarpanch and other village leaders; local community; all were involved in this intervention.

Observations from the local community

The local community response was encouraging during this control activity. There was a big misconception among the villagers that if they get admitted to the hospital like Civil Hospital, Surat or SMIMER Hospital, Surat, they will never return back to their home. Because of this fear the villagers were reluctant to get admitted in these hospitals and if admitted they try to run away from the hospital during the treatment. This misconception was removed from the villagers that because they make delay in reaching the health centres in suspected cases of leptospirosis the outcome becomes worse. But if they reach to these centres during the initial days of illness, there life can be saved and they can come home after treatment. The presence of treated case of leptospirosis during the village meeting serves as a live example of early diagnosis and successful treatment. Villagers in one voice said that they will contact the health workers in case of any minor illness and will help in the early diagnosis of leptospirosis. This was the major achievement of this campaign.

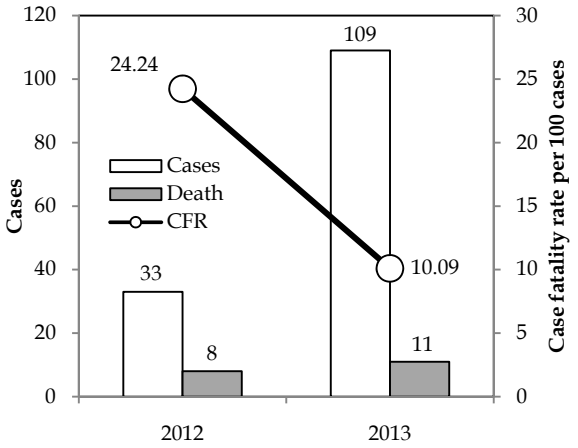

Figure 1: Leptospirosis cases, deaths and CFR during the year 2012 and 2013.

All the villagers replied that they will wear boots and chappals during local commuting on roads. The most important change was that women who were not wearing chappals during cleaning animal shelters and commuting on roads also said that they will now regularly use the chappals while conducting these activities. They were using povidone iodine ointment only when there were cuts or injuries. But now they said that they will use ointment daily so that minor cuts and injuries will heal soon.

Observations from the Sarpanchs

All the Sarpanchs were agreed to provide full cooperation and administrative support to carry out activities of leptospirosis control. After understanding the concept how leptospirosis enters into the human body and importance of filling pits and puddles on the road, they were ready to remove all small local collection of water. They agreed to make concrete efforts from their side to improve the sanitation of the village and even put forward the matter of leptospirosis control in their future meetings.

Observations from the health worker

There was some fear among the health worker that if there were many cases of leptospirosis from their area than it will reflect their poor activity in leptospirosis control. This misconception was removed from them. We explained them that indeed this reflects the good activity by them in case detection. But our focus should be on early case detection and prompt treatment. As our environment is conducive for leptospirosis, we cannot completely prevent the cases but our motto should be to detect 100% cases from our area and zero death due to leptospirosis.

Instead of only fever surveillance, the workers decided to look for other symptoms of leptospirosis during their house to house visit. They were ensuring the prophylactic Doxycycline consumption by doing repeat visits at each household. Povidine iodine ointment were now distributed in small zipper bags or plastic bags in each and every household and the villagers were advised to use it regularly.

CONCLUSION

The comprehensive effort involving every strata of the community from health staff to Sarpanchs/local leaders to local community under one roof has desirable and positive impact on the implementation of leptospirosis control in form of early treatment seeking and timely referral. This reflects in form of higher care detection and reduced mortality. Multipronged approach by mean of reaching the community; understanding the bottlenecks; reading local problems; solving them on field; and removing the misconceptions with live examples among them can surely decrease the havoc created by leptospirosis.

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