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THE ETIOLOGICAL SPECTRUM OF AUFI (ACUTE UNDIFFERENTIATED FEBRILE ILLNESS) IN A TERTIARY CARE CENTRE

Medicine

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ABSTRACT

In today's world the high prevalence of local individual diseases makes the prioritization of the differential diagnoses of a clinical syndrome of acute undifferentiated febrile illness (AUFI) necessary. So the present study was planned to detect the spectrum of etiology of AUFI prevalent at our tertiary care centre. The clinical data and serological test reports of the AUFI cases treated at our hospital in the past 6 years (2011-2016) were included in the study. The commonest cause of AUFI was Typhoid fever (16%). This was followed by Dengue (8%). The Leptospirosis (14%), Scrub typhus (21%) are emerging infections on the rise, which needs to be on the clinicians' mind while diagnosing AUFI at our tertiary care centre. The prevalence of Chikungunya viral fever (3%) is on the decline . On analysis of the available data for three years an increase in both the number of patients tested for Scrub typhus and number of positive samples were found. Leptospirosis also showed a similar trend like Scrub typhus. This signifies that more of testing is necessary to rule out Scrub typhus and Leptospirosis among AUFI cases. One factor which needs highlight is the incidence of dengue cases is still observed throughout the year in contrast to the incidence of Chikungunya cases which is on the decline. This study highlights the need for further research to look for the factors aiding the survival of Dengue, and also the role of vaccination in the eradication of Dengue.

KEYWORDS

AUFI, Dengue, Scrub typhus, Leptospirosis, Chikungunya

Fever is a common presenting complaint in the developing world**.** Every year different parts of India are hit by seasonal fevers especially during the monsoon and post monsoon period between June to September. In the tropics these fevers include Dengue, Malaria, Scrub Typhus, Leptospirosis, Typhoid, influenza as mentioned by susilawati et al (2014) and some other fevers leading to very high morbidity and mortality. But the exact burden of each infection varies from region to region. Due to high prevalence of local individual diseases the prioritization of the differential diagnoses of a clinical syndrome of acute undifferentiated febrile illness (AUFI) is needed.

AUFI is defined as acute onset of fever (fever more than 38 degree Celsius lasting for less than 2 weeks) and no cause found after full history and physical examination as defined by Rajnish Joshi, *et al. (*2008). With the non-specific clinical presentation of many infections causing AUFI, the limited clinical microbiology services available in many low-resource areas, very few patients receive an accurate and specific diagnosis , and the relative importance of the various causes of fever remains unknown at the community level. The non specificity of the symptoms and signs apart from posing a diagnostic and therapeutic challenge to the treating physician also leads to irrational use of antibiotics and antimalarials. So the present study was planned to detect the spectrum of etiology of Acute undifferentiated febrile illness (AUFI) prevalent at our tertiary care centre.

OBJECTIVES:

To study the prevalent etiological pattern of AUFI patients at our tertiary care centre in the last 6 years (2011 – 2016) by analysis of data available at the Department of Microbiology.

MATERIALS AND METHODS

- Study design: Retrospective observational study
- Intervention: none
- Study period: 3 months

INCLUSION CRITERIA:

The clinical data and the serological test reports of the patients who had presented with AUFI and had been treated for the same at our tertiary care centre in the past 6 years 2011 -2016 were included.

EXCLUSION CRITERIA:

The data of patients with fever for less than 3 days and with localizing signs like respiratory, urinary, and diarrheal illness were excluded.

The clinical data and the serological test reports of the cases of AUFI treated at our hospital in the past 6 years (2011-2016) were included in the study. The data was obtained from the Nominal registers of Department of Microbiology, at our tertiary care centre. The results were tabulated and analyzed statistically.

Detection of Dengue NS1 Antigen was done using Panbio Kit for early detection of Dengue. Detection of dengue IgM antibody was done by IgM capture ELISA kits obtained from National Institute of Virology, Pune. Chikungunya viral fever was detected by IgM capture ELISA kit obtained from National Institute of Virology, Pune. **Typhoid** Detection of Salmonella antibodies was done by slide agglutination method using Tydal kit from Tulip diagnostics. As for as the **Rickettsial infections,** serological diagnosis was done by IgM ELISA from Nova Lisa. For Detection of **Leptospirosis** IgM antibodies, IgM ELISA kits from Inbios were used.

IMPLICATIONS OF THE PRESENT STUDY:

This study will shed light on the common etiological agents causing AUFI endemic in this geographical area. It will also provide a basic data required to prevent overuse of antibiotics and antimalarials. It will also give the clinicians a glimpse of the prevalence pattern of AUFI at our tertiary care centre in order to increase the suspicion for the emerging etiological agents and to avoid unnecessary testing for the less prevalent agents.

RESULTS:

During the study period from 2011 to 2016, the commonest cause of acute febrile illness was Typhoid fever (16%). This was followed by Dengue (8%). The Leptospirosis (14%), Rickettsial infections (21%) are emerging infections which are on the rise, which needs to be on the clinicians' mind while diagnosing AUFI at our tertiary care centre. The prevalence of Chikungunya viral fever (3%) is on the decline in the AUFI patients attending our tertiary care centre and unnecessary testing for its detection may be avoided.

