



A COMPARATIVE FIVE YEAR STUDY OF TRENDS OF MALARIA AND DENGUE FROM A TERTIARY CARE CENTRE IN CENTRAL MUMBAI; INDIA

Medicine

Dr Arundhati Barua*

Associate Professor; Department of Medicine, K.J.Somaiya Medical College and Hospital Sion. *Corresponding Author

Dr Niharika Gill

Professor and Head; Department of Medicine, K.J.Somaiya Medical College and Hospital, Sion; Mumbai.

ABSTRACT

Malaria and Dengue have been the most common vector borne diseases in tropical countries, including India. Dengue has overtaken Malaria as the most common vector borne disease, in recent years. Dengue cases have steadily risen whereas Malaria has shown a significant decline. Dengue cases have shown a steady rise in India, Mumbai particularly. Increased population migration, construction work and conducive environment has led to increased breeding sites. Our study aims to compare the five year trends of Dengue and Malaria. The specific purpose was to analyse the trends, with a view to, contain and reduce mortality and morbidity in both, Dengue specifically, with the lessons learnt. As specific management and vaccine for Dengue is still not available awareness and thus early diagnosis are crucial. Management being largely supportive and with cases on the rise, Dengue trends are particularly important. Malaria with similar presentation and mode of transmission, which has been adequately controlled, is the pivot this study to pave the way for Dengue control.

KEYWORDS

Emerging infections, Dengue, Malaria

INTRODUCTION-

Vector borne diseases are a commonality in Tropical countries. India with its diverse climatic patterns is particularly conducive. Among these, Malaria has been legendary, mentioned also in ancient texts. Recent years have seen Dengue as a close competitor. Interestingly, sheer numbers show a trend towards Dengue overtaking Malaria. Malaria has shown a declining trend. Mumbai, particularly with its increased population migration, extensive ongoing construction work and conducive atmosphere is a witness to this trend. Our study aims to compare these trends over five years. This analysis is with a view to contain and reduce mortality and morbidity in both, Dengue particularly, with the lessons learnt. Due to its increasing numbers, with specific management and vaccine still not available, awareness and early diagnosis is crucial. A comparison with Malaria with similar presentation and mode of transmission, which has been adequately controlled, is the pivot of this study.

MATERIAL AND METHODS-

A retrospective comparative study on five year trends of Dengue and Malaria was carried out. All indoor febrile patients during the period were included. Peripheral smear for Malaria and NS1/IgM for Dengue were the diagnostic tests. Along with routine blood tests, specialized tests where indicated were done. Detailed clinical history and clinical examination was done. Clinical and laboratory parameters were compared, ICU admissions and outcomes too were compared.

RESULTS-

Table-1 Febrile Cases

YEAR	TOTAL FEBRILE CASES	DENGUE CASES- (N/%)	MALARIA CASES(N/%)
2013	352	67/19.03	56/15.90
2014	472	108/22.88	67/14.19
2015	879	149/16.95	129/14.19
2016	1214	369/30.39	135/11.12
2017	1008	239/23.71	97/9.62
2018	1236	436/35.27	185/14.96

Table-2- Comparison Of Lab Parameters

YEAR	> MAL	LFT% DEN	PLT MAL	<10000% DEN	MORTALITY MAL	% DEN
2013	5.35	73.13	3.57	10.44	0	2.98
2014	10.44	85.18	5.97	9.25	4.47	1.85
2015	7.75	69.12	2.32	9.39	0.77	0
2016	8.88	83.73	2.22	4.60	0.74	0.27
2017	7.21	88.28	4.12	6.27	0	0
2018	5.94	86.69	3.24	4.35	1.08	0.22

Of the total febrile cases, percentage of Dengue cases steadily increased during 2013 to 2018 compared to Malaria as above. Transaminitis was notably high in the Dengue group. This group

presented with prominent epigastric distress. Severe thrombocytopenia was present in both, though marginally higher in the Dengue group. Mortality was comparatively less in the Dengue group despite increasing numbers.

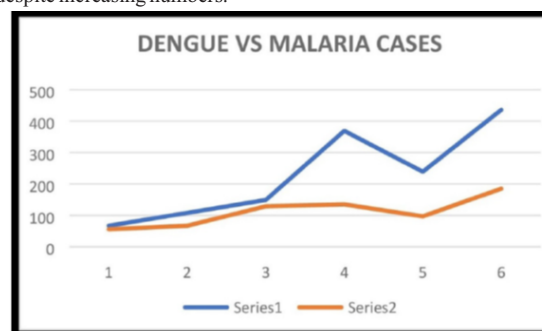


Fig. 1

FIG-1

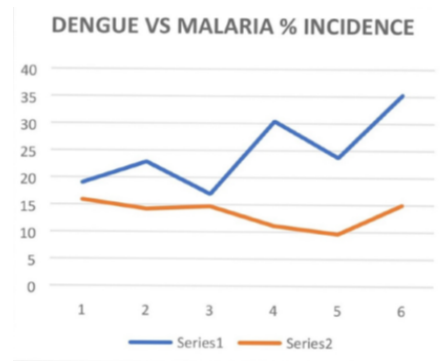


Fig. 2

FIG-2 DISCUSSION-

Dengue and Malaria rank among the most common vector borne diseases in the Tropics, including India¹ Dengue cases have been steadily rising while Malaria has shown a decline² Recent trends in Dengue confirm the same. The incidence of Dengue has increased 30 fold over the last 50 years³ Seasonal variation was notable on analysing the data. Maximum cases coincided with the monsoon and post monsoon season. This was similar to studies in India and Vietnam. As the incidence and timing can be foreseen, this can be utilised in tackling the infections. Public education and awareness can be reinforced particularly during these times.⁴

Both Malaria and Dengue present with similar symptoms. Transaminitis with consequent epigastric distress has been a universal trend in Dengue, unlike Malaria. Clinical presentations in Dengue were notable for better recovery and reduced mortality despite increasing numbers. Severe thrombocytopenia, requiring platelet transfusion was significantly more in the Dengue group. Despite this, mortality rates in both the groups were comparable. Increased awareness, reduction in indiscriminate platelet transfusions and thus effective management were contributory.⁵

Malaria is on the decline. Improved and focussed environmental control, along with early diagnosis, uninterrupted drug supply and surveillance have yielded definite results. Unlike Malaria, definite treatment or vaccine is unavailable as of now, for Dengue, thus management strategy has to focus on awareness, early diagnosis and environmental control. Community participation and education is the pivot.⁶

REFERENCES

1. Wiwanitkit V. Concurrent malaria and dengue infection: a brief summary and comment. *Asian Pacific J Trop Biomed*. 2011 Aug 1;1(4):326-7.
<http://dx.doi.org/10.1016/j.ijid.2016.11.367>
2. Chakravarti A, Kumaria R. Eco-epidemiological analysis of dengue infection during an outbreak of dengue fever, India. *Virology* 2005;2:32
3. Lee HS, Nguyen-Viet H, Nam VS, Lee M, Won S, Duc PP, Grace D. Seasonal patterns of dengue fever and associated climate factors in 4 provinces in Vietnam from 1994 to 2013. *BMC infectious diseases*. 2017 Dec;17(1):218
4. Dhanya PR et al. *Int J Res Med Sci*. 2018 Jun;6(6):2111-2115
5. Mohapatra MK, Patra P, Agrawala R. Manifestation and outcome of concurrent malaria and dengue infection. *J Vector Borne Dis* 2012; 49:262-5