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Original Research Article

COMPARISON OF CLINICO-LABORATORY PROFILE AND OUTCOME OF DENGUE INFECTION IN INFANTS AND CHILDREN AGED 1–5 YEARS: A HOSPITAL BASED PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Background: Dengue is a major public health problem in tropical countries and remains among the foremost causes of paediatric hospitalization. Clinical manifestations and disease severity vary across different age groups. Infants represent a unique subgroup because of maternal antibody influence and atypical presentations, while older children are more likely to develop severe disease manifestations. The objective is to compare the clinical features, laboratory parameters, and outcomes of dengue infection in infants (<1 year) and children aged 1–5 years admitted to a tertiary care hospital.

Materials and Methods: This prospective observational research was conducted at a tertiary care hospital. A total of 90 children with serologically established dengue infection were included, comprising 30 infants and 60 children aged 1–5 years. Clinical features, laboratory parameters, difficulties, also outcomes were recorded and compared between the two groups. Statistical analysis was achieved by IBM SPSS Statistics Version 22.0, and $p < 0.05$ was measured statistically significant.

Results: Fever was the most common presenting symptom in both groups. Infants showed a significantly higher prevalence of loose stools (40% vs 8.3%, $p<0.001$), whereas older children had significantly higher rates of epistaxis (23.3% vs 3.3%, $p=0.016$) and conjunctival bleeding (16.7% vs 0%, $p=0.027$). Older children demonstrated significantly higher haematocrit levels at admission, lower minimum platelet counts, higher incidence of severe thrombocytopenia, and lower serum albumin levels. Complications such as dengue shock syndrome and dengue haemorrhagic fever were significantly more common in older children. Additionally, older children required longer hospital stay and more frequent blood transfusions.

Conclusion: Dengue infection exhibits distinct clinico-laboratory profiles between infants and older children. Older children tend to have more acute disease with greater complications, while infants often present with atypical features. Early recognition of age-specific patterns is essential for timely management and improved outcomes.

Keywords: Dengue, Infants, Thrombocytopenia, Haematocrit, Paediatric Outcomes.

INTRODUCTION

Dengue is among the most significant mosquito-borne viral infections worldwide and has occurred as a main public health challenge, mainly in tropical and subtropical countries. The disease is caused through the dengue virus (DENV), a single-stranded RNA virus belonging to the genus Flavivirus, family Flaviviridae. Four antigenically distinct serotypes (DENV-1, DENV-2, DENV-3, and DENV-4)

circulate globally, and contagion with one serotype affords lifelong immunity only in contradiction of that specific serotype, while subsequent contagion with another serotype upsurges the risk of severe disease because of antibody-dependent enhancement (ADE).[1,2] Dengue is transmitted primarily by "Aedes aegypti mosquitoes, with Aedes albopictus serving as an additional vector in many endemic regions. Rapid urbanization, climate change, populace development, globalization, and inadequate vector control have contributed to the increasing incidence and geographical spread of dengue over recent decades.[3]

The World Health Organization approximations that roughly 390 million dengue contagions ensue annually worldwide, of which nearly 100 million become clinically apparent. Nearly half of the global population now lives in areas at danger of dengue infection, making it one of the fastest-growing arboviral diseases worldwide. India is considered a hyperendemic country where all four dengue virus serotypes co-circulate, resulting in frequent outbreaks and a substantial burden of pediatric morbidity and mortality.[3,4] Seasonal epidemics occur mainly throughout and after the monsoon period, placing enormous pressure on healthcare systems and pediatric intensive care services.

