P-ISSN: 2664-3685
E-ISSN: 2664-3693
www.paediatricjournal.com
IJPG 2018; 1(2): 72-75
Received: 12-08-2018
Accepted: 27-08-2018

Dr. Kiran Karthik Veeranki
Assistant Professor, Department of Paediatrics, RVS Institute of Medical Science, Chittore, Andhra Pradesh, India

Dr. Kalyan Kunchapudi
Assistant Professor, Department of Paediatrics, Tagore Medical College, Chennai, Tamil Nadu, India

Correspondence Author;
Dr. Kalyan Kunchapudi
Assistant Professor, Department of Paediatrics, Tagore Medical College, Chennai, Tamil Nadu, India

To comparative study of dengue hemorrhagic and dengue fever in paediatric populations

Dr. Kiran Karthik Veeranki and Dr. Kalyan Kunchapudi

DOI: https://doi.org/10.33545/26643685.2018.v1.i2b.243

Abstract
Background: India has experienced an increase in the number of reported cases of dengue fever or dengue hemorrhagic fever in recent years. The objective of this study was to evaluate the clinical features and outlook of pediatric patients who were hospitalized with dengue shock syndrome or DHF.
Materials and Methods: The research was conducted at the Department of Paediatrics, Tagore Medical College, Chennai, Tamil Nadu, India. The study was conducted between June 2017 to July 2018. The study was characterized by its descriptive nature. The study encompassed all children who were hospitalized to the hospital and diagnosed with dengue infection, utilizing their clinical symptoms and/or serology as diagnostic criteria.
Results: The under-2 and over-2 age groups' mean body weights were 8.38 and 26.78 kg, respectively, suggesting that both groups were in good health. For both groups, the average duration of fever was roughly comparable. For kids under two, the duration was 6.83 days, and for kids older than two, it was 7.30 days. The incidence of symptoms and indicators did not differ significantly between the two groups. There was an increased frequency of cough, redness, and irritation in children under the age of two. Studies have indicated that newborns are more likely than older children to exhibit signs of upper respiratory tract infections.
Conclusion: This study offers further understanding of the clinical presentation of DHF/DSS in both adults and children, which might be advantageous for healthcare professionals who are responsible for the care of these individuals.

Keywords: Dengue fever, hemorrhagic fever, paediatric patients

Introduction
India has known about dengue fever (DF) for a long time, but the first case of dengue hemorrhagic fever (DHF) was found in Calcutta in 1963. Up until 2002, not many cases or deaths of DF/DHF were reported. Of course, there has been a rise in the number of cases since 2003. The death rate has always been higher than 1% over the last ten years [1-3].
In several places of India in the past few years, the dengue virus has been spreading quickly and causing outbreaks. In Northern India, dengue fever outbreaks have recently been following a pattern of happening at regular times of the year and in cycles [2-4]. People who have dengue may have a variety of symptoms, but they can be told apart by certain clinical factors. On many levels, adult and teen shows are very different from each other. There were more cases of DHF I in children than in adults, according to a study. 51% of cases of DHF II were in adults [4-6].
There were more cases of some clinical signs in adult patients, like myalgia, petechiae, melena, headaches, retro-orbital pain, joint pain, nausea, and vomiting. Symptoms that were common in young people included a swollen liver, less urine flow, and nosebleeds [5-7]. Compared to children, adults had higher hemoconcentration, thrombocytopenia, higher alanine aminotransferase, and longer prothrombin time. There are still some things about dengue that we don't fully understand, like how the virus interacts with its host, or how it can cause a wide range of symptoms [6-8]. The study's results show that the clinical and laboratory results seen in babies are in line with the diagnostic factors used in clinical settings.

Materials and Methods
The research was conducted at the Department of Paediatrics, Tagore Medical College, Chennai, Tamil Nadu, India. The study was conducted between June 2017 to July 2018. The study was characterized by its descriptive nature. The study encompassed all children who were hospitalized to the hospital and diagnosed with dengue infection, utilizing their clinical symptoms and/or serology as diagnostic criteria.

Inclusion Criteria
The trial comprised children

Exclusion Criteria
Children with other infections

Results
Throughout the trial, a grand total of 50 children were diagnosed with dengue fever using serological testing. Five patients were removed from the study because they had pre-existing conditions or were infected with both salmonella typhi.

