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A STUDY ON THE CHARACTERISTICS OF DEMOGRAPHY AND FREQUENCY OF DENGUE FEVER IN THE PATIENTS SUFFERING FROM DENGUE INFECTION

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Abstract:
Objective: *This research work carried out to find out the rate of occurrence and traits of Dengue Fever among patients present with acute febrile illness.*
Methodology: *This observational transverse research work was carried out from June 2019 to November 2019 in Sheikh Zayed Hospital Rahim Yar Khan and it included the patients having more than twelve year of age who were present with acute febrile illnesses. Case definitions and classification of WHO were in use for the categorization of disease as Dengue Fever, Dengue Hemorrhagic Fever and Dengue Shock Syndrome. We recorded the clinical, bio-chemical and hematological outcomes until the discharge of the patients.*
Results: *In the duration of this research work, 34.75% (n: 90) patients appeared with typical features of dengue fever, 31.11% (n: 28) patients were dengue confirmed, 7.7% (n: 7) patients were with proved malaria in which parasites of malaria were present as positive in peripheral blood, whereas remaining 61.11% (n: 55) patients were present as dengue probable. The range of the age of patients were 13-76 years. The most common medical appearance was fever (100%) followed by nausea 55.56% (n: 50), body-ache in 34.44% (n: 31), abdominal pain in 18.89% (n: 17) and headache in 10% (n: 9). We saw the maculopapular rash in 4.44% (n: 4) patients. The findings of laboratory included the levels of leucopenia, thrombocytopenia and increased ALT (Alanine Amino-transferase). 90% (n: 81) got improvement clinically as well as hematologically and all these patients got discharge in stable state.*
Conclusion: *The most common presentation of Dengue Fever were high fever and thrombocytopenia. Overall rate of mortality of dengue fever is much low with suitable treatment. Knowledge of the professionals and population about strategies of prevention is vital to control the expansion of this disease.*
KEY WORDS*: Dengue Fever, Alanine Amino-Transferase, Dengue Hemorrhagic Fever, Dengue Shock Syndrome, Expansion, Ache.*

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INTRODUCTION:

Dengue Fever is the outcome of one of 4 sero-types of dengue viruses which belongs to the family of flaiviviridae [1]. All 4 sero-types are DENV-1, DENV-2, DENV-3 and DENV-4. The transmission of all these serotypes carried out by Aedes Egypti a mosquito. In recent few decades, there is a dramatic increase in the incidence of dengue fever in whole world and this very disease has become endemic in many countries of Africa, South Asia and Mediterranean region [2, 3]. In accordance with the data of WHO, more than 2.5 billion populations are present at risk to acquire dengue infection [4]. For the very first time, dengue infection emerged in our country Pakistan in the year of 1982 from province of Punjab [5] and later the very first documented outbreak of dengue hemorrhagic fever in our country was in 1996 in same province [7]. This disease has become endemic in different regions of our country Pakistan with its regular outbreaks particularly in the season of rain [8].

Dengue infection's spectrum comprise Dengue Fever, an illness like flu with severe myalgia and headaches, to Dengue Hemorrhagic Fever and Dengue Shock Syndrome, which is fatal and very severe condition. There can be characterization of Dengue Shock Syndrome with presence of the changed mental condition and hypotension [9]. There are many published research works available in our country about the features of Dengue Fever [10-12]. This research work aimed to determine the rate of occurrence of Dengue Fever in the patients present with acute febrile illness in the duration of this research work.

METHODOLOGY:

This transverse research work carried out in Sheikh Zayed Hospital Rahim Yar Khan from June 2019 to November 2019. All the patients having more than twelve year of age who visited OPD or got admission because of acute febrile illness underwent evaluation foe bio-chemical and clinical features of Dengue Shock Syndrome, Dengue Hemorrhagic Fever and Dengue Fever. We used the case definitions and classification of WHO for the categorization of these diseases [13]. We labelled the patients as dengue confirmed who were present with febrile illness and clinical factors suggesting dengue with positive dengue serology specific IgM, whereas we labelled the patients as dengue probable who were present with clinical aspects suggesting dengue but negative serology for dengue, parasites of malaria and negative cultures of blood.

We recorded all the hematological and bio-chemical outcomes of all the patients until their discharge. We repeated the count of complete blood and coagulation profile of all the patients to monitor their condition. We performed the X-ray of chest and ultrasonography of abdomen cavity in accordance with the patient's symptomatology. We recorded the all the data in the medical files of patients with full detail. We used the SPSS V. 23 for the statistical analysis of collected information. We presented the continuous data in averages and standard deviations and we presented the categorical data in frequencies. P value of less than 0.05 was significant one.

