



Original Research Article

Dengue hemorrhagic fever and bradycardia

Prashant S. Wagh^{1,*}, Subhash Kashyape², Swati P. Wagh¹¹Shree Children Hospital, Nashik, Maharashtra, India²SMRC, Nashik, Maharashtra, India

ARTICLE INFO

Article history:

Received 14-04-2021

Accepted 22-10-2021

Available online 28-11-2022

Keywords:

Dengue fever

Bradycardia

Hemorrhagic fever

ABSTRACT

Background: The numbers of patients with dengue fever are increasing in the world and affecting the health of society. Overcrowding urbanization and increase in travelling are having a direct impact on the improvement in the numbers of patients. The causes of relative bradycardia like Hypothyroidism, Electrolyte imbalance and structural heart disease were also having a significant impact on the health of the human. The relative importance of immune and neural mechanisms and also any direct cardiac pathology in the aetiology of dengue associated with relative bradycardia.

Materials and Methods: The researcher was conducted from July 2018 to December 2020. The researcher has selected the sample size of 100 patients from tertiary care hospital which was attached to the research institution. Most of the patients were having a history of fever and symptoms like vomiting, joint pain, diarrhoea, abdominal pain and headache.

Results: The analysis of collected data of patients shows that 98 people were having a high fever, 43 were facing issues related to vomiting, 11 patients were having malaise and 12 patients were having body ache. These symptoms have shown that dengue is affecting health and leading to relative bradycardia. The lack of treatment and delay in the care services and support can be life-threatening for the patients.

Discussion: The relative bradycardia is a notable feature among the patients of dengue and affecting the respiratory and heart rate of the patients. However, this condition is reported among the positive dengue IgM/NS patients. The proper investigation of the relative bradycardia situation among the patients is beneficial for the care professional to identify the method of treatment and providing clinical care.

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1. Background

The dengue virus is an arthropod-borne virus that belongs to the family Flaviviridae and genus Flavivirus. This is transmitted through mosquitoes, primarily by *Aedes aegypti*. The major causes of infection of dengue involve DEN-1, DEN-2, DEN-3 and DEN-4. This type of virus is having a spectrum of illness that clinically inform of in-apparent, self-limiting classical fever to life-threatening hemorrhagic fever and shock syndrome. This virus is considered the most common arboviral infections and the

second most important mosquito-borne infection.¹ This disease is predominant in urban, suburban and rural areas and around 50 million people get infected from this and caused 12,000 deaths mainly in children. Moreover, dengue is having the most common occurrence worldwide. Dengue fever is endemic in certain areas of South East Asia like India, Bangladesh, Maldives, Sri Lanka and Thailand. Early recognition and treatment are playing a vital role in managing the health of the population and helping to minimize the death rate.²

In the current scenario, the numbers of patients with dengue fever are increasing in the world and affecting the

* Corresponding author.

E-mail address: prshntwagh@gmail.com (P. S. Wagh).

health of society. Overcrowding urbanization and increase in travelling are having a direct impact on the improvement in the numbers of patients. This disease is affecting the health and economic conditions of human as there is no specific treatment or therapy for dengue infection and the key outcome majorly depends on medical care provided to patients. Apart from this, relative bradycardia has been reported in many infections disease which is a notable and common feature of dengue fever. Relative bradycardia was first reported in Singapore in 2005.³ The lack of awareness and information related to prevention method from dengue is having a significant impact on the health and increasing the numbers of dengue fever relative to bradycardia. According to analysis, dengue fever may adversely affect cardiac functions and influence the heart rate. Different mechanisms have been used for managing this disease but the lack of specific treatment options is influencing the rate of infection. The relative importance of immune and neural mechanisms and also any direct cardiac pathology in the aetiology of dengue associated with relative bradycardia.

The causes of relative bradycardia like Hypothyroidism, Electrolyte imbalance and structural heart disease were also having a significant impact on the health of the human. The platelet count of patients is decreasing during the fever and it directly affects the heart rate and diet of the individual.⁴ Therefore, it can be considered that dengue is one of the major causes of relative bradycardia. However, often patients get recover from this without specific treatment but lack of proper care and management of the situation lead to the death of the patient. A combination of relative bradycardia and dengue shock can be life-threatening and affect the health conditions of the patients. The medical organizations and health care professionals in this field are looking for the early recognition of dengue can help reduce the illness and death associated with the dengue virus infection.⁵ Different types of clinical features have been used for the initial assessment of patients that are helping to maintain the resources and planning of the treatment. Relatively, bradycardia has been reported in many infections disease that includes the typhoid fever, psittacosis, typhus, leptospirosis, malaria and babesiosis. An increase in disease burden has been linked to the resurgence of mosquito vector *Aedes aegypti*, overcoming urbanization and increasing travel. The disease is having a significant economic impact on the people and country as the government is investing a high amount for the improvement in the infrastructure for treatment and minimizing the infection. The hemorrhagic fever of dengue is one of the major issues for the patients that involve the risks factors like being under the age of 12 years, being female, weakened immunity system.⁶

To prevent patients from dengue fever, there is various precaution measures have been suggested to people. These protection methods involve avoid going in heavily populated

areas, use of mosquito repellent indoor and outdoor, use of air-conditions instead of opening windows and wear long-sleeved shirts.⁷ There are different types of vaccine and treatment methods used for protecting people from disease. The people also required to follow the guidelines of medical authority for minimizing the impact of dengue and controlling the risk of developing severe dengue. The measures that could be followed by the people involve preventing dehydration as it helps to replace fluids and menials.⁸

2. Aim

The study analyzes the impact and treatment of Dengue hemorrhagic fever and bradycardia.

