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DENGUE SEROTYPES, CLINICAL FEATURES AND GENDER DISTRIBUTION: A CROSS-SECTIONAL RESEARCH FROM ISRA UNIVERSITY, HYDERABAD, PAKISTAN

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Abstract:

Dengue virus is a RNA virus belonging to Flaviviridae family of viruses being carried by Aedes mosquitoes that causes dengue fever. The infection of dengue fever may remain asymptomatic or may present as a complication in hemorrhagic shock. The diagnosis if made early can save many lives as it is global public health related challenge with multiple preventive aspects. We recorded the biodata and main presenting features while collected blood for samples from 100 known cases of dengue fever with permission by purposive sampling. Samples were analyzed for gangue serotypes and some other parameters. Data was analyzed on SPSS version 22 calculating mean SD and frequency while chi square was used for comparing serotypes among males and females. We found mean age of 33.34 years, 67% males and 33% females, Serotype I was 79%, serotype II was 19%, serotype III was in 2% and serotype IV was not found in a single patient. There was no significant difference between males and females for serotypes p-value 0.869.

Key Words: *Dengue Fever, Virus, Serotypes, Mosquito.*

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INTRODUCTION:

The dengue virus occurs in 4 serotypes namely DEN-1, DEN-2, DEN-3, and DEN-4 with family name Flaviviridae and genus name *Flavivirus* transmitted by Ades mosquito bites [1,2]. Dengue figures got increased by 30 times over 1960 to 2010 possibly due to rising world population, urbanization without proper planning, failed or inadequate mosquito control programs , frequent travels abroad as well as improper health care regarding dengue fever [3]. An estimated 400 million people get infected by dengue each year leading to 5–20% [4]. Dengue infection affects more than 100 countries, including Europe and the United States (USA)[5].

Dengue for the 1st time in Pakistan was reported in 1985 as undifferentiated fever followed by 10 cases of 1995 reported from Baluchistan [6].[46]It was year 2003when100 Dengue cases were reported from Haripur with 7 casualties 2500 cases were reported from Khushab and Nowshera in the same year 500 and 5400 cases were reported from Karachi and anterior Sind in the subsequent years 2005 and 2006 respectively [7,8]. Pakistan has three most prevalent dengue serotypes 2, 3 and 4 reported by many studies [9-12].However the presentation, lab diagnosis as well as the management for dengue fever is bit complex due to comorbidities in our Pakistani patients that may result into high mortality rate following this condition [13]. Dengue infection is an emerging pandemic seen in last 30 years and over 70% of the dengue fever occurs in Asia and the Pacific, followed by America, the Middle East and Africa. Globally 2.5 billion people living in more than 100 countries are at risk for acquiring dengue virus [14].

METHODOLOGY:

This study was conducted on known cases of dengue fever so we recorded the patient demographic data on the proforma along with the key features seen on presentation. Total of 100 patients were chosen as non- randomly under consent signature and the blood was collected blood under aseptic measure of international protocols. Samples of blood were analyzed in Isra research lab for dengue serotypes. Data thus obtained was put into SPSS version 22 for analysis, calculating mean SD and frequency while chi square was used for comparing serotypes among males and females

RESULTS:

We found mean age of 33.34 years, 67% males and 33% females, Serotype I was 79%, serotype II was 19%, serotype III was in 2% and serotype IV was not found in a single patient. There was no significant difference between males and females for serotypes p-value 0.869. Fever was the top complaint seen in 91% patients followed by 65% and 55% for body ache and headache complaint respectively. Anrexia is seen in 45% patients while vomiting was observed in (15%)

