

An Insight Investigation of Dengue Fever Outbreak in Pondicherry

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Abstract- Background: Dengue fever is one of the major health problem and leads to death in few cases. It is an emerging disease of tropical and sub-tropical regions, affecting urban and semi urban areas. Eight cases of dengue fever were reported to our hospital from semi urban area of Pondicherry, so an insight investigation was carried out. **Aims & objectives:** To find out the numbers and details of people affected by fever during the outbreak period and to find the environmental factors. **Methodology:** Community based, cross sectional, direct interviewing of community using pretested questionnaire in Kudapakkam and Agaram villages in Pondicherry in the first week of November 2012. History of fever and other details since last 3 months was collected at the time of interviewing. **Results:** In this study 192 number of fever cases were found in 2721 population in 632 number of houses. There were 8 confirmed cases of dengue fever, no deaths or serious complications were reported during this outbreak. Sixty five percent of fever cases were in the age group 1-30 years and the median duration of fever was 3 days (1-20 days). Daily wagers were affected more than other occupations. At least one fever case was present in 111 houses. Breeding places for mosquitoes were observed surrounding the houses of fever cases. **Conclusion:** The prevalence of fever during the period of investigation was 70 per 1000 population. There was no serious complicated dengue fever or death.

Index Terms- Community based, Dengue, Fever, Outbreak, Prevalence,

I. INTRODUCTION

In recent times Dengue fever is getting attention in medical and social fields in developing countries especially in South East Asia. An estimated 50 million Dengue infection occurs annually and nearly 2.5 billion people living in Dengue endemic countries[1]. According to WHO, nearly 75% of global burden of dengue fever are in south east regions and western pacific region[1,2]. Dengue fever inflicts significant health, economic and social burden on the population in these countries. Dengue fever epidemics or outbreaks are reported either cyclical or periodical manner in most of the states in India. Even though the nature of clinical manifestations of Dengue fever varies from fever, shock, hemorrhage and death as case fatality rate of 10-15%, the exact nature of this disease is not well known[2].

Among the strongly suspected Dengue fever cases, it was found to be serologically positive for Dengue viral antigens in 40% of inpatients[3]. Dengue fever outbreaks may happen two or more times in the same geographical area in the same year. This emerging disease in India extending from urban area to semi urban and rural areas. The occurrence of fever while Dengue fever outbreak will create panic among patients and the family members because of uncertain course of clinical manifestation of Dengue fever. The possibility of viral infections other than Dengue fever is higher in number during outbreaks and the number of such studies and details availability are few in number. This study was conducted with an objective to find out the number of fever cases during the outbreak period and presence of favorable environmental factors.

II. METHODOLOGY

This is a community based, cross sectional, investigative study by using pretested questionnaire done in Kudapakkam and Agaram village of Pondicherry during the period between August and October 2012. Four cases confirmed Dengue Fever in first week of August and another 4 cases in the month of September 2012 were reported in the tertiary care hospital of Sri Lakshmi Narayana Institute of Medical Science, Pondicherry. These cases were traced to two villages as mentioned above and the details about the episode of fever in this population since August to October 2012 was planned to collect in the first week of November 2012. House to house survey was done in 632 houses comprising of 2721 population by directly interviewing cases, care taker, parents or guardian. Data regarding the age, sex, education, occupation, economic status, history of fever, laboratory investigations, hospitalization, verification of available reports on diagnosis and treatment, mosquitoes breeding places etc. were collected on the pretested questionnaire from each patient. Simultaneously health education about disposal of materials having the sources for vector of Dengue Fever is given to the community. The spot map was prepared to localize the fever cases and environmental factors regarding mosquitoes breeding places.

III. RESULTS AND DISCUSSIONS

There were 192 fever cases in 2721 population during the period August 2012 to October 2012. There were 8 confirmed

cases of dengue fever, 3 typhoid cases, 10 ARI cases and 4 UTI cases. The prevalence of fever was 70 per 1000 population during this 3 months period.

Table 1: Description of fever cases according to age and sex

Age group in years	Population in number	H/o present N (%)	Male		Female	
			Total	Fever cases N (%)	Total	Fever cases N (%)
1-15	699	75 (10.7)	355	33 (9.3)	344	42 (12.2)
16-30	852	51 (6)	385	16 (4.2)	467	35 (7.5)
31-45	623	42 (6.7)	330	23 (7)	293	19 (6.5)
46-60	377	17 (4.5)	181	04 (2.2)	196	13 (6.6)
≥61	170	07 (4.2)	87	02 (2.4)	83	05 (6.1)
Total	2721	192 (7)	1338	78 (5.8)	1383	114 (8.2)

Table 1 shows majority of fever cases were in the age group of less than 46 years accounting for 87.5% (168 cases out of 192 cases). There were 114 cases of fever among female population and the prevalence of fever was 12.2% in the age

group of less than 16 years. Fever cases in the age group of economically productive life were observed to be 110(5.9%). It is a common observation that people aged less than 30 years are affected elsewhere[4,6]

Table 2: Distribution of number of fever cases according to occupation

Occupation	Population in number	H/o present N (%)	Male		Female	
			Total	Fever cases N (%)	Total	Fever cases N (%)
Daily wages	595	41 (6.9)	450	26 (5.8)	145	15 (10.3)
Salary	277	08 (2.9)	242	06 (2.5)	35	02 (5.7)
Business	55	00 (0)	50	00 (0)	05	00 (0)
Dependents	1794	143 (8)	596	46 (7.7)	1198	97 (8.1)
Total	2721	192 (7)	1338	78 (5.8)	1383	114 (8.2)

*Dependents include Home makers, Students, Old age & others.

Table 2 shows nearly 25% of the cases were daily wagers and 10% was the prevalence of fever among females in this study, 48% of the female dependents were children below 16 years and 40% were house wives. Among the dependents, 5.3%

and 7.3% of home makers and students were having history of fever respectively. Twenty percent of fever cases were observed in children less than 6 years.

Table 3: Distribution of number of fever cases according to family size

Family size in number	Population in number	Number of houses	H/o Fever present	Number of cases per house				
				1	2	3	4	5
≤ 3	407	161	30	21	3	1	0	0
4	872	218	70	40	12	2	0	0
5	720	144	42	29	5	1	0	0
6	432	72	34	13	5	2	0	1
≥ 7	290	37	16	8	2	0	1	0
Total	2721	632	192					

Table 3 shows, Out of 632 houses, 111(17%) houses had at least 1 fever case per house. Two fever cases per houses in 27 houses and 3 cases per house in 6 houses. The median duration of the fever cases in this study was 3 days (range 1-20 days).

Discarded tyre, coconut shells, flower vases, uncovered barrels and buckets, and house hold water storage vessels were containing mosquito larvae in and around the patient houses in these two villages. Similarly it is a common source in other places[5,6].

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