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FREQUENCY OF SUSPECTED AND PROBABLE CASES OF DENGUE AMONG ADULT PATIENTS SUFFERING FROM FEVER PRESENTING IN DISTRICT HEAD QUARTER HOSPITAL, GAWADAR

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ABSTRACT

Introduction: Since 2005, dengue eruption is a leading public health problem in Pakistan, putting millions of individuals at risk. Normally the dengue fever patients show sudden onset of high-grade fever and with $\geq$ 2 other warning signs. Moreover, dengue could present with warning signs like other severe febrile diseases, particularly those occur due to other arboviruses namely chikungunya and malaria viruses that have been both identified in Pakistan, hence, leading to complication in identification of dengue.

Objective: The objective of the study is to know the frequency of suspected and probable cases of dengue among adult patients suffering from fever, presenting in DHQ Hospital Gawadar and to compare this frequency which socioeconomic parameters.

Material & Methods: It was cross-sectional descriptive study in which 300 adult patients suffering from fever presenting at DHQ Hospital Gawadar were included. Simple random sampling technique was used. Data was collected through questionnaire, which was entered in to computer using SPSS 20.0. Frequencies and percentages were calculated and data was presented in tables and figures.

Results: Among 300 patients, 42.0% were 21-30 years old, 64.0% were females, 55.3% were intermediate and above, 47.0% patients had total family monthly income more than 50,000 rupees and 70.0% were living in urban areas while 85.3 had no history of travel during last 14 days. Among these patients, 71.7% had normal platelet count. Results indicated that 10.3% were suspected cases of dengue while 89.7% were probable cases of dengue.

Conclusion: We conclude that 10.3% were probable and 89.7% were suspected cases of dengue and that suspected dengue fever was more common among females. Our study also shows that dengue is more common in people of high socioeconomic status.

Keywords: Dengue, fever, suspected, probable, patients.

INTRODUCTION

Dengue is a significant emerging as well as re-emerging arboviral infectivity worldwide. According to an estimation, every year about 390 million individuals are affected, 96 million people develop any degree of disease acuteness, causing about 21,000 mortalities.[1] According to WHO (World Health Organization) estimates almost two-fifths of global populace is currently at risk of this viral infectivity.[2]

The virus is passed on to people mainly through Aedes aegypti which is a leading agent of dengue fever.[3] Also, the infections can be communicated through organ transplantation, blood transfusion, and probably from the mother to her child.[4]

During 1994, first dengue outbreak was occurred in Pakistan.[5] At that time dengue was spreading swiftly in the country. In Pakistan, National Guideline regarding Dengue Control demonstrated that from the year 1995-2004 just 699 dengue cases were recorded from Pakistani three districts. An abrupt increase in dengue fever cases was observed in Karachi in 2005. Total 16580 dengue cases and 257 mortalities were recorded in city Lahore and almost 5000 dengue fever survivors while sixty mortalities were recorded from other remaining areas of country.[6] Since 2005, dengue eruption is a leading public health problem in Pakistan, letting millions of individuals at risk, there were 71649 dengue cases and 797 mortalities till 2016.[7]

In Pakistan, the major factors responsible for disease spread are raised rate of residents, inflation in populace, elevated rates of illiteracy, poor sanitation, unclean water and food, insufficient medical facilities, less information about vaccination, co-morbidity, less knowledge regarding safety measures for the prevention of disease.[8]

Usually, affected patients show sudden onset of high-grade fever and with $\geq$ 2 other warning signs, for example retro-orbital pain, arthralgia, myalgia and headache. Laboratory examinations show thrombocytopenia and leukopenia with no plasma leakage.[9]

Due to problems with use of this categorization to the patients who have more acute symptoms, World Health Organization revised during 2009 its existing guidelines and included 3 categories: dengue with symptoms, acute dengue and dengue with no symptoms. Dengue symptoms may comprise vomiting, bleeding from the mucous membranes, abdominal pain, fluid retention, hepatomegaly and lethargy. Lab investigations could demonstrate a rise in the erythrocytes with thrombocytopenia. Severe dengue patients undergo bleeding, organ failure and plasma leakage. Particularly, fever is main warning sign of both categories. Patients without fever or have fever afterward are tricky to categorize. Moreover, dengue could present with warning signs like other severe febrile diseases, particularly those occur due to other arboviruses namely chikungunya and malaria viruses that have been both identified in Pakistan, hence, leading to complication in identification of dengue.[9]

