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A Current Perspective on the Assessment of Prevalence of Dengue Cases in a Territory Care Hospital Bangalore and Impact of Clinical Pharmacist Mediated Patient Counseling – A Prospective Study

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A B S T R A C T

Background: Dengue is an Infectious viral disease caused by the dengue virus. Dengue fever is caused by one of four types of dengue virus. It is transmitted by "Aedes aegypti mosquito". Symptoms include Fever, Arthralgia, Myalgia and Headache etc.,. Dengue is mosquito-borne viral illness. Fluid and electrolyte losses, dengue shock syndrome, residual brain damage, Febrile convulsions, Low platelet count, Significant bleeding, Liver damage are some of the complications of dengue fever

Aim The present hospital study aims to illustrate the frequency, distribution and case fatality of dengue fever based on the variables such as age, sex and impact of clinical pharmacist mediated patient counseling.

Objectives: To evaluate the perspectives on assessment of prevalence of the dengue fever and the impact of clinical pharmacist mediated patient counseling.

To estimate the prevalence of dengue fever, educate and create awareness about dengue fever and prevent further complications.

Methodology: A prospective Observational study was carried out among 150 patients for a period of 4 months from June 2019 to September 2019 in ESI hospital Indiranagar, Bangalore.

Results: Dengue fever is mostly seen among the age groups between 15-55 yrs. An excess of males were found among reported dengue cases than females 54.6 % were males and 45.3% were females. High proportion of cases were reported in adult age groups (25-35 years) in both males and females, Out of 150 cases Dengue fever 89.3% , Dengue hemorrhagic fever is 7.3% and Dengue shock syndrome 3.33% is fatality rate and the outcome of dengue fever is 94.66% survival rate and 5.3% death rate.

Conclusion: The patients with Dengue fever 89.3% and other types are DHF, DSS 7.3% and 3.3% out of them patients with thrombocytopenia is 64.66% and the platelet transfusion done in 65 patients (43.33%) Out of 150 dengue cases 142 patients (94.6%) are survived and the death rate is 5.3% the early identification of complications might have increased the survival rate and decreases the mortality in Dengue fever patients.

Keywords: Dengue shock syndrome, Febrile convulsions, Thrombocytopenia Arthralgia.

INTRODUCTION:

Dengue fever is a serious painful debilitating mosquito born viral disease affects of its morbidity and mortality. It is caused by any one of four distinct sero types of dengue virus (DEN2, DEN1, DEN3 and DEN4) and is transmitted within humans through female *Aedes* mosquitoes. Dengue disease varies from mild fever to severe conditions of dengue hemorrhagic fever and dengue shock syndrome. Globalization and spontaneous urbanization have led to increase in the rate of infection and helped dengue to expand its geographic and demographic distribution. Dengue vaccine development has been a challenging task due to the

existence infection with DENV results in varying degrees of pathological conditions, ranging from mild asymptomatic Dengue Fever (DF) to severe Dengue Hemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS) which may turn fatal [1].More than 70% of disease are in south east Asia and western pacific. The incidence severity of disease has increased rapidly in Latin America and the Caribbean, Brazil, Colombia and Venezuela has reported the most cases of dengue and dengue hemorrhagic fever. The WHO estimates that 50 to 100 million, infection occur yearly, including 500000 DHF cases and 22,000 deaths. Dengue percentage is more in males than females. Studies suggest that Every year 100 million cases of dengue fever and half a million cases are of dengue haemorrhagic fever (DHF) occur in the world with a case fatality in Asian countries of 0.5%–3.5%[3]. Of those with DHF, 90% are children less than >15 years of age group[2]. Uncontrolled population growth, unplanned and uncontrolled urbanization, insufficient wastewater management, and lack of effective mosquito control have

