FIELD REPORT

AN INVESTIGATION OF DENGUE OUTBREAK: IMPRESSIONS FROM A RURAL COMMUNITY

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Dengue is an acute mosquito-borne viral infection that places a significant socioeconomic and disease burden on many tropical and subtropical regions of the world.[1] Globally, 2.5 billion people live in areas where dengue viruses can be transmitted and the incidence of dengue has increased dramatically in recent decades. In India, a total of 22,092 cases and 74 deaths were reported till August 2013.[2] In September 2013, we investigated an outbreak of Dengue fever in a village Aanji, of Wardha district (Maharashtra).

Our institute is a private tertiary health care institute situated in rural area of Wardha and catering to population not only of Wardha block but also the surrounding blocks like Aarvi, Hinganghat, Seloo, Deoli of the district. The institute is playing an important role in public private partnership (PPP) since many years at all levels. It has also adopted many primary health centers (PHC) and thereby villages for providing essential health care services.

Information regarding an increase in number of fever cases and sudden deaths due to some viral illnesses suspected to be of dengue, in Aanji Village of Aarvi- block was conveyed by the government health sector officials to Department of Community Medicine through the hospital administration authority in first week of September 2013. Accordingly an immediate action is taken for epidemiological investigation of suspected outbreak of viral disease at Aanji village. A team formed consisting of members like epidemiologist, faculty, postgraduate residents, and students of Master in public health, which went to Aanji village along with the Rapid response team (RRT) of public health sector and carried out investigation. Following were the salient findings of investigation which are given after taking permission from Institutional Ethical Committee.

The village Aanji is situated at a distance of 20 Kms from headquarter Wardha in North-West direction. The total population of village was 6467 comprising of 1225 houses which were scattered in five wards. There was a primary health centre (PHC) located in key area of village.

The 'Standard case definition' of Dengue was taken into consideration for investigation purpose. The case definition used for 'suspected case of dengue fever' was, 'Acute onset of illness'- High Grade Fever <7 days, Severe headache and backache, Joint pain, muscle pain and retro orbital pain, With or without rash. Definition for 'suspected case Dengue hemorrhagic fever' was having additional component of 'bleeding tendencies'.

The team went house to house. Suspected cases traced, a detailed history obtained and clinical examination done using the epidemiological case sheet. Other members of the family were also examined. The suspected cases were advised urgent admission to a PHC or tertiary health care centre.

A total of 38 cases suspected to be suffering from some type of viral illness, mostly coryza/common cold suggestive of Upper Respiratory tract infection. Most of them were under five children. One child aged 13 years of the village who was already admitted to A V B Rural Hospital for the same type of illness, diagnosed as a case of Dengue fever and was receiving treatment. Another adult female patient of age 45 years was also referred by PHC to MGIMS, Sevagram, the other distinguished health care institute in the district.

A total of 18 blood samples were collected at PHC Aanji till the end of investigation procedure. Occasional samples were positive for plasmodium parasite on peripheral smear examination done at PHC. All these blood samples then sent to government surveillance unit at Sevagram, Wardha where ELISA NS1 test for dengue antibodies was available. For the patients directly getting themselves admitted to AVB Rural hospital, diagnosis of dengue was being done by Microbiology department of institute using

ELISA NS1 and rapid diagnostic test kit.

Two deaths were reported because of the similar kind of illness even before the start of investigation in the village Aanji. Both the patients were children, of age 2 & 1/2 year and 5 months respectively who belonged to the same family. Both initially presented with fever, malaise, bodyache, at PHC. But even after giving initial treatment and referring them to higher centers, both died suddenly on an average 2-3 day after the onset of their illness. One of these two patients was ELISA positive for dengue antibodies.

As compared to previous year's record, the presentation of cases with viral illness was suspected to be atypical, because the deaths that occurred were sudden with a very short duration of illness. A change in either the strain of virus or virulence was suspected as the probable cause of such presentation.

During house to house survey, most of the houses were found to have containers/storage tanks like big earthen pots buried in the ground ('Raanjan' in local language), rectangular cement tanks,…etc containing water that is used for domestic purpose. As the water supply in the village was on alternate days, people used to store the water in pots and tanks. Container survey[3] was done and various houses with positive containers were informed to health staff of PHC. On the roofs of some of the kuccha houses, vehicle tyres were kept by residents as a weight over the weak roof, so that it would not be blown away by storm. But those tyres were found to be holding water. Hence were emptied out with an advice to residents of house to observe 'Dry day' once a week. In almost all the wards of the village, open drainage system was present in addition to indiscriminate waste water disposal in slum areas resulting in heavy mosquito nuisance. Insecticide 'Temephos' was added in all breeding places.

The team members visited the PHC Aanji and discussed the recovery of the patients that were screened, attended in PHC. A review was taken about the screening, surveillance, monitoring activities done by health staff. A discussion was also made with the Serpanch, Gram sevak regarding the health and sanitation problems existing in the village, prevention and control measures for such vector borne viral illness and an advice was given to promote community participation.

Following decisions were taken:

1. All cement water storage tanks to be cleaned up immediately to destroy larvae.
2. All ditches with waste water collection to be leveled up.
3. Use mosquito net. Apply oil or repellent to prevent mosquito biting.
4. All fever cases to be reported immediately to PHC.
5. Fogging of insecticides to be done every alternate day for at least 10 days.

References

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