Dengue fever clinical suspected case is described as severe feverish disease with $\geq$2 of following: arthralgia, myalgia, headache, rash, hemorrhagic demonstrations and retro orbital pain. Dengue probable case is well-matched with medical depiction and thrombocytopenia along with IgM antibody positive test in severe cases.[10]

No actual treatment of dengue fever is available. Dengue treatment is entirely symptomatic and require great patient care while patients of dengue fever can be admitted in the hospital to facilitate blood transfusion as well as fluid replacement when needed .[11]

Differentiating dengue from other forms of fever is most important to provide timely and appropriate care to patients. There is no first-hand information about dengue in this region which helping policy making and planning necessitating this research. Hence, current study is conducted to know the frequency of suspected and probable cases of dengue among adult patients suffering from fever presenting in DHQ Hospital Gawadar.

OBJECTIVES

The objectives of the study are:

- To determine the ratio of dengue probable cases in patients presenting with fever
- To determine the association of socioeconomic factors in patients with dengue fever

MATERIAL AND METHODS

This was a cross-sectional study carried out at District Headquarter Hospital, Gwadar. 300 adults with fever presenting to the abovementioned hospital were included in the study via simple random sampling technique.

Inclusion criteria

- Patients with high fever (102^oF) were included in the study.
- Both genders
- Aged 13 years and above

Exclusion criteria

- Patients with a known diagnosis other than dengue were excluded from study.
- Unwilling to participate

Data Collection Procedure

A semi-structured questionnaire was prepared by researcher. The patients were examined by researcher himself and responses were noted on the questionnaire.

Patients with fever (102^o F) of 2–10 days of duration were classified as 'suspected' cases of dengue fever. All suspected case patients were subjected to a complete blood count analysis using an automated analyzer.

Patients with thrombocytopenia (platelet count < 100000) and leukopenia (leukocyte count <4000) were classified as probable cases of dengue fever.
A probable case was referred to hospital OPD for possible admission and workup for confirmation of dengue by NS1, IgM, or PCR whichever is available.

Data Analysis

Data was entered, cleaned and analyzed using SPSS (Statistical Package for Social Sciences) version 20.0. Frequency tables were generated for all possible variables.

RESULTS

Table-1: Frequency distribution of patients according to socio-demographic characteristics

$n = 300$

	Frequency	**Percentage (%)**
Age (years)		
≤20	58	19.3
21-30	126	42.0
31-40	65	21.7

41-50	30	10.0
>50	21	7.0
Total	300	100.0
Mean ± SD	30.70 ± 1.15	
Gender		
Male	108	36.0
Female	192	64.0
Total	300	100.0
Education		
Illiterate	62	20.7
Primary	9	3.0
Middle	14	4.7
Matric	49	16.3
Intermediate and above	166	55.3
Total	300	100.0
Total family monthly income (Rs.)		
≤25,000	68	22.7
26,000-50,000	91	30.3
>50,000	141	47.0
Total	300	100.0
Mean ± SD	50923.48 ± 30522.27	
Residence		
Urban	210	70.0
Rural	90	30.0
Total	300	100.0

Table-1 describes that among 300 patients, 58 (19.3%) were up to 20 years old, 126 (42.0%) were 21-30 years old, 65 (21.7%) patients were 31-40 years old and 30 (10.0%) were 41-50 years old while 21 (7.0%) patients were more than 50 years old. The mean age of the patients was 30.70 ± 1.15 years. Out of 300 patients, 108 (36.0%) were males while 192 (64.0%) were females.

Results also show that among 300 patients, majority 166 (55.3%) was intermediate and above, followed by illiterate 62 (20.7%), matric 49(16.3%), middle 14 (4.7%) and primary 9 (3.0%). Out of 300 patients, 68 (22.7%) had total family monthly income up to 25,000 rupees and 91 (30.3%) had 26,000-50,000 rupees while 141 (47.0%) patients had total family monthly income more than 50,000 rupees. The mean family monthly income was 50923.48 ± 30522.27 rupees.