The clinical spectrum of dengue contagion ranges from asymptomatic contagion and undifferentiated febrile illness to severe dengue characterized by plasma leakage, hemorrhage, organ dysfunction, and shock. The revised WHO organization categorizes dengue into dengue without warning signs, dengue with warning signs, also severe dengue to facilitate early identification and appropriate management.[3] Common manifestations include high-grade fever, vomiting, rash, myalgia, abdominal pain, hepatomegaly, thrombocytopenia, leukopenia, and elevated liver enzymes. Severe disease is connected with augmented vascular permeability, hemoconcentration, coagulopathy, bleeding manifestations, and dengue shock syndrome, which significantly increase mortality if not recognized and treated promptly.[5,6]

Children constitute among the most vulnerable populations affected by dengue infection. However, the clinical appearances also severity differ considerably according to age. Infants represent a unique subgroup because maternally acquired dengue antibodies may predispose them to severe disease through antibody-dependent enhancement during the period when maternal antibody concentrations decline to sub-neutralizing levels. Consequently, infants often existing with atypical clinical manifestations such as gastrointestinal symptoms, irritability, poor feeding, and nonspecific febrile illness, making early diagnosis challenging.[7,8] In contrast, older children generally develop more characteristic manifestations including bleeding tendencies, plasma leakage, thrombocytopenia, and shock. Age-related differences in immune response, vascular permeability, and host inflammatory mechanisms contribute significantly to variations in disease severity.[9]

Laboratory investigations play a essential role in assessing disease severity and monitoring progression in pediatric dengue. Thrombocytopenia and rising hematocrit remain the hallmark laboratory indicators of plasma leakage, while leukopenia, elevated hepatic transaminases, hypoalbuminemia, and prolonged coagulation parameters may indicate severe disease. Serial monitoring of platelet count also hematocrit is particularly valuable for predicting complications including dengue hemorrhagic fever (DHF) also dengue shock syndrome (DSS). Ultrasonographic results containing pleural effusion, ascites, hepatomegaly, gallbladder wall edema, and pericholecystic fluid are useful indicators of plasma leakage and correlate with disease severity.[10–12]

Several studies have evaluated the clinical profile of dengue between pediatric patients; however, direct comparisons between infants and children aged 1–5 years remain limited. Earlier investigations have proposed that infants frequently present with atypical gastrointestinal manifestations and nonspecific symptoms, whereas older children demonstrate more pronounced hematological abnormalities, plasma leakage, bleeding manifestations, and prolonged hospitalization.[8,13,14] Understanding these age-specific differences is important because early recognition of severe disease allows timely fluid management, close monitoring, and prevention of life-threatening complications. Such knowledge also assists clinicians in risk stratification and appropriate allocation of healthcare resources during dengue outbreaks.

Despite the increasing burden of dengue in India, limited prospective researches have systematically compared the clinico-laboratory profile and outcomes between infants and young children within the same clinical setting. Most available literature evaluates pediatric dengue as a single group without considering important age-related physiological and immunological differences. Therefore, the present hospital-based prospective observational study was assumed to compare the clinical characteristics, laboratory profile, complications, and outcomes of dengue infection among infants and children aged 1–5 years admitted to a tertiary care center. The findings are expected to improve understanding of age-specific disease patterns, facilitate early diagnosis, optimize management strategies, and ultimately reduce morbidity and mortality between pediatric individuals with dengue infection.

MATERIALS AND METHODS

Study Design: The present study was showed as a hospital-based prospective observational

comparative study to equivalence the clinico-laboratory profile and outcomes of dengue infection among infants and children aged 1–5 years. All eligible individuals admitted throughout the study retro were prospectively enrolled, clinically evaluated, investigated, managed according to standard institutional protocols, and followed until discharge or death. No therapeutic intervention was introduced as part of the study, and only observations pertaining to disease characteristics, laboratory parameters, management, and outcomes were recorded.

Study Setting: The research was carried out in a tertiary care hospital catering to both urban also rural populations. The hospital receives a large number of pediatric dengue cases during seasonal outbreaks and possesses adequate diagnostic facilities, including serological testing, hematology, biochemistry, radiology, pediatric intensive care services, and blood bank support.

Study Duration: The study was conducted over a period of two years from November 2023 to October 2025. This duration included patient recruitment, clinical assessment, laboratory investigations, follow-up during hospitalization, data collection, statistical analysis, and interpretation of findings.