3. Materials and Methods

The study was undertaken by the Department of Medicine, tertiary care hospital. The researcher was conducted from July 2018 to December 2020. The researcher has selected the sample size of 100 patients from tertiary care hospital, which was attached to the research institution.

3.1. Inclusion criteria

1. Most of the patients were having a history of fever and symptoms like vomiting, joint pain, diarrhoea, abdominal pain and headache.
2. All patients were found positive with dengue IgM/NS.

3.2. Exclusion criteria

1. All the patients with the negative report of IgM/NS
2. All the patients who are having a normal range of following
3. Heart rate
4. Blood pressure
5. Temperature
6. Breath sound
7. Respiratory rate

4. Results

The results of the study have involved different outcome based on the observation of the patients suffering from dengue. The analysis of collected data of patients shows that 98 people were having a high fever, 43 were facing issues related to vomiting, 11 patients were having malaise and 12 patients were having body ache. These symptoms have shown that dengue is affecting health and leading to relative bradycardia. The lack of treatment and delay in the care services and support can be life-threatening for the patients. However, the care professional has provided the required support and care to these patients that have helped in recovery and improved the immune system.

Table 1: Symptoms analysis

Symptoms	Cases
Fever	98
Vomiting	43
Malaise	11
Body ache	12
Headache	20
Abdominal pain	18
Joint pain	10
Rashes	3
Diarrhoea	8
Chest pain	1

Table 2: Pulse rate analysis

Pulse rate	Cases
<40	2
41-60	25
61-100	62
>100	11

The pulse rate of dengue patients gets to influence and having a significant impact on health and recovery. The consideration of pulse rate is allowing the care professionals to offer the required treatment and use of technically advanced tools and approaches for managing the health of the patients. The pulse rate observation is providing information related to the respiratory and heart rate count.

Table 3: Platelet count

Platelet count	Cases
<5000	31
50000-100000	36
100000-150000	12
>150000	23

The platelet count is having a significant impact on the body of patient-facing issues related to dengue. The count of platelets started decreasing as the impact of relative bradycardia in dengue. The care professionals regularly check the count of platelet and develop the plan for offering the treatment and supplements to improve the health condition of patients.

5. Discussion

The dengue virus is one of the major causes of death in recent time and influencing the health conditions of people. As per the findings of the study, relative bradycardia is a notable feature among the patients of dengue and affecting the respiratory and heart rate of the patients. However, this condition is reported among the positive dengue IgM/NS patients. The proper investigation of relative bradycardia situation among the patients is beneficial for the care professional to identify the method of treatment and providing clinical care.⁹ As per the views of Matono et

al., (2017), dengue is emerging as a global disease and not having any specific treatment for the patients. The lack of awareness and education about the prevention method and approaches is also increasing the numbers of cases and leading to the death of the patients.¹⁰

According to the study of Virk, Inayat, and Rahman, (2016), dengue is having many social and economic impressions that affecting the lifestyle of the population. The patients are not getting the actual treatment and lack of education and awareness is affecting the health system. However, the government and medical system is having information related to the outbreak and spread of dengue but lack of infrastructure and issues related to lack of cleaning is increasing the threat. As per the findings of the study, relative bradycardia is emerging as major issues due to the outbreak of dengue and not having any specific treatment.¹¹ The cost of treatment is also high that influencing the decisions of patients to get higher treatment facilities to overcome the impact and minimize the death numbers in the country. Therefore, the medical department needs to identify the alternative public health management strategies and treatment options for dengue patients to control and prevent dengue outbreak. Relative bradycardia impact the immune and respiratory system of the human and influence the blood pressure, heart rate and platelet count.¹² Now, to overcome the issues, the patients and care professionals need to get knowledge of prevention methods.

In the current scenario, dengue is the highest and rapidly spreading vector-borne viral disease that influencing the health of people. According to the study, there is a need of improving the public health care system and infrastructure using the advice control techniques. The consideration of middle and lower-income groups for availing the treatment.¹³ The development of cost-effective and environmentally sustainable treatment services can help minimize the spread of dengue. The development of vaccines for all type of patients considering the income of the people will be beneficial for controlling the infection and protecting the people.¹⁴ In addition to this, the promotion of risks factors and awareness about the controlling measures will be beneficial for society to protect the people from this disease. The use of tetravalent dengue vaccine has been most effective so far and having a significant impact on the health of the people. However, the major challenges for individual and medical staff are to understand the precaution measures and planning of the urban lifestyle to maintain health.¹⁵

6. Conclusion

From the study, it can be considered that relative bradycardia is a predominant occurrence in all cases of dengue and having a serious impact on the health of the human. The lack of awareness and complications for diagnosing the disease is increasing the numbers of deaths. In addition to this, the relative bradycardia issue

is not having specific treatment and management which is also affecting the health of patients. The study has provided information related to the symptoms and issues that influence the health of people and affecting the medical and economic conditions of people. The analysis of patients has shown that a large number of people facing critical issues that influence the living condition. Urbanization and lack of control methods and techniques are having a direct impact on the health and spread of viral infection among people.

7. Source of Funding

None.

8. Conflicts of Interest

There is no conflict of interest.

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Author biography

Prashant S. Wagh, Director Lecturer

Subhash Kashyape, Professor

Swati P. Wagh, Tutor

Cite this article: Wagh PS, Kashyape S, Wagh SP. Dengue hemorrhagic fever and bradycardia. *Panacea J Med Sci* 2022;12(3):630-633.