DISCUSSION:

Early diagnosis of acute febrile illness in the developing tropical countries is the need of the hour. As many clinical features are overlapping and non specific, all these conditions present diagnostic challenges as mentioned by susilawati et al (2014). In the present study period from 2011 to 2016, on analysis of the data the commonest cause of acute febrile illness was Typhoid fever (16%), followed by Dengue (8%). The Leptospirosis (14%), Rickettsial infections (21%) were observed from 2013 to 2016. Chikungunya viral fever constituted for the (3%) of AUFI cases at our tertiary care centre during the study period.

Chrispal *et al.,* (2010) had a similar observation in their study in South India on acute febrile illness where most patients had Dengue, Malaria, Leptospirosis, typhoid. Neelu sree *et al.,* (2015) had also reported Dengue, Malaria, Scrub typhus and Leptospirosis in their study.

The data of the samples tested for Typhoid by Widal test were analysed for the period 2011 to 2016. This showed that typhoid fever cases were detected throughout the study period and was the most common cause of AUFI among the AUFI cases at our tertiary care centre. The prevalence of this infectious disease was consistent throughout the study period. It also highlighted the endemicity of typhoid fever in the geographical regions catered by our tertiary care centre. Therefore a high level of public awareness on sanitation, environmental cleanliness and health education to address these issues is the need of the hour in the neighbouring region**.**

Fig 1. Shows the prevalence of chikungunya during the period 2012 to 2016. The data for Chikungunya IgM ELISA tests of five years duration from 2012 to 2016 only were analysed. There was an increase in the number of samples received for the testing from 2012 to 2014 from 2.7% to 6% .The total number of cases detected also showed an increase during these two years (2012-2014) .However in the following two years 2015 and 2016 a decreasing trend was found both in the number of samples tested and cases detected. Total numberof cases reported were 58 during 2012 to 2016 at our tertiary care centre. Fig 7. shows the monthwise trend of the samples received for chikungunya IgM ELISA testing and the detected chikungunya positive cases in the year 2015. There was a significant decrease in the chikungunya positive cases from 14 to 4 from 2015 to 2016, and after July 2016 no cases were reported from our institution.

The data of Dengue IgM capture ELISA tests done for AUFI cases, during 2011 to 2016 at our tertiary care centre was analysed. The Fig.2 shows the prevalence of Dengue cases in the study period (2011 – 2016). There was an increasing trend observed both in the number of samples tested and the cases detected during the study period with a slight dip during 2014. But after 2014, the cases reported were more in comparison to the number of samples tested in the previous years. Among the 1369 and 1050 samples tested in 2015 and 2016, the number of dengue positives were 302 (22.05%) and 138 (13%) respectively. During the previous years the prevalence was 1.06% (3/281) in 2011, 11.6% (395/3378) in 2012, 4.02% (122/3029) in 2013, 4.5% (84/1858) in 2014. Fig 5and 6 shows the monthwise trend of the samples received for dengue IgM ELISA and the detected dengue positive cases in the year 2015 and 2016 respectively. The current trend of input of samples tested for Dengue IgM ELISA test and the incidence of Dengue cases have been observed throughout the year, but showed a rise during the monsoon and post monsoon period which ranged from July to February of every year.

One factor which needs highlight is the incidence of dengue cases is still observed throughout the year in contrast to the incidence of Chikungunya cases which is on the decline. In spite of many common factors like Aedes egypti , the common vector for both the diseases and the geographical conditions being the same for both the diseases, it is surprising to note the phenomenal difference in the trend of both the diseases.

Fig.3 shows the prevalence of scrub typhus .The data of samples tested for Scrub typhus and the positive cases reported were available only for the recent three years as the testing kits were available only from 2014 at our tertiary care centre. Fig. 4 shows the prevalence of Leptospirosis during the study period. Leptospirosis IgM ELISA was done at our Department of Microbiology from the year 2011 but the data was not available for the year 2012. So the results were analysed for five years to study the prevalence of Leptospirosis. On analysis of the available data an increase in both the number of patients tested for Scrub typhus and number of positives were found. Leptospirosis also showed a similar trend like Scrub typhus. This signifies that more of testing is necessary to rule out Scrub typhus and Leptospirosis among AUFI cases.

CONCLUSION:

The prevalent diseases among the patients with AUFI attending our tertiary care centre showed the incidence of Typhoid was almost 15.77% (993 cases out of 6373 patients) during January 2014 to December 2016.