RESULTS:

In the duration of this research work, we saw total 259 patients suffering from acute febrile illness in our hospital. Among them, 34.75% (n: 90) patients appeared with having typical features of dengue fever and we included them in this research work. There were 31.11% (n: 28) dengue proven patients whereas 61.11% (n: 55) patients were dengue probable. The range of the age of the patients was from thirteen to seventy-six years. Thirty patients were male and remaining patients were females. Associated data is available in Table-1.

Table-I: Age Distribution of Patients

Age(years)	No	Percent
13-30	53	58.89
31-40	7	7.78
41-50	8	8.89
>50	22	24.44
Total	90	100

The major frequent clinical presentation was fever which was available in all patients. Five days was median duration of febrile illness. We observed the range of temperature from 101F to 105F. Other frequent clinical features were vomiting present in 55.56% (n: 50), body-ache in 34.44% (n: 31) patients, pain in abdomen cavity in 18.89% (n: 17) patients and headache in 10% (n: 9) patients. We observed a maculopapular rash 4.44% (n: 4) patients. The summary of all these clinical features is present in Table-2.

Table-II: Clinical Manifestation And Abnormal Laboratory Investigations of Patients With Dengue

Variables	No of Patients	Percent
Fever	90	100
Body ache	31	34.44
Headache	9	10.0
Rash	4.	4.44
Vomiting	50	55.56
Abdominal pain	17	18.89
H/O bleeding	1	1.11
ALT >35	38	42.2
Platelets <50,000	28	31.11
WBC<4000	29	34.12

Table-3 displays the findings of laboratory testing of all the patients. Most frequent hematological disorder was thrombocytopenia and leukopenia was following the first one. We observed the count of platelets below 50000.0/cumm 31.11% (n: 28) patients. We observed the count white blood cells below 4,000.0/cumm in 34.12% (n: 29) patients. PT (Prothrombin Time) was present as normal in all the patients whereas there was elevated ALT in 42.2% (n: 38) patients. In the duration of illness, there was continuous fall in count of platelets and it started improvement after five days of admission.

Table-III: Outcome of Patients

Outcome	No	Percentage
Discharge	81	90
Referred	1	1.11
LAMA	8	8.89
Total	90	100

The duration of stay in the hospital was from two to eleven days. Total 8 patients left the treatment without medical advice before complete recovery whereas 90% (n: 81) patients got improvement clinically as well as hematologically and all of these patients got discharge in stable condition. There was no mortality in the duration of this research work.

DISCUSSION:

The current research work states the clinical as well as bio-chemical features of dengue fever in the patients appearing in Jinnah Hospital, Lahore. In the patients who appeared with fever, we observed the dengue in 31.11% (n: 28) patients. There were same findings reported by many other research works in our country Pakistan [7, 11]. In this research work, 59% patients with dengue fever were less than thirty year of age. This outcome is consistent with the findings of other research works conducted in our country as well as in other countries like India and Malaysia [10, 14, and 15]. Now a day, Dengue Fever is the main reason of high rate of mortality in pediatric patients [15]. Majority of the patients were diagnosed in the months of July, August and September, this finding is also consistent with results of published research works [11, 16, 17]. The main reason behind this fact is that there is important increase in the larval population of this particular mosquito in the season of rain. High temperature with chills was the major feature of presentation of the patients and it was present in all the patients of this research work.

The onset of the fever has association with the nausea, headache, pain in body and myalgia. The range of the fever is from 101F to 105F and duration of this fever is from 3 to ten days. We saw the rash and hemorrhagic manifestations in five patients which is not common with the findings of other research works [10-12]. The most common laboratory feature in this research work was thrombocytopenia in the patients of dengue fever and this result is also consistent with the findings of other research works [11, 18, and 19]. Mumtaz K stated the thrombocytopenia present in 83% of studied population [10]. There are many factors involved in etiology of thrombocytopenia in the patients of dengue fever and in included the bone marrow's depression, high platelets destruction because of viral infection and the availability of antibodies against the platelets [20]. There is also

recorded marked hepatic dysfunction in the patients of sever nature [20, 21].

CONCLUSION:

Fever and thrombocytopenia were the most common presentations in clinical and laboratory findings in the patients suffering from dengue fever. There was very low overall mortality of dengue fever with proper treatment of disease. The acknowledgement of the professionals of healthcare field as well as general population about the strategies of prevention are vital to control the expansion of this dangerous disease.

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