



Original Research Article

Comparative evaluation of seasonal fevers in last 2 years at a tertiary care hospital in North India

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ABSTRACT

Keywords

Febrile illness, Dengue, Malaria, Scrub Typhus

Febrile illness is the most common public health problem affecting most of the people in developing world where sanitary conditions remain poor. Among febrile illnesses, malaria, and dengue fever are leading causes of illness in the Indian subcontinent. Recent reports from India and other neighbouring countries suggest that there is a resurgence of scrub typhus infection in these parts of the world and that the resurgence is associated with considerable morbidity and mortality. Nevertheless, there are only a limited number of studies from India reporting on the aetiology of fever, and reliable surveillance data are not available [2]. A better insight in the epidemiology of febrile diseases will be helpful in order to target clinical work up and treatment.

Introduction

Febrile illness is the most common public health problem affecting most of the people in developing world where sanitary conditions remain poor. Among febrile illnesses, malaria, and dengue fever are leading causes of illness in the Indian subcontinent. Recent reports from India and other neighbouring countries suggest that there is a resurgence of scrub typhus infection in these parts of the world and that the resurgence is associated with considerable morbidity and mortality [1]. Nevertheless, there are only a limited number of studies from India reporting on the aetiology of fever, and reliable surveillance data are not available [2].

A better insight in the epidemiology of febrile diseases will be helpful in order to target clinical work up and treatment. Therefore, this study was done to evaluate the incidence and the trend of different seasonal fevers in last 2 years at a tertiary care hospital in North India.

To describe the current situation of these diseases in Rajasthan we have collected two year data (Jan 2012 to Dec 2013) from Microbiology department of our hospital for blood samples subjected to testing for malaria, dengue and scrub typhus and evaluated it for the seasonal pattern.

The results showed that both dengue and malaria follow the same seasonal pattern in both years with increased incidence of scrub typhus (24% in 2012 to 35.23% in 2013) and dengue (47% in 2012 to 56% in 2013) in this year [Table 1 & Fig. 1 respectively]. Although scrub typhus is known to occur all over India, including Southern India [3] and Northern India [4] but recent increase in cases may be related to higher rainfall favouring overflow of sewer lines and overgrowth of scrub grass required for laying eggs of mite and transmission of scrub typhus. Scrub typhus is grossly under-diagnosed in India because of its nonspecific presentation, low index of suspicion and the paucity of confirmatory diagnostic resources [1].

Total numbers of dengue cases are also increased this year (52%) in comparison to 2012 (47%) with the greatest number of cases seen in October and November. Climate has a vital role in the spread of dengue fever as the Indian subcontinent is located in a region where there is a very long annual monsoon period

from July to September. During these months pools of stagnant rainy water provide *Aedes aegypti* maximum breeding places while the humid environment and steady mid 30°C temperature also contribute to the increasing vector population.

Malaria is another common febrile illness in tropical and sub-tropical regions of the world. It spreads in 107 countries and territories, subtropical regions of five continents. In 2005, it was estimated that some 3.2 billion people lived in areas at risk of malaria transmission and 350-500 million people suffer from clinical malaria annually, causing about two million deaths each year [5]. Malaria is known to be severely underreported and insufficiently controlled in India [2,6]. Malaria prevalence in South India has been reported to be low compared with states in North-East India [7].

In this study we found that June-July is the peak season for malaria with a prevalence of 16% in 2012 and 10.43% in 2013 [Fig 2]. *Plasmodium vivax* was the major culprit.

Table.1 Data of Scrub Typhus cases in 2012-2013

Year 2012	Total Cases	Positive cases	Percentage
*September	30	11	36.66
October	119	27	22.68
November	14	2	14.28
December	03	0	0
Total cases in 2012	166	40	24
Year 2013	Total Cases	Positive cases	Percentage
*August	45	21	46.66
September	205	90	43.90
October	112	25	22.32
November	55	12	21.81
December	03	00	0
Total cases in 2013	420	148	35.23