Table 1: Age distribution of research participants

Sr. No.	Age group	Min.	Max.
1.	<2 years	2	25
2.	>2 years	2	20

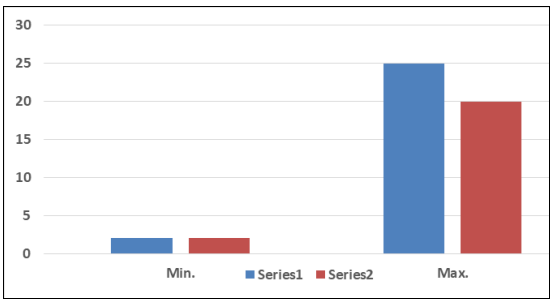

Fig 1: Age range of people who took part in the study

Table and figure 1 indicating the demographic distribution of research participants by age. The median age for dengue infection in those under the age of two was two months.

Table 2: Problems with diet

Sr. No.	Age group	Min	Max
1.	<2 years	10	15.0
2.	>2 years	20	70.0

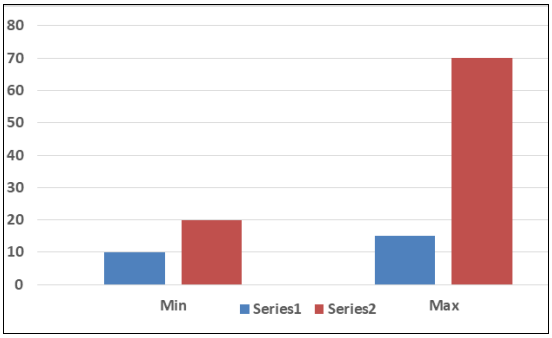

Fig 2: Nutritional state

Table 2 and picture 2 depict the dietary condition of the patients involved in the study. The mean weight of the group aged less than 2 years was 10.0 kg, whereas the mean weight of the group aged beyond 2 years was 24.00 kg.

Table 3: Average length of stay in the hospital

Sr. No.	Age group	Min	Max
1.	<2 years	2	25
2.	>2 years	2	25

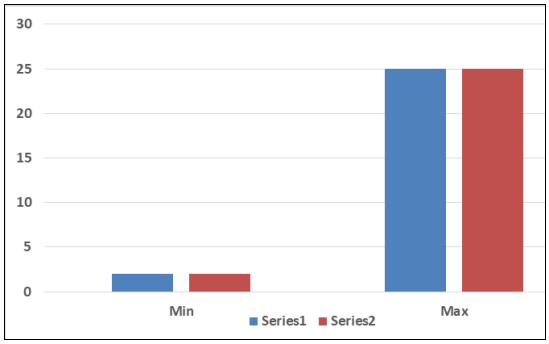

Fig 3: Average hospital stay

The average length of hospital stay for children under the age of two is 3.23 days, which is statistically similar to the average duration of 6.12 days for children older than two, as shown in table and figure 3.

Table 4: Fever duration

Sr. No.	Age group	Min	Max
1.	<2 years	2	15
2.	>2 years	2	35

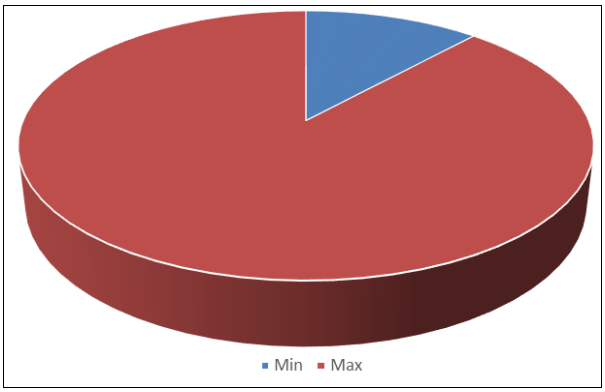

Fig 4: Fever duration

There was no statistically significant difference in the duration of fever between both groups, as shown in table and figure 4.

Discussion
It is possible to classify new borns and older infants into one group based on their shared behaviors. Therefore, we are comparing the experiences of older children with those of younger ones and including infants and toddlers in our research. The average age of the 166 kids who took part in the study was 12 months, and 40 of them were younger than two years old. Within a 5-year period, 245 infants were among the 4,595 confirmed dengue patients admitted to the children's hospital [9-11]. There were 17 cases per 1000 newborns in Bangkok with DHF/DSS in 1964. A recent study conducted in Vietnam, Thailand, Burma, and Indonesia found that the average age of hospitalized patients with Dengue Hemorrhagic Fever was seven months.
The majority of the literature comes from South and Southeast Asian emerging nations. Despite the increased risk of severe disease in infants following a dengue infection, clinical reports and studies frequently overlook this population. In order to find commonalities, this study will compare the clinical profiles and outcomes of children older than two with those of children younger than two [12-14].