been implicated in the increased distribution and density of the vector and also the increased spread of the virus.[4]
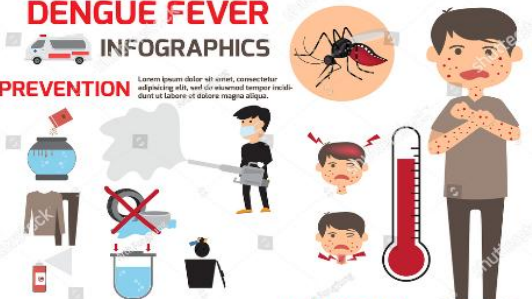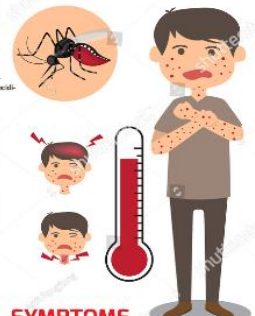
TYPES OF DENGUE FEVER:
- Dengue Fever
- Dengue Hemorrhagic Fever
- Dengue Shock Syndrome

Dengue fever is more frequently seen than dengue hemorrhagic fever. Dengue shock syndrome is rarely seen and death cases in dengue are less in humans. The **symptoms** are fever, headache, rashes, muscle pain and joint pains. The greater risk of developing of dengue fever include travelling in tropical areas, being in tropical and subtropical areas increases to exposure to virus. Thrombocytopenia is major complication seen because of dengue fever, it describes platelet count having less than 150000% microleter of blood platelet count will decreases in the day of illness.

Criteria	Dengue Fever	Dengue Hemorrhagic Fever	Dengue Shock Syndrome
Symptoms	Fever	Abdominal pain	Liver damage
	Rashes	Vomiting	Myocardial depression
	Joint and muscle pain	Bleeding from nose (Epistaxis)	Neurological and ophthalmological manifestations
	Vomiting	Blood in urine	
	Headache	Difficulty in breathing	

Management of Dengue: Paracetamol is the only antipyretic prescribed for use, since other non-steroidal anti-inflammatory drugs such as Aspirin or Diclofenac sodium may result in gastric irritation or provoke gastrointestinal bleeding. The recommended dose of paracetamol (60 mg/kg/day) should not be exceeded, as otherwise liver injury

that accompanies dengue viral infections may be provoked. If the temperature still remains high despite administration of paracetamol, tepid sponging is recommended.[5] A soft, balanced, and nutritious diet is recommended changing to oral rehydration fluids if a soft diet is refused. An antiemetic such as domperidone may be used to treat vomiting.

Dengue Fever symptoms and preventions	Current Scenario from 2015 -2018 in Karnataka

AIM:
The present hospital study aims to illustrate the frequency, distribution and fatality of Dengue cases and evaluate the perspectives on assessment of prevalence of the dengue fever based on the variables such as age, sex and impact of clinical pharmacist mediated in patient counseling.

OBJECTIVE
To assess the prevalence of dengue fever.
To educate and create awareness about dengue fever and the precautionary measures to be taken.
To provide clinical pharmacist mediated patient counseling for preventing the further complications.

METHODOLOGY:

Study Sample: Study sample   150 In patients with age group of 5-70 years who admitted in the hospital during the study period of 4 months with dengue cases were considered into the study. **[N=150 Patients.]**

Study Design: It is A Prospective, Observational and Cross Sectional study.

Study Period: The Present study was conducted for a period of Four (4) months from June to September 2019.

Study site: The Present study was conducted in Medical Ward of ESI hospital, Indiranagar, affiliated to Gautham college of pharmacy, RT nagar post, Bangalore, Karnataka, India.

Study Criteria:

Inclusion criteria

- The patients with Dengue Fever and who are willing to participate in the study.
- The patients with Age group 5-70 Years were considered into the study.

Exclusion criteria

- Patients without Dengue fever and who are not willing to participate in the study.
- Patients above 70 years age group are excluded and patients with more than 3 Co- morbid conditions are excluded.

Source of Data:

All the patients satisfying the inclusion criteria, all the required data was collected from patients or care takers through personal interview, Patient history about disease, Patient case sheet.