Participants:

Inclusion Criteria

- Children aged 1 month to 5 years.
- Serologically confirmed dengue infection by NS1 antigen positivity and/or IgM ELISA.
- Patients admitted to the Department of Paediatrics during the study period.
- Parents or legal guardians who provided written informed consent.

Exclusion Criteria

- Children older than 5 years or younger than 1 month.
- Patients with suspected dengue but negative serological confirmation.
- Children with known hematological disorders, chronic liver disease, chronic renal disease, congenital heart disease, malignancy, or immunodeficiency disorders.
- Patients with incomplete clinical records or whose parents declined consent.

Study Sampling: A consecutive sampling technique was adopted. All children fulfilling the eligibility criteria and admitted throughout the study retro were consecutively enrolled until the required sample size was achieved. This method minimized selection bias and ensured representation of all eligible hospitalized dengue cases.

Study Sample Size: A total of 90 serologically confirmed pediatric dengue individuals were comprised in the study. The study population comprised 30 infants (1 month to <12 months) and 60 children aged 1–5 years. The sample size represented all eligible cases admitted throughout the study period and was considered adequate for comparison among the two age groups.

Study Groups: The enrolled members were considered into two groups rendering to age:

- Group I (Infants): Children aged 1 month to less than 12 months (n = 30).
- Group II (Children): Children aged 1–5 years (n = 60).

Comparisons were performed among these groups regarding clinical manifestations, laboratory results, complications, radiological findings, treatment requirements, and clinical outcomes.

Study Parameters: The study parameters included demographic characteristics (age and sex), presenting clinical features (fever, vomiting, loose stools, bleeding manifestations, hepatomegaly, splenomegaly, pleural effusion, ascites, reduced urine output, and convulsions), laboratory investigations (hemoglobin, total leukocyte count, hematocrit, platelet count, liver function tests, renal function tests, serum albumin, NS1 antigen, and IgM ELISA), ultrasonographic findings, complications (dengue hemorrhagic fever, dengue shock condition, myocarditis, encephalitis, hepatitis), therapeutic interventions (blood transfusion, inotropic support, ventilatory assistance), duration of hospital stay, and final outcome (recovery or mortality).

Study Procedure: Following admission, all qualified children underwent detailed clinical evaluation after attaining written well-versed consent from parents or legal guardians. A detailed history was obtained, followed by thorough physical examination. Dengue infection was confirmed using NS1 antigen and/or IgM ELISA. Blood samples were composed for complete blood count, hematocrit, platelet count, liver function tests, renal function tests, and serum albumin estimation. Ultrasonography of the abdomen and thorax was performed whenever clinically indicated to detect plasma leakage manifestations such as pleural effusion, ascites, hepatomegaly, splenomegaly, and gall bladder wall edema. Patients received supportive management according to institutional and WHO dengue treatment guidelines and were monitored daily until discharge or death. Any complications and therapeutic interventions required during hospitalization were documented.

Study Data Collection: Data were collected using a pre-designed structured case record proforma. Information regarding demographic profile, clinical presentation, laboratory investigations, ultrasonographic findings, complications, treatment received, duration of hospital stay, need for blood transfusion, inotropic or ventilatory support, and final outcome was systematically recorded. All collected data were verified for completeness before entry into the study database.

Data Analysis: The collected data were entered into Microsoft Excel and analyzed by IBM SPSS Statistics Version 22.0. Constant variables were expressed as mean ± standard deviation (SD) or median with interquartile range (IQR) depending on

data distribution. Comparisons between the two groups were performed using the Independent Students t-test or Mann–Whitney U test. Categorical variables were showed as frequencies also percentages and analyzed by the Chi-square test or Fishers Exact test, wherever appropriate. A p-value of less than 0.05 was measured statistically significant.

Ethical Considerations: Prior to commencement, the study received approval from the Institutional Ethics Committee (IEC). Written well-versed consent was attained from the parents or legal guardians of all participating children before enrollment. Confidentiality and anonymity of patient information were maintained throughout the study by assigning unique identification numbers and restricting access to study records. Participation was completely voluntary, also parents retained the right to withdraw their child from the research at any stage without affecting the standard medical care provided. The study was showed in accordance with the ethical values outlined in the Declaration of Helsinki and institutional research guidelines.