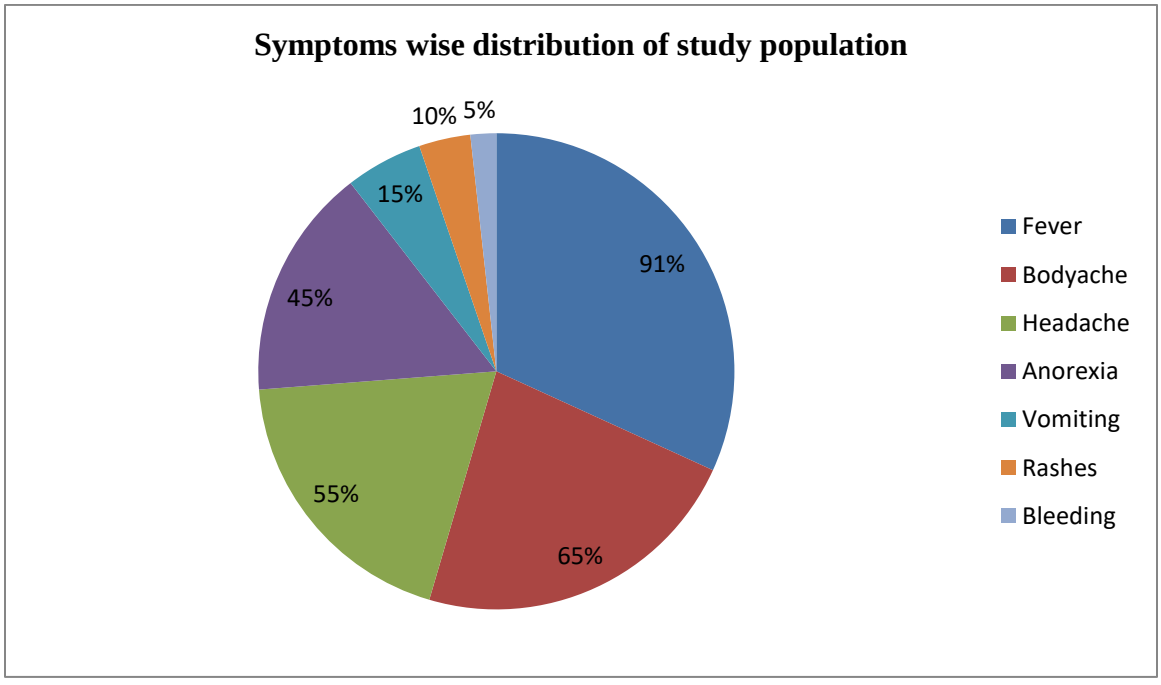

Table1. Characteristics of study population

S. No	Parameters	Calculated observation
	Mean Age with SD	33.34 ±7.56 years (Minimum 20 maximum 47 years)
	Dengue Serotype I	79(79%)
	Dengue Serotype II	19(19%)
	Dengue Serotype III	2(2%)
	Dengue Serotype IV	0(0%)

Table 2: Comparison of dengue serotypes between males and females using Chi-Square

Parameters	Serotype I	Serotype II	Serotype III	Row Total	X^2	P-Value
Male	53(53%)	13(13%)	1(1%)	67(67%)	0.279	0.869
Female	26(26%)	06(6%)	1(1%)	33(33%)		
Column Total	79(79%)	19(19%)	2(2%)	100(100%)		

DISCUSSION:

The mean age of patients affected by dengue in our study was 33.34+7.56 years which is consistent with Mehmood et al(2009) with age range of 16-45 years for his study subjects with male dominance [15]. Fatima M et al,(2012) found mean age of 34±16.5 years as well as 73.4% males affected in her study so our results are consistent with her results[16].Farkhanda M et al(2015) conveyed female dominance in study subjects infected by dengue virus so remained inconsistent with our findings[17]. Nazish B et al(2008) reported presentationof patients with fever , abdominal pain , vomiting ,generalized rash ,backache , bleeding, depression , hepato-spleenomegaly, pleural effusion ,lymphadenopathy, and ascites which is different from presentation we observed[18].serotype DEN-1 was most common (79%) in our results , DEN-2 was19% while DEN-3 was found 2% showing inconsistency with Zareen F et al (2011) with serotype DEN-2 as most common followed by DEN-3[11]. Ali A et al (000) found all4 dengue serotypes in his study with DENV-2 as dominant (41.64 %) and DENV-3 (41.05 %) which in not consistent with our results [19]. We found non-significant gender difference for serotypes which was consistent with a study from Brazil by Braga C et al(2010) and Duncombe et al(2013) who also found the difference as non-significant in their studies[20,21].

CONCLUSION:

Most prevalent serotypes of dengue virus at Hyderabad Pakistan are DEN 1 and DEN 2 with non-significant gender distribution and presentation.

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