Method of collection of data

All the patients satisfying the inclusion criteria were selected from Medical Department in ESI hospital, Indiranagar. After thoroughly explaining the study methodology to the subjects and then they are included in the study. Informed Consent was taken from each patient, the necessary information was collected by interviewing patients or caretakers using the following Annexures, Consent form, Data collection form and Case sheets etc.,

Statistical tools: Prism Graphic Pad and Microsoft excel was used to analyze the results.

RESULTS:

TABEL 1: Age Wise Distribution of Dengue

Age (Years)	Number	Percentage
5-15yrs	10	6.66%
15-25yrs	25	16.66%
25-35yrs	40	26.66%
35-45yrs	35	23.3%
45-55yrs	25	16.66%
>55yrs	15	10 %

Table 2: Gender Wise Distribution of Dengue

Gender	Number	Percentage
Female	68	45.35%
Male	82	54.65%
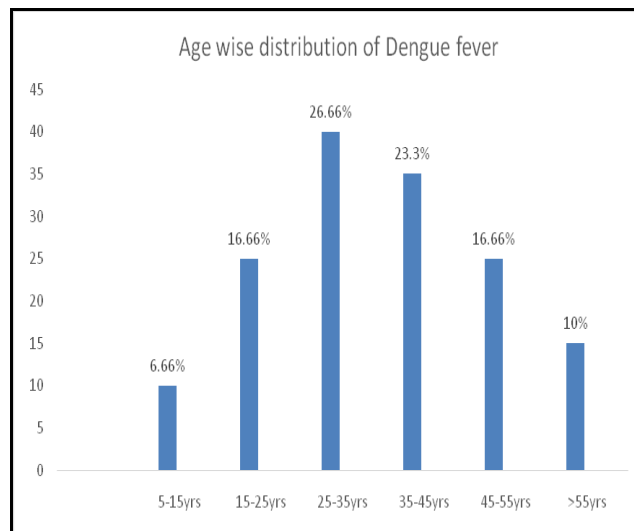
Figure 1: Age (In Years) Wise Distribution
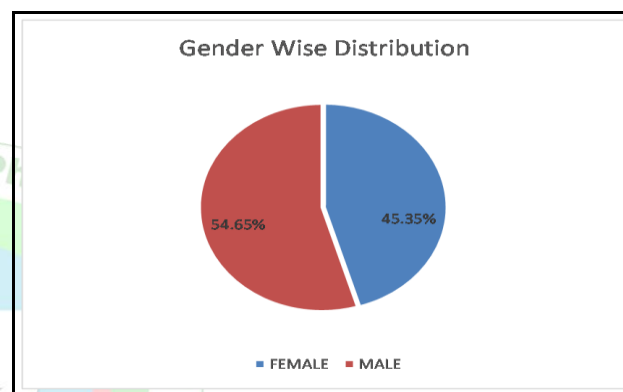
Figure 2: Gender Wise Disturubution

Table 3: Education and Employment Details

Education	Number	Percentage
Literates	58	38.66%
Illiterate	92	61.33%
Occupation	**Number**	**Percentage**
Employee	65	43.33%
Unemployed	85	56.66%

Table 4: Socio-Economic Details and Marital Status

Socio-Economic Status	Number	Percentage
Poor	43	28.66%
Average	57	38%
Above average	37	24.66%
Rich	13	8.66%
Marital Status	**Number**	**Percentage**
Married	61	40.66%
Unmarried	89	59.33%

Table 5: Thrombocytopenia Details

Thrombocytopenia	Number	Percentage
Present	97	64.66%
Absent	53	35.33%
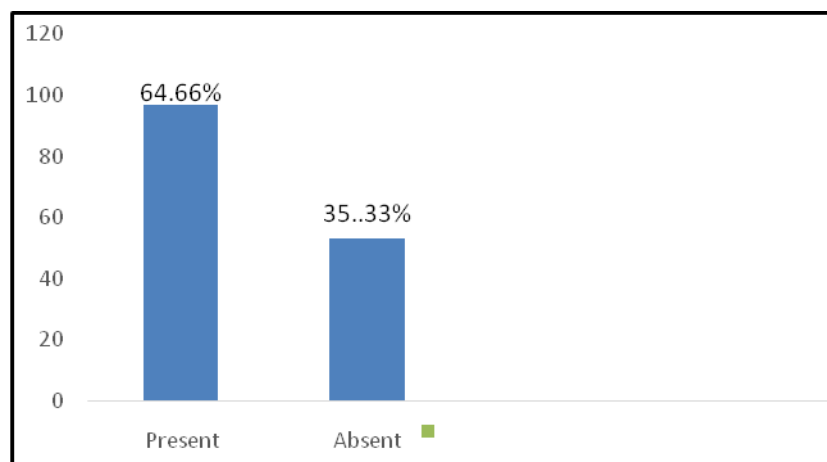
Figure 3: Thrombocytopenia Wise Distribution