RESULTS

A total of 90 children with dengue infection were included, comprising 30 infants (33.3%) and 60 children aged 1–5 years (66.7%). Male predominance was observed in both groups.

Age Groups	Infants (1–11 months): 30 (33.33%) Older children (1–5 years): 60 (66.66%)
Gender Distribution	Infants: Male - 18 (60%), Female-12 (40%) Older children: Male -34 (56.66%), Female-26 (43.33%)

Table 1: Comparison of Symptoms and signs between Infants and Older Children with Dengue Infection

Symptoms / Signs	Infants (<1 yr) (n=30)	Older Children (1–5 yrs) (n=60)	Total (N=90)	p-value
Fever	30 (100.0%)	58 (96.7%)	88 (97.8%)	0.551
Lethargy	14 (46.7%)	17 (28.3%)	31 (34.4%)	0.084
Vomiting	14 (46.7%)	34 (56.7%)	48 (53.3%)	0.370
Irritability	7 (23.3%)	8 (13.3%)	15 (16.7%)	0.230
Cough	11 (36.7%)	16 (26.7%)	27 (30.0%)	0.329
Loose Stools	12 (40.0%)	5 (8.3%)	17 (18.9%)	<0.001*
Convulsions	2 (6.7%)	1 (1.7%)	3 (3.3%)	0.257
Flushing	15 (50.0%)	35 (58.3%)	50 (55.6%)	0.453
Reduced Urine Output	10 (33.3%)	23 (38.3%)	33 (36.7%)	0.643
Hepatomegaly	14 (46.7%)	38 (63.3%)	52 (57.8%)	0.131
Splenomegaly	3 (10.0%)	2 (3.3%)	5 (5.6%)	0.328
Pleural Effusion	7 (23.3%)	20 (33.3%)	27 (30.0%)	0.329
Ascites	5 (16.7%)	17 (28.3%)	22 (24.4%)	0.225
Petechiae	4 (13.3%)	18 (30.0%)	22 (24.4%)	0.083
Purpura	0 (0.0%)	4 (6.7%)	4 (4.4%)	0.297
Epistaxis	1 (3.3%)	14 (23.3%)	15 (16.7%)	0.016*
Conjunctival Bleed	0 (0.0%)	10 (16.7%)	10 (11.1%)	0.027*
Malena	3 (10.0%)	5 (8.3%)	8 (8.9%)	1.000

Fever was the most mutual symptom in both groups (>97%).

Loose stools were significantly more common between infants.

Haemorrhagic manifestations such as epistaxis and conjunctival bleeding were significantly more common between older children.

Table 2: Comparison of Laboratory Findings between in Infants and Older Children

Laboratory Findings	Infants (<1 yr) (n=30) Mean ± SD	Older Children (1–5 yrs) (n=60) Mean ± SD	Total (N=90)	p-value
Hemoglobin Levels (g%)	10.63 ± 1.72	11.31 ± 1.65	11.08±1.69	0.075
Total Leucocyte Count (cells/mm³)	5748.73 ± 2099.77	5207.32 ± 1866.32	5387.79±1952.33	0.378
Haematocrit at Admission (%)	34.14 ± 4.17	36.58 ± 4.24	35.77 ± 4.35	0.015*
Platelet Count at Admission (lac/mm³)	1.26 ± 0.56	1.04 ± 0.50	1.11 ± 0.53	0.058
Minimum Platelet Count (lac/mm³)	0.73 ± 0.27	0.60 ± 0.35	0.64 ± 0.33	0.022*
Severe Thrombocytopenia	Present- 7 (23.3%) Absent- 23 (76.7%)	28 (46.7%) 32 (53.3%)	35 (38.9%) 55 (61.1%)	0.032*
AST Levels (IU/L)	92.87 ± 48.81	125.80 ± 80.38	114.82 ± 72.82	0.079
ALT Levels (IU/L)	49.23 ± 28.30	61.37 ± 48.77	57.32 ± 43.25	0.331
Total Albumin Levels (g/dl)	3.89 ± 0.63	3.42 ± 0.52	3.58 ± 0.60	<0.001*

Haemoglobin and total leucocyte count were comparable between groups.