The incidence of Scrub typhus and Leptospirosis at our tertiary care centre was 20% and 13.55% respectively. However the number of samples tested for these two diseases were less. But this highlights the fact that Scrub typhus and Leptospirosis seem to be emerging causes of AUFI cases attending our tertiary care centre. The study done by Oberoi (8) also reflected the same. Scrub typhus as an entity is not rare in the tropics and should be suspected in patients from endemic areas with a high risk of environmental exposure and who develop high grade fever with or without other symptoms.This study also highlights that clinical suspicion for these two infectious diseases should be in the treating physicians mind for timely diagnosis and treatment. The current trend of Dengue positive cases have been observed throughout the year, but showed a rise during the monsoon and post monsoon period of every year. The prevalence of Chikungunya viral fever (3%) is on the decline in the present study and unnecessary testing for its detection may be avoided. Surprisingly in spite of many common factors for dengue and chikungunya , like the common vector Aedes egypti, the geographical conditions like monsoon, stringent public health measures like frequent fogging, health education ,it is surprising to note the phenomenal difference in the trend of both the diseases. This study highlights the need for further research to look for the factors aiding the survival of Dengue, and also the role of vaccination in eradication of Dengue.

Fig 1. Shows the prevalence of Chikungunya in the period 2012 to 2016

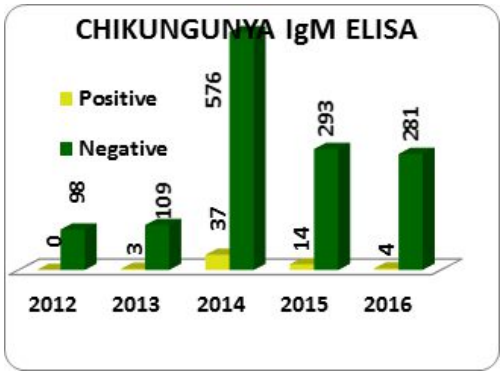


Fig.2 shows the prevalence of Dengue cases during 2011 to 2016

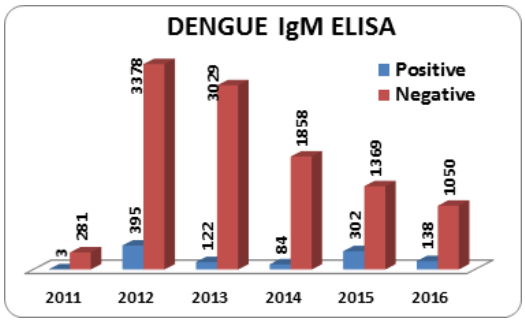


Fig.3 shows the prevalence of scrub typhus

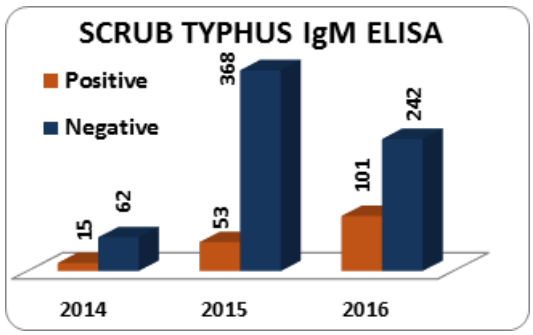


Fig. 4 shows the prevalence of Leptospirosis during the study period

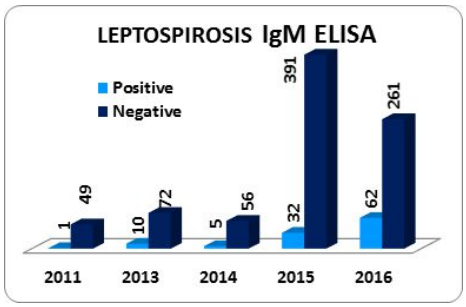


Fig. 5 shows the month wise trend of the samples received for dengue IgM ELISA and the detected dengue positive cases in the year 2015

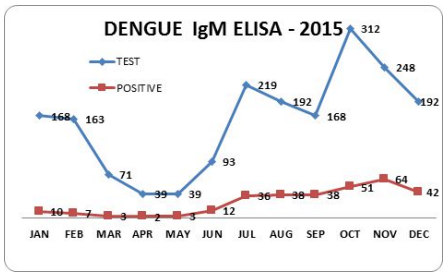


Fig 6 shows the month wise trend of the samples received for dengue IgM ELISA and the detected dengue positive cases in the year 2016

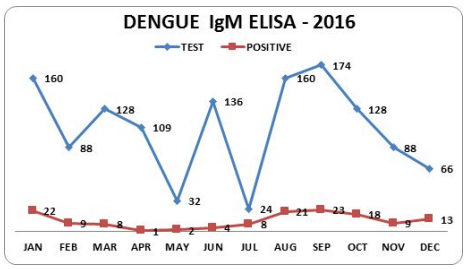
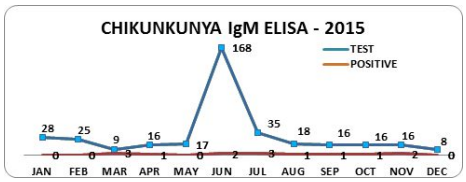


Fig 7. shows the month wise trend of the samples received for chikungunya IgM ELISA and the detected chikungunya positive cases in the year 2015.



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