Table No: 6 Platelet Count

Platelet Count	Number	Percentage
<50000	28	18.66%
50000-1 Lakh	67	44.66%
1 Lakh-1.5 Lakh	35	23.33%
>1.5Lakh	20	13.33%
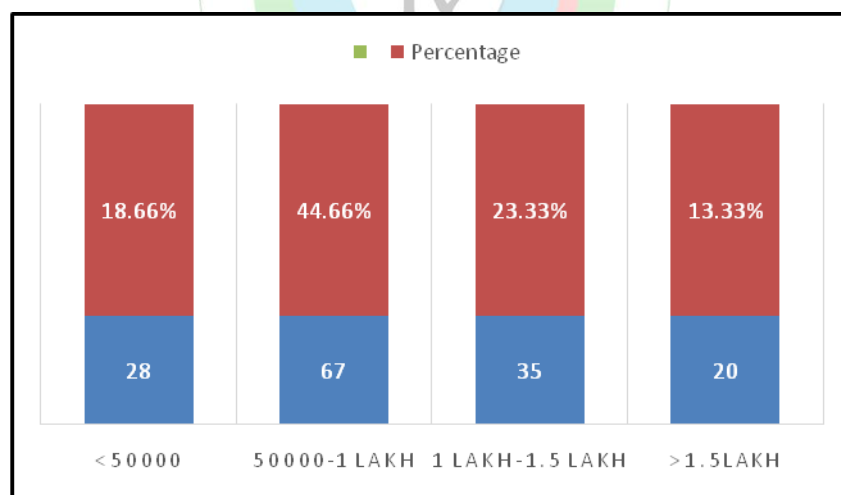
Figure 4: Platelet Count Wise Distribution

Table 7: Complications of Dengue

Complications	Number	Percentage
Low platelet count	60	40%
Significant bleeding	29	19.33%
Liver damage/ dysfunction	40	26.66%
Dehydration	21	14%
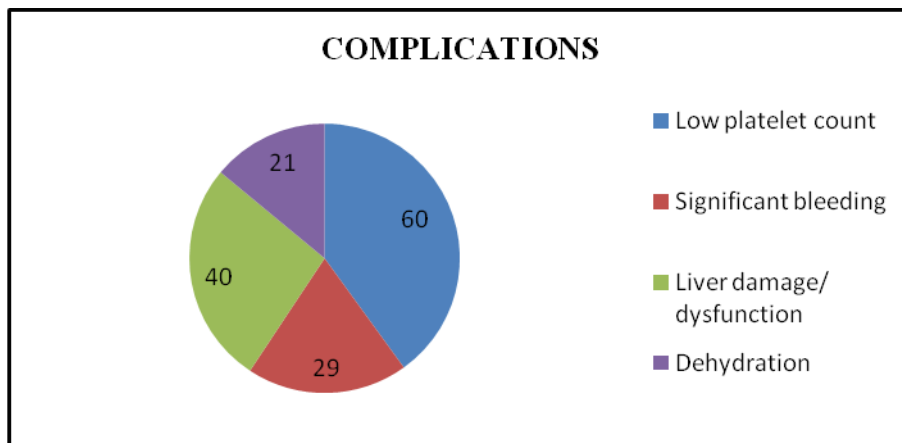
Figure 5: Complications Wise Distribution

Table No: 8 Types of Fever

Types of Fever	Number	Percentage %
Dengue fever	134	89.3%
Dengue Haemorrhage Fever	11	7.3%
Dengue Shock Syndrome	5	3.33%