Older children had significantly higher haematocrit values at admission and peak haematocrit levels.

Minimum platelet counts were significantly lower among older children.

Severe thrombocytopenia (<50,000/mm³) was significantly more frequent in older children.

AST and ALT were elevated in both groups without significant differences.

Serum albumin levels were significantly lower in older children.

Table 3: Comparison of Radiological Finding between Infants and Older Children

USG Finding	Infants (<1 yr) (n=30)	Older Children (1–5 yrs) (n=60)	Total (N=90)	p-value
Hepatomegaly	15 (50.0%)	42 (70.0%)	57 (63.3%)	0.063
Ascites	5 (16.7%)	20 (33.3%)	25 (27.8%)	0.096
Pleural Effusion	4 (13.3%)	22 (36.7%)	26 (28.9%)	0.021*
Splenomegaly	1 (3.3%)	1 (1.7%)	2 (2.2%)	1.000
GB Wall Thickening	3 (10.0%)	16 (26.7%)	19 (21.1%)	0.068
Normal	7 (23.3%)	4 (6.7%)	11 (12.2%)	0.038*

Pleural effusion also indication of plasma leakage were significantly more common between older children. Infants more frequently had normal ultrasonographic findings.

Table 4: Comparison of Outcomes in Infants and Older Children

Complication	Infants (<1 yr) (n=30)	Older Children (1–5yrs) (n=60)	Total (N=90)	p-value
DSS/DHF	3 (10.0%)	19 (31.7%)	22 (24.4%)	0.024*
Myocarditis	1 (3.3%)	8 (13.3%)	9 (10.0%)	0.262
Encephalitis	1 (3.3%)	3 (5.0%)	4 (4.4%)	1.000
Hepatitis	5 (16.7%)	22 (36.7%)	27 (30.0%)	0.051
Dengue shock syndrome and dengue haemorrhagic fever occurred more commonly in older children.				
Duration of Hospital Stay (Days)	5.93 ± 1.82	6.78 ± 1.97	6.50 ± 1.95	0.032*
Blood Component Transfusion	Required3 (10.0%) Not Required27 (90.0%)	17 (28.3%) 43 (71.7%)	20 (22.2%) 70 (77.8%)	0.049*
Older children required longer hospital stay and more blood transfusions.				
	Died -1 (3.3%)	0 (0.0%)	1 (1.1%)	
Mortality	Survived-29 (96.7%)	60 (100.0%)	89 (98.9%)	0.333

Mortality occurred in the infant group, highlighting their vulnerability despite relatively milder overall disease patterns.

DISCUSSION

The current prospective observational study associated the clinico-laboratory profile and results of dengue contagion between infants (<1 year) and children aged 1–5 years. A total of 90 serologically established dengue cases were included, comprising 30 infants (33.3%) and 60 children aged 1–5 years (66.7%), with a slight male predominance in both groups (60.0% vs. 56.7%). Age-related differences in the clinical presentation and disease severity of dengue have been increasingly recognized, largely because immune responses, vascular permeability, and physiological reserve vary considerably during early childhood. The results of the present study designate that although infants commonly presented with gastrointestinal manifestations, older children experienced more severe clinical disease, greater plasma leakage, more pronounced thrombocytopenia, and poorer clinical outcomes. These observations are mostly reliable with previous pediatric dengue studies.

Fever was the predominant presenting symptom in the present study, occurring in 100.0% of infants and 96.7% of older children, while vomiting was reported in 46.7% and 56.7% of children, respectively. These results closely agree with Rahul A et al,[16] who reported fever in 99.0% and vomiting in 51.3% of pediatric dengue patients. Similarly, Singh J et al,[17] observed fever in 100% of children with dengue, confirming that fever remains the universal presenting manifestation irrespective of age. Our study further established that loose stools were significantly more mutual among infants (40.0% vs. 8.3%; p<0.001), suggesting that gastrointestinal manifestations are particularly prominent during infancy. Rahul A et al,[16] also described age-related variation in clinical presentation, with younger children exhibiting distinct symptom patterns compared with older children, thereby supporting the present findings.

