

## SHORT COMMUNICATION

# TREND OF DENGUE IN A TERTIARY CARE HOSPITAL OF BAREILLY, WESTERN UTTAR PRADESH

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### Abstract

**Background:** Dengue is the most common mosquito born viral infection and major public health problem worldwide. Despite increased public awareness and ongoing national vector control program its incidence has risen markedly in India. Data regarding incidence of Dengue cases in western Uttar Pradesh is scarce and the vector density is high so this study was undertaken. **Objectives:** To assess the incidence of confirmed Dengue cases and to identify its associated clinical manifestations in a tertiary care hospital of western Uttar Pradesh. **Materials and Methods:** An observational record based study was carried in hospitalized patients suspected for Dengue infection in a 750 bedded tertiary care hospital. A detailed clinical history was taken, physical examination was performed and baseline investigations were noted using a predesigned and pretested performa. Dengue cases were diagnosed according to WHO Protocol. **Results:** Of the total 875 cases, majority of them belonged to rural areas (59.8%). Males (70.7%) were higher in proportion. Most of the affected persons were from productive age group. Maximum number of cases was found in the age group 16-30 years (52.1%) followed by 31-45 years (27.0%). Most of the dengue cases occurred during the month of October (67.0%). Fever was present in all cases followed by anaemia (.05%), hemorrhagic manifestations (0.3%), pain abdomen (0.2%) and vomiting and diarrhoea (0.1%). Patients had complications like pneumonia (0.5%), renal failure (0.2%) and pleural effusion (0.1%). **Conclusion:** A high incidence of dengue cases was reported in our hospital based study. Continuous surveillance of dengue infection is essential for early diagnosis and management.

**Key words:** Dengue cases, incidence, tertiary care hospital

### Introduction

Dengue is the most common mosquito born viral infection and major public health problem worldwide. Its global incidence has gone up in the recent decades, with nearly 100 million new

cases of Dengue Fever (DF), Dengue Hemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS) occurring each year and 2.5 billion people living at risk of contracting the infection. (1, 2)

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In India, since the first outbreak in Kolkata reported in early the 1960's, several outbreaks have been reported from other regions of the country. All four serotypes of the virus are circulating, now affecting both urban and rural inhabitants. A major epidemic of Dengue in the late 1990's was reported from Delhi which has further affected other surrounding north Indian plains including the state of Uttar Pradesh.(3, 4)

Besides the increasing frequency of the infection, even the manifestations observed have been varied. Certain common signs and symptoms reported are fever, headache, myalgia, arthralgia, and bleeding manifestations. Most of the people recover without any complication. Complications occur in only a few cases suffering from secondary dengue infection in whom mortality rate is 2.5%, which can be reduced to less than 1% with proper treatment protocol. Fatality is more common in children and young adults. (5, 6)

Despite increased public awareness and ongoing national vector control program its incidence has risen markedly in India. Dengue

infection is also showing an increasing trend, as observed in this part of the country reported only 168 cases in year 2009 but 960 in 2010 and more than 1000 in year 2011.

We therefore studied the incidence of dengue infection and its associated clinical manifestations as well as laboratory findings among hospitalized patients in a tertiary hospital of northern India. It would be beneficial in early recognition and proper management of Dengue infected patients.

### Material and methods

This observational record based study was carried in hospitalized patients suspected for Dengue infection in a 750 bedded tertiary care hospital of western Uttar Pradesh with bed occupancy rate of about 85% between 1st January and 31st December 2010 after taking ethical clearance from the institutional ethical committee. As the data regarding incidence of Dengue cases in western Uttar Pradesh is scarce and the vector density is high so this study was undertaken to assess the incidence of

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confirmed Dengue cases and to identify its associated clinical manifestations.

A detailed clinical history was taken, physical examination was performed and baseline investigations were noted using a predesigned and pretested proforma and verbal consent was taken by the investigator after giving complete information about the objectives of research work.

Dengue cases were diagnosed according to WHO Protocol. (1) For all cases, the rapid IgM-IgG capture ELISA test, which has become the gold standard for the serological diagnosis of dengue fever, was used.

Following operational definition was put to use in the present study: A confirmed dengue fever case was labeled, on isolation of dengue virus from serum after 3-5 days of onset of symptoms or detection of dengue virus specific IgM or IgG in a single serum sample at least 6 days after onset of symptoms.

Data entry and statistical analysis were performed using the Microsoft Excel and SPSS

windows version 14.0 software. Incidence rates were given as percentages.