Table 09: Types of Fever Differentiating With Symptoms

Dengue Fever			Dengue Hemorrhagic Fever			Dengue Shock Syndrome		
Symptoms	Number	%	Symptoms	Number	%	Symptoms	Number	%
Fever	39	26%	Abdominal pain	4	2.6%	Liver damage	3	2%
Rashes	28	18.6%	Vomiting	3	2%	Myocardial depression	1	0.6%
Joint and muscle pain	32	21.3%	Bleeding from nose	2	1.3%	Neurological and ophthalmological manifestations	1	0.6%
Vomiting	7	4.6%	Blood in urine	1	0.6%			
Headache	30	20%	Difficulty in breathing	1	0.6%			

Table 10: Location Prevalence and Hygenic Details

Location Prevalence	Number	Percentage
Hebbal	44	29.3%
Indiranagar	64	42.6%
Bannerghatta	12	8%
White field	30	20%
Hygenic Condition	**Number**	**Percentage**
Hygenic	18	12%
Un Hygenic	132	88%

Table 11: Hydration Details

Hydration	Number	Percentage
Iv Fluids Taken	130	86.6%
Iv Fluids Not Taken	20	13.33%

Table 12: Platelet Transfusions

Platelet Transfusion	Number	Percentage
Done	65	43.33%
Not Done	85	56.66%

Table 13: Outcome Status

Outcome Status	Number	Percentage
Survived	142	88%
Death	8	12%

DISCUSSION:

According to WHO reports Dengue fever cases from many parts of the World are noticed included Africa, America, Eastern Mediterranean, Western pacific and South East Asia [6]. Another study conducted by Adriana *et al*. in Brazil [7] also reveals that adult age group reveals the predominance in dengue fever. Studies show that dengue fever report more in adult age group above 20 years compared to the low age group. In the present study also dengue fever is higher in adult age groups in both males and females. A study conducted by Chia-Hsien Lin *et al*. in Taiwan [8] reports that dengue fever is higher in adult age groups compared to lower age groups. In the present study, the percentage of male cases is higher than the female cases. In males, it is 54.65% and in females it is 45.3% of total dengue fever cases. A majority of the studies points out the fact that males have more outdoor work habits compared to females. They are more exposed to the mosquito bite during their day time work or while travelling to Work site and returning and returning from the work site in the late evening. A recent dengue distribution model has estimated 390 million dengue Infections annually are reported, out of which 96million cases occurred apparently [9, 10].

CONCLUSION:

The patients with Dengue fever is 89.3% and other types are DHF, DSS are 7.3% and 3.3% out of them patients with thrombocytopenia is 64.66% and the platelet transfusion done in 65 patients (43.33%) out of them 142 patients (94.6%) are survived and the death rate is 5.3% the early identification of complications might have increased the survival rate in Dengue fever patients. As the prevention of dengue fever lacks proper vaccine, the main preventive strategy is the creating awareness in the community regarding the disease and providing the patient counselling about lifestyle and hygienic conditions, complications and disposal of wastes those in a systematic or in a proper way.

RECOMMENDATIONS:

Dengue can also be cured by drinking more fluids, papaya leaf juice and having kiwi fruit which is good for preventing the progression of dengue fever and its complications, the decreased platelet count is increased with Rehydration and also Platelet transfusion. Dengue fever also last within 2 to 3 weeks in severe condition it takes time to recover.

PATIENT COUNSELLING[11]:

DO'S	DONT'S
• Teach them about warning signs, timing and the critical period that follows defervescence. • Closely monitor fluid intake, output vital signs and hematocrit levels. • Recognize and treat early shock. • Administer colloids such as albumin for refractory shock.	• Don't use corticosteroids because they increase the risk of GI bleeding hyperglycemia and immunosuppressant. • The platelet transfusion should not be done for low platelet count because this do not decrease the risk of severe bleeding and may instead lead to fluid overload. • Use only the minimum amount of IV fluids to keep the patient well perfused.

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