Bleeding manifestations differed considerably among the two age groups. Epistaxis arose significantly more commonly in older children (23.3% vs. 3.3%; p=0.016), while conjunctival bleeding was observed exclusively among older children (16.7% vs. 0%; p=0.027). Petechiae and purpura were also more common in older children, while these variances were not statistically significant. These results propose that older children are more probable to develop hemorrhagic manifestations secondary to greater capillary fragility and thrombocytopenia. John KJ et al,[11] similarly identified bleeding manifestations among the common presenting features of hospitalized dengue patients and further demonstrated that major bleeding was connected with severe dengue and elevated liver enzymes. The greater frequency of hemorrhagic manifestations observed in older children in the present study therefore appears consistent with increasing disease severity.

Laboratory evaluation revealed several significant age-related differences. Hemoglobin levels and total leukocyte counts were analogous among the two groups, representing that these parameters alone may not distinguish disease severity. Nevertheless, older children had significantly extreme admission

hematocrit values (36.58 ± 4.24% vs. 34.14 ± 4.17%; p=0.015), reflecting greater plasma leakage. Meta-analysis by Low GK et al,[18] similarly demonstrated higher pooled hematocrit values among children with dengue with warning signs (40.70%) also acute dengue (36.78%) than those without warning signs (35.00%), supporting the association between rising hematocrit and severe disease.

Thrombocytopenia represented another important finding. While admission platelet counts were not significantly different, minimum platelet counts were significantly lesser in older children (0.60 ± 0.35 vs. 0.73 ± 0.27 lakh/mm³; p=0.022). Severe thrombocytopenia (<50,000/mm³) occurred in 46.7% of older children compared with only 23.3% of infants (p=0.032). These results correspond closely with Singh J et al,[17] who reported thrombocytopenia in 73.7% of pediatric dengue cases and demonstrated markedly lower platelet counts among severe dengue patients. Likewise, Low GK et al,[18] reported pooled platelet counts of 78.66×10³/µL in severe pediatric dengue compared with 153.47×10³/µL in dengue without warning signs, emphasizing that declining platelet counts accompany increasing disease severity.

Although AST and ALT values were elevated in both groups, variances were not statistically significant, suggesting hepatic involvement across both age categories. Nevertheless, serum albumin levels were significantly lower among older children (3.42 ± 0.52 vs. 3.89 ± 0.63 g/dL; p<0.001), indicating greater plasma leakage and capillary permeability. Hypoalbuminemia is a recognized marker of severe dengue because leakage of plasma proteins accompanies endothelial dysfunction. These biochemical findings therefore complement the hematocrit observations and support the presence of more severe vascular leakage among older children.

Radiological findings further reinforced these observations. Pleural effusion was significantly more common among older children (36.7% vs. 13.3%; p=0.021), whereas normal ultrasonographic results were significantly more common among infants (23.3% vs. 6.7%; p=0.038). Hepatomegaly, ascites, gallbladder wall thickening, and splenomegaly were also numerically higher in older children although without statistical significance. These findings indicate that ultrasonographic evidence of plasma leakage increases with age and disease severity.

Clinical outcomes similarly favored infants despite one mortality occurring in this group. Dengue shock syndrome and dengue hemorrhagic fever developed in 31.7% of older children compared with only 10.0% of infants (p=0.024). Hepatitis (36.7% vs. 16.7%) and myocarditis (13.3% vs. 3.3%) were also more common between older children, although statistical significance was not achieved. Premkumar B et al,[12] likewise reported that severe dengue constituted the mainstream of hospitalized pediatric cases, including dengue hemorrhagic fever also dengue shock syndrome, highlighting that severe complications remain common among children requiring tertiary care.