Both the under-2 and over-2 age groups had healthy mean body weights of 8.38 and 26.78 kg, respectively. Fever lasted about the same amount of time in both groups on average. Kids younger than 2 years old had a 6.83-day length, while those older than 2 years old had a 7.30-day duration. The occurrence of symptoms and indicators did not differ significantly between the two categories [15-17]. There was an increased incidence of redness, irritation, and cough in children younger than 2 years old. A skin rash was more common in younger children, especially those less than two years old, than in school-aged children. Studies have demonstrated that compared to older children, newborns are more likely to have signs of upper respiratory tract infections [16-18].

In children older than two years old, symptoms like anorexia, diarrhea, and vomiting were more common than in children less than two years old. Contrary to what Prasonk *et al*. found, which was that these symptoms were more common in infants and young children, it was found that older patients had nausea and vomiting more often. Only older children (representing approximately 39.68% of all cases) reported experiencing abdominal pain. Because toddlers can't yet verbalize their pain, we can't draw any comparisons between the two sets of data. Most of the cases of abdominal pain were in older children [17-19].

The study also found that those in the same age range were more likely to experience tachypnoea, which is characterized by a rapid breathing rate. The current study found that 19.0% of older children and 12.50% of babies had malena. Experiencing extra bleeding symptoms such as blood in the vomit, nosebleeds, gums, and periods was more common in children aged 2 to 12. Rarely can severe bleeding in DHF patients cause a decrease in hemoglobin levels or necessitate a blood transfusion. According to our results, none of the kids needed a total blood transplant [18-20].

The prevalence rate of splenomegaly is around 10% and is most commonly seen in neonates, especially those less than 6 months. The 2-year-old group had a higher incidence of organomegaly. While serologically identified dengue in children often leads to liver damage, a South American investigation found that this was not the case as often. Dengue hemorrhagic fever (DHF) was found to have a far higher prevalence of hepatomegaly compared to dengue fever syndrome (DFS) [19-21].

Contrarily, this was established by further examinations. Children less than 2 years old had a higher prevalence of plasma leakage symptoms, including facial edema, ascites, and pleural effusion. Capillary beds in infants are more permeable than in older children or adults. A higher risk of early heart failure and excessive fluid buildup in infants is associated with capillary leak syndrome [20-22]. There were notable differences when the two groups' blood counts were compared. The neutrophil count was lower in children younger than 2 years old, whereas the total white blood cell and lymphocyte counts were higher. The reference ranges may differ between younger and older children for a variety of age-related reasons, which could explain our findings. Normal levels of white blood cells (WBCs) and lymphocytes are higher in newborns than in older children, whereas neutrophils are lower [21-23].

According to the study's analysis of bleeding characteristics, children younger than two years old had significantly higher average partial thromboplastin times than older children. Platelet counts for children older than 2 years old averaged 82387, which did not differ significantly from younger children's average of 84558 [22-24]. Infants had a mean PCV of 30.546 while older children had a mean of 35.826. The average PCV differed significantly between the two categories. Secondary dengue is more common in older children than in neonates, according to serology studies. There was a substantial correlation between infant DHF and primary dengue infections [22, 23].

The incidence of seizures, fulminant hepatitis, and long-term fever was greater in newborns than in older children, according to this study. Acute respiratory distress syndrome has been diagnosed in two children older than two years, and acquired encephalopathy has been diagnosed in one child. The results showed that the mortality rate was greater for babies and toddlers than for older children and toddlers [23].

Conclusion

Different age groups had different dengue symptoms, test indicators, and outcomes. The Indian subcontinent has seen a dramatic increase in dengue fever cases within the last two years. Children under the age of two had an exceptionally high mortality rate, whereas dengue fever was a leading cause of illness for children of all ages. Hepatic dysfunction and fluid overload are more common in infants, and there is a higher case fatality rate overall. The therapy of babies diagnosed with DHF is of utmost importance because of the challenges in early detection and the fact that the symptoms can be occasionally unique.

Funding

None

Conflict of Interest

None

References

1. Carlos CC, Oishi K, Cinco MT, Mapua CA, Inoue S, Cruz DJ, *et al*. Comparison of clinical features and hematologic abnormalities between dengue fever and dengue hemorrhagic fever among children in the Philippines. American Journal of Tropical Medicine and Hygiene. 2005;73(2):435-440.
2. Aggarwal A, Chandra J, Aneja S, Patwari AK, Dutta AK. An epidemic of dengue hemorrhagic fever and dengu shock syndrome in children in Delhi. Indian pediatrics. 1998 Aug 1;35:727-732.
3. Kabra SK, Verma IC, Arora NK, Jain Y, Kalra V. Dengue haemorrhagic fever in children in Delhi. Bulletin of the World Health Organization. 1992;70(1):105.
4. Kalayanarooj S, Nimmannitya S. Clinical presentations of dengue hemorrhagic fever in infants compared to children. Journal of the Medical Association of Thailand Chotmaihet thangphaet. 2003 Aug 1;86:S673-S680.
5. Namvongsa V, Sirivichayakul C, Songsithichok S, Chanthavanich P, Chokejindachai W, Sitcharungsi R. Differences in clinical features between children and adults with dengue hemorrhagic fever/dengue shock syndrome. Southeast Asian J Trop Med Public Health. 2013 Sep 1;44(5):772-779.
6. Cam BV, Fonsmark L, Hue NB, Phuong NT, Poulsen