* Cases start coming from September 2012 and August 2013

Fig.1 Seasonal trend of Dengue fever

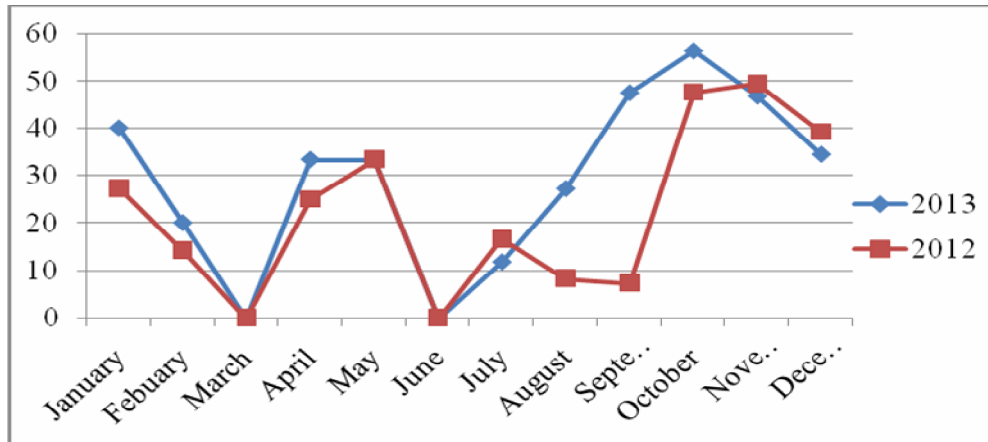
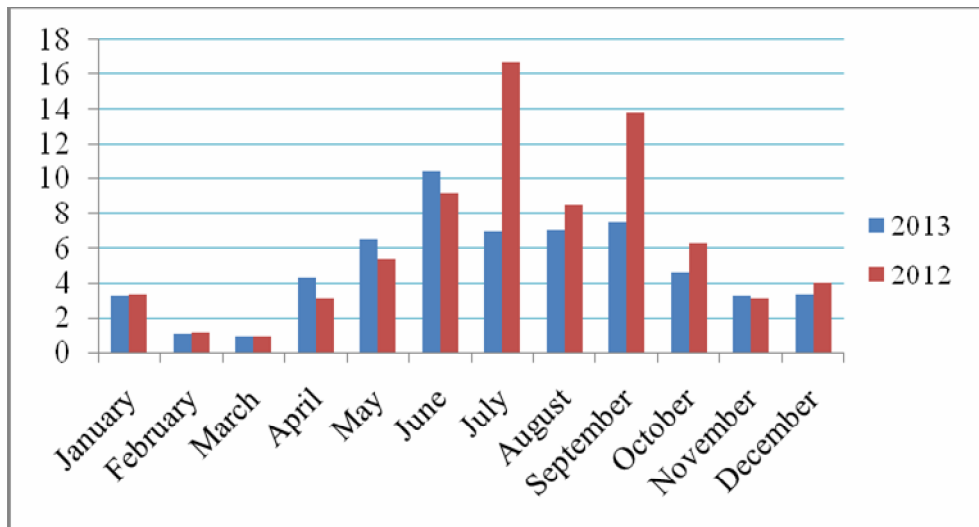


Fig.2 Seasonal trend of Malaria fever



To our knowledge it was the first systematic attempt of this kind to describe the major seasonal illness in North India region. More studies are required to evaluate the factors related to variation in prevalence of seasonal febrile illnesses. This study also indicates the need of more effective anti-vector campaigns in high vector density areas before and during the monsoon season. A number of public awareness campaigns should be launched involving print and electronic media.

References

1. Issac R, Varghese GM, Mathai E, Manjula J and Joseph I. Scrub Typhus: Prevalence and Diagnostic Issues in Rural Southern India. *Clin Infect Dis.* 2004; 39 (9):1395-6.
2. John TJ, Dandona L, Sharma VP, Kakkar M. Continuing challenge of infectious diseases in India. *Lancet* 2011; 377(9761):252-269.
3. Mathai E, Lloyd G, Cherian E et al. Serological evidence for the

- continued presence of human rickettsioses in southern India. *Annals of Tropical Medicine and Parasitology* 2001; 9: 395-98.
4. Sharma A, Mahajan S, Gupta ML, Kanga A and Sharma V. Investigation of an Outbreak of Scrub Typhus in the Himalayan Region of India. *Jpn J Infect Dis.* 2005; 58: 208-10.
 5. WHO/RMB/UNICEF (2005). World Malaria Report 2005. Geneva: World Health Organisation
 6. Dhingra N, Jha P, Sharma VP, Cohen AA, Jotkar RM, Rodriguez PS, Bassani DG, Suraweera W, Laxminarayan R, Peto R: Adult and child malaria mortality in India: a nationally representative mortality survey. *Lancet* 2010, 376(9754):1768-1774.
 7. Kumar A, Valecha N, Jain T, Dash AP: Burden of malaria in India: retrospective and prospective view. *Am J Trop Med Hyg* 2007, 77(6 Suppl):69-78.