Resource utilization also differed significantly. Older children experienced longer hospitalization (6.78 ± 1.97 vs. 5.93 ± 1.82 days; p=0.032) and required blood component transfusion more frequently (28.3% vs. 10.0%; p=0.049). Rahul A et al,[16] similarly observed delayed diagnosis among children aged 1–5 years (6.5 ± 3.6 days), which may contribute to more advanced disease at presentation. John KJ et al,[11] reported a mean hospital stay of 4.9 ± 2.4 days among hospitalized dengue patients and emphasized that severe clinical manifestations were connected with prolonged admission. In the current study, prolonged hospitalization among older children probably reflects greater disease severity, increased plasma leakage, and higher transfusion requirements.

Mortality occurred in one infant (3.3%), whereas no deaths were recorded among older children; nevertheless, this variance was not statistically significant. Premkumar B et al,[12] similarly reported a very low case fatality rate of 0.5%, emphasizing that early diagnosis and appropriate supportive management substantially improve survival. Although overall mortality remained low in the present study (1.1%), the occurrence of death in an infant highlights the need for vigilant monitoring of this vulnerable age group despite their comparatively milder overall clinical profile.

Overall, the current study establishes that dengue infection exhibits distinct age-related differences in clinical presentation and outcome. Infants more usually existing with gastrointestinal symptoms such as loose stools and frequently had normal ultrasonographic findings, whereas older children presented significantly greater hematocrit elevation, severe thrombocytopenia, pleural effusion, dengue shock syndrome, hemorrhagic manifestations, prolonged hospitalization, and increased transfusion requirements. These results are supported through previous studies conducted by Rahul A et al,[16] Singh J et al,[17] Low GK et al,[18] John KJ et al,[11] and Premkumar B et al.[12] Recognition of these age-specific differences may facilitate earlier identification of children at higher risk of severe dengue and enable timely intervention to improve clinical outcomes.

Strengths of the study: The present study has several important strengths. It provides a comprehensive age-wise comparison of clinical, hematological, biochemical, and radiological parameters between infants and older children with serologically confirmed dengue infection. The inclusion of both clinical and laboratory variables allows for a holistic understanding of disease presentation and progression. The use of standardized diagnostic criteria and appropriate statistical tests enhances the reliability and validity of the findings. Additionally, the study focuses on a

relatively under explored group infants thereby contributing valuable insights into age-specific differences in dengue infection. The prospective data collection in a tertiary care setting ensures accuracy in diagnosis, monitoring, and outcome assessment. Furthermore, the study highlights clinically relevant parameters such as platelet count, hematocrit, and albumin levels, which are essential for early identification of severe dengue and guiding management.

Limitations of the study: Despite its strengths, the study has certain limitations. The sample size is relatively small, which may limit the generalizability of the findings to the broader population. Being a single-center hospital-based study, it may not fully represent community-level dengue cases, particularly milder forms that do not require hospitalization. The study population is restricted to children under five years, thereby limiting comparisons with older pediatric age groups and adolescents. Additionally, certain potential confounding factors such as nutritional status, prior dengue exposure, and socio-environmental variables were not assessed. The short duration of follow-up restricts the evaluation of long-term outcomes and complications. Lastly, advanced biomarkers and virological parameters such as dengue serotypes were not included, which could have provided deeper insights into disease severity and pathogenesis.

CONCLUSION

The current study demonstrates that dengue infection in children below five years shows significant age-related variations in clinical presentation and disease severity. Children aged 1–5 years experienced more severe illness, characterized by greater haemoconcentration, severe thrombocytopenia, plasma leakage, haemorrhagic manifestations, and dengue shock syndrome. In contrast infants more commonly presented with atypical gastrointestinal symptoms and generally followed a relatively milder clinical course.

Key laboratory parameters such as haematocrit, platelet count, and serum albumin were useful indicators of disease severity. Early recognition of age-specific clinical features, close monitoring, and timely supportive treatment are crucial for minimizing morbidity and improving outcomes among paediatric patients with dengue infection.

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