A, Heegaard ED. Prospective case-control study of encephalopathy in children with dengue hemorrhagic fever. The American journal of tropical medicine and hygiene. 2001 Dec;65(6):848-851.
7. Hung NT, Lei HY, Lan NT, Lin YS, Huang KJ, Lien LB. Dengue hemorrhagic fever in infants: a study of clinical and cytokine profiles. The Journal of infectious diseases. 2004 Jan 15;189(2):221-232.
8. Faridi MM, Aggarwal A, Kumar M, Sarafrazul A. Clinical and biochemical profile of dengue haemorrhagic fever in children in Delhi. Tropical doctor. 2008 Jan;38(1):28-30.
9. Singhi S, Kissoon N, Bansal A. Dengue and dengue hemorrhagic fever: management issues in an intensive care unit. Jornal de pediatria. 2007;83:S22-S35.
10. Bhave S, Rajput C, Bhave S. Clinical profile and outcome of dengue fever and dengue haemorrhagic fever in paediatric age group with special reference to WHO guidelines (2012) on fluid management of dengue fever. Int J Adv Res. 2015;3(4):196-201.
11. Thisyakorn U, Nimmannitya S. Nutritional status of children with dengue hemorrhagic fever. Clinical Infectious Diseases. 1993 Feb 1;16(2):295-297.
12. Siqueira Jr JB, Martelli CM, Coelho GE, da Rocha Simplício AC, Hatch DL. Dengue and dengue hemorrhagic fever, Brazil, 1981–2002. Emerging infectious diseases. 2005 Jan;11(1):48.
13. Laoprasopwattana K, Pruekprasert P, Dissaneewate P, Geater A, Vachvanichsanong P. Outcome of dengue hemorrhagic fever–caused acute kidney injury in Thai children. The Journal of pediatrics. 2010 Aug 1;157(2):303-309.
14. Halstead SB. Dengue and dengue hemorrhagic fever. InHandbook of Zoonoses, Section B 2017 Dec 6 (pp. 89-99). CRC Press.
15. Halstead SB, Lan NT, Myint TT, Shwe TN, Nisalak A, Kalyanarooj S. Dengue hemorrhagic fever in infants: research opportunities ignored. Emerging infectious diseases. 2002 Dec;8(12):1474.
16. Agarwal R, Kapoor S, Nagar R, Misra A, Tandon R, Mathur A. A clinical study of the patients with dengue hemorrhagic fever during the epidemic of 1996 at Lucknow, India. Southeast Asian journal of tropical medicine and public health. 1999;30(4):735-740.
17. Walid SF, Sanusi S, Zawawi MM, Ali RA. A comparison of the pattern of liver involvement in dengue hemorrhagic fever with classic dengue fever. Southeast Asian Journal of Tropical Medicine and Public Health. 2000 Jun 1;31(2):259-263.
18. Tantawichien T. Dengue fever and dengue haemorrhagic fever in adolescents and adults. Paediatrics and international child health. 2012 May 1;32(sup1):22-27.
19. Rigau-Pérez JG, Clark GG, Gubler DJ, Reiter P, Sanders EJ, Vorndam AV. Dengue and dengue haemorrhagic fever. The lancet. 1998 Sep 19;352(9132):971-977.
20. Kabra SK, Jain Y, Singhal T, Ratageri VH. Dengue hemorrhagic fever: clinical manifestations and management. The Indian Journal of Pediatrics. 1999 Jan;66:93-101.
21. Clark DV, Mammen Jr MP, Nisalak A, Puthimethee V, Endy TP. Economic impact of dengue fever/dengue hemorrhagic fever in Thailand at the family and population levels. American Journal of Tropical Medicine and Hygiene. 2005 Jun 1;72(6):786-791.
22. Guilarde AO, Turchi MD, Jr JB, Feres VC, Rocha B, Levi JE. Dengue and dengue hemorrhagic fever among adults: clinical outcomes related to viremia, serotypes, and antibody response. The Journal of infectious Diseases. 2008 Mar 15;197(6):817-824.
23. Ranjit S, Kissoon N. Dengue hemorrhagic fever and shock syndromes. Pediatric critical care medicine. 2011 Jan 1;12(1):90-100.