

Short Communication

Risk Factors involved in the transmission of Dengue/DHF in some selected localities of Jaipur (Rajasthan), India

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In India Dengue/Dengue Haemorrhagic Fever (DF/DHF) has been endemic in 18 states and U.T.s of the country. During 1996, a total of 16517 cases and 545 deaths were reported in the country with a major out break in Delhi.¹ No case was reported from Rajasthan during that year. Scattered cases and deaths due to dengue were reported from Rajasthan from 1997 to 1999. Again, no case/death was reported during 2000.

During the year 2001, a total of 1452 cases and 35 deaths due to dengue were reported from 21 districts of Rajasthan. But, 963 cases and 16 deaths were reported from Jaipur alone. Thereafter, cases declined every year in Rajasthan and Jaipur too. During the year 2006 again an out break of Dengue occurred in Rajasthan with 1806 cases and 26 deaths including 365 cases and 4 deaths in Jaipur (NVBDCP reports).

Keeping in view of the regular reporting of dengue cases and deaths in Jaipur, an entomological survey for dengue/DHF vectors was undertaken during May 2007 in six selected sentinel localities of Jaipur city, viz., Old Vidhyadhar Nagar, Vidhyadhar Nagar Sector-8, Shastri Nagar, Hassanpura Railway colony, Madho Bihari Colony and Swami Basti to assess the risk factors involved

in the transmission of dengue/DHF and to suggest appropriate control strategy.

House to house larval survey was done using single larva technique.² Larva Collected were reared in the laboratory for species identification and for detection of Dengue virus by antigen capture enzyme immuno-assay (ELISA). The data was processed and entomological indices were calculated.

In all the localities there was shortage of water. Hence, each house maintained cement tank(s) or underground tank(s) for storing water. During summer, use of cooler is a common practice which act as a potential breeding sources for *Aedes* breeding. A total of 150 houses were searched and 73 were found to be positive for *Aedes* breeding thereby giving the house index as 48.6%. The house index, container index and breteau index recorded were; in Old Vidhyadhar Nagar 40%, 18.1% & 40, Shastri Nagar 52%, 20% & 72, Hassanpura Railway colony 40%, 20% & 52, Madho Bihari Colony 53.3%, 35.4% & 73.3 Swami Basti 60%, 50% & 70 and Vidhyadhar Nagar, Sector-8, 40%, 34% & 50 (Table 1).

Similarly, out of 325 containers searched for *Aedes* breeding 93 were found to be positive for *Aedes* breeding thereby giving the container index as 28.6%. (Table 1).

Table 1 : House, container and Breteau Index recorded in different localities of Jaipur

Name of Locality	HOUSE INDEX			CONTAINER INDEX			BRETEAU INDEX
	HS	+VE	HI	CS	+VE	CI	
Old Vidhyadhar Nagar	10	4	40%	22	4	18.1%	40
Shastri Nagar	25	13	52%	90	18	20%	72
Hassanpura Rly. Colony	25	10	40%	65	13	20%	52
Madho Bihari Colony	30	16	53.3%	62	22	35.4%	73.3
Swami Basti	30	18	60%	42	21	50%	70
Vidhyadhar Nagar Sec-8	30	12	40%	44	15	34%	50
TOTAL	150	73	48.6%	325	93	28.6%	62

HS= House searched, HI= House index, CS= Containers searched, CI= Container Index

Of 325 wet receptacle examined during the survey, 39.38% (i.e. Nos. 128) were cement tanks, followed by Coolers 98 (30.15%), Plastic 50 (15.38%) and Clay Jars 49 (15.08%) (Table 2). Out of the total 93 containers found positive for *Aedes* breeding Cement tanks were 54.84% and Coolers 45.16% (Table 2).

Results revealed that in all the localities House and Breteau Index were above the critical index of 10% and 50 respectively. It is

worth mentioning here that these indices were recorded in the pre monsoon period i.e. May, 2007, which may increase manifold in post monsoon period thereby increasing the vulnerability of each locality many times for Dengue/DHF transmission. The mosquitoes emerged from each locality were tested for virus antigen detection by ELISA. Mosquitoes collected from Vidhyadhar Nagar were found to be ELISA positive.

Table 2 : Container Positivity in different localities of Jaipur

Name of Locality	Container							
	Coolers		Plastic drums		Clay Jar		Cement tanks	
	S	P	S	P	S	P	S	P
Old Vidhyadhar Nagar	4	1	1	0	4	0	13	3
Shastri Nagar	23	11	22	0	28	0	17	7
Hassanpura Rly. Colony	22	4	14	0	8	0	21	9
Madho Bihari Colony	23	13	11	0	2	0	26	9
Swami Basti	2	0	0	0	2	0	38	21
Vidhyadhar Nagar Sec-8	24	13	2	0	5	0	13	2
TOTAL	98	42	50	0	49	0	128	51

S = Searched

P = Positive

With high average wet container per house (2.0), positive container per house (0.6), positive container per infested house (1.0) and infected mosquitoes, repeated outbreaks of dengue looms large in Jaipur city. Under these circumstances, IEC activities regarding source reduction is “the must” activity.

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