Finally, we can also see that among 300 patients, 210 (70.0%) were living in urban and 90 (30.0%) were living in rural areas.

Table-2: Frequency distribution of patients according to blood test report

n = 300

Blood test report	**Frequency**	**Percentage (%)**
Platelet count		
<150,000 mL	65	21.7
150,000-450,000 mL	215	71.7
>450,000 mL	20	6.6
Total	300	100.0
Mean ± SD	239925.33 ± 1.24	
White blood cell (WBC)		
<5,000	69	23.0
5,000-10,000 mL	172	57.3
>10,000 mL	59	19.7
Total	300	100.0
Mean ± SD	7817.60 ± 3640.78	

Table-2 depicts that among 300 patients, majority 215 (71.7%) had normal platelet count i.e. 150,000-450,000 mL while 65 (21.7%) had <150,000 mL and 20 (6.6%) patients had platelet count > 450,000 mL. The mean platelet count among patients was 239925.33 ± 1.24 mL. Likewise, among 300 patients, majority 172 (57.3%) had normal WBC 5,000-10,000 mL while 69 (23.0%) had <5,000 mL and 59 (19.7%) patients had WBC > 100,000 mL. The mean WBC among patients was 7817.60 ± 3640.78 mL.

Table-3: Frequency distribution of patients according to case identification

n = 300

Case identification	**Frequency**	**Percentage (%)**
Suspected	31	10.3
Probable	269	89.7
Total	300	100.0

Table-3 highlights that among 300 cases, 31 (10.3%) were suspected cases of dengue while 269 (89.7%) were probable cases of dengue.

DISCUSSION

Dengue is a leading public health problem in Pakistan, grossly affecting the lives of many, a general feature of which is fever. People normally look for medical attention when they have any type of fever. To differentiate the different common types of fever from dengue is of great importance to timely treatment. Bearing this in mine, the current study was designed.

Our study differs from research carried out by Tejaswi and associates (2016) who reported that majority of patients (72.1%) were more than 30 years old.[5] However, another recent study reported that probable dengue was more prevalent among elderly people because 70.0% patients were more than 30 years and only 30.0% were up to 30 years old.[12]

We observed in our study that most of the patients (64.0%) were females and 36.0% were male patients while the findings of a study undertaken by Malik and coworkers (2017) indicated the opposite.[13] A most recent study carried out by Ahmed and teammates (2018) also asserted that majority (55.0%) of the patients were males.[14]

Education is essential for every person as it helps to spend better life and to adopt precautionary measures. However, it is worthwhile mentioning that a vast majority of our patients (79.3%) were well versed. The findings of our study are comparable but exhibited better scenario than the study performed by Shaheen and teammates (2018) who reported that a major proportion of their patients (69.9%) were literate.[15]

Adequate family monthly income is associated with dengue prevention because people with higher income are able to purchase insecticide treated nets, coil, mospel etc. for the prevention of dengue bite. Study showed very encouraging results that 77.3% patients had family monthly income more than 25000 rupees while the mean income of the patients was 50923 rupees per month. Study further revealed that 70.0% patients were living in the urban and 30.0% were living in the rural areas while the results of a study done by Abbasi and fellows (2016) demonstrated that majority (57.7%) was living in rural and 43.3% patients were living in urban area.[6]

It was found during study that 53.3% patients had normal white blood cells while 71.7% patients had normal platelet count. A study undertaken by Shams and collaborators (2016) showed different results that 80.0% patients had platelet count below the normal range.[16]

Study disclosed that 10.3% were suspected while 89.7% were probable cases of dengue but the findings of a study carried out by Lakshmi and assistant (2017) demonstrated that 34.8% were probable dengue cases.[10]

Health education programs are required to be carried out at health care facilities and community level to disseminate knowledge among people regarding dengue fever.

CONCLUSION

This Study concluded that 10.3% were probable and 89.7% were suspected cases of dengue. In this study concluded that suspected dengue fever was more common among females. We also conclude that contrary to other demographic data, our study shows that dengue is more common in people of high socioeconomic status.

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