### Results

Of the total 875 cases, majority of them belonged to rural areas (59.8%). Males (70.7%) were higher in proportion as compared to females (29.3%). Most of the affected persons were from productive age group. Maximum number of cases was found in the age group 16-30 years (52.1%) followed by 31-45 years (27.0%). (Table1)

Most of the dengue cases occurred during the month of October (67.0%). (Table 2)

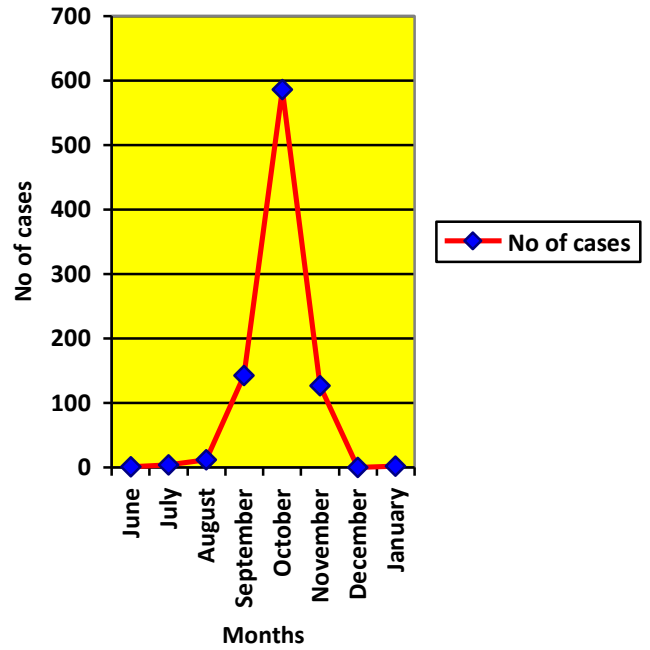
Fever was present in all of the cases followed by anemia (.05%), hemorrhagic manifestations (0.3%), pain abdomen (0.2%) and vomiting and diarrhea (0.1%). Patients had complications like pneumonia (0.5%), renal failure (0.2%) and pleural effusion (0.1%). (Table 3)

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**Table 1: Distribution of dengue cases according to biosocial profile**

Characteristics	Dengue positive cases (n=875)	Percentage
	No.	(%)
<b>Place</b>		
Urban	352	40.2%
Rural	523	59.8%
<b>Age group</b>		
1 – 15 years	57	6.5%
16 – 30 years	456	52.1%
31 – 45 years	236	27.0%
46 – 60 years	108	12.3%
61 – 80 years	18	2.1%
<b>Gender</b>		
Males	619	70.7%
Females	256	29.3%

**Table 2: Month-wise distribution of dengue cases**



**Table 3: Distribution of patients according to clinical presentation**

Clinical features	No. (n=875)	Percentage (%)
Fever	875	100%
Bleeding	3	0.3%
Anemia	5	0.6%
Pain abdomen	2	0.2%
Vomiting	1	0.1%
Diarrhea	1	0.1%
<b>Complications</b>		
Pneumonia	4	0.5%
Renal failure	2	0.2%
Pleural effusion	1	0.1%
Thrombocytopenia	5	0.6%

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### Discussion

The rise of dengue in India can be attributed to rapid population growth, expanding urbanization, inadequate municipal water supplies and difficulties in refuse disposal. Dengue infection has been reported previously from various parts of country. (7-10) Our study reports total 875 cases of dengue during study period.. A higher proportion of the individuals diagnosed with dengue infection belonged to rural areas (59.8%) in our study. Dengue is found in tropical and subtropical regions around the world in urban, semi urban and also in rural areas (11). Outbreaks have been reported previously from rural West Bengal and Maharashtra. (12). In the current study majority of patients were males (70.7%) and aged between 16-30 years of age (52.1%). This can be attributed to male preponderance. Similar observations have been reported by studies conducted in Lucknow, Nagpur and Karnataka and Lahore. (7-13) On the contrary some studies have reported dengue as a paediatric health problem. (14, 15)

Most of the dengue cases occurred during the months of September to October in our study. This period is a peak season for the Dengue every year due to high humidity after rainy season that leads to abundance of breeding sites for mosquito vector. It is favourable season for mosquito breeding and better availability of host for the vector because of less movement of hosts. Similar trends have been observed by studies conducted in Nagpur and Karnataka. (9, 10) Fever was present in all of the dengue cases in this study. Fever was also reported to be the most common presenting symptom in other studies conducted in Maharashtra, Karnataka and Lahore. (10, 13) Although Dengue infection can be identified by its distinct clinical presentation it may present with varied manifestations. (17)

Patients had complications like pneumonia (0.5%), renal failure (0.2%) and pleural effusion (0.1%). Similar observations have been reported in the Karnataka study. (11)

Limitation: As our study was a hospital based work hence we assessed the clinical and

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epidemiological profile of the reported cases only but not of all the cases which would have occurred in the particular area. Continuous surveillance of dengue infection is essential for early diagnosis and management.

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