

Mortality Rate of Patients with Dengue Hemorrhagic Fever

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ABSTRACT

Background: A total of 1% of these persons are given a diagnosis of dengue hemorrhagic fever (DHF) and of these persons, the disease causes death in approximately 4% of the cases. The aim of the study was to determine the mortality rate in dengue patients.

Methods: This was an observational retrospective study, where the data was retrieved for 200 patients from the hospital registers and electronic database. The duration of study was of two years starting from May 2014. The exclusion criteria for the study includes all those patients who lose follow up or dengue patients with no information on disease outcome, whereas all those patients who diagnosed for Dengue fever and admitted to the hospital were included in the study.

Results: A total of 200 dengue patients whose data was retrieved from the hospital records. 140(70%) out of the total were male and 60(30%) were females. The average ages of all patients were 42.1+10.5. The average age of male patients were below 50 and of females were above 50 years. We observed 34(17%) of the patients where the outcome was death where as the 83% of the patients survived.

Conclusion: Our study demonstrate high mortality rate among dengue patents, seen primarily in adult females. While majority of patients with fetal outcomes presented with common clinical symptoms of sever dengue and seen in all ages.

Keywords: Mortality rate, dengue hemorrhagic fever, potential fetal outcomes

INTRODUCTION

Dengue is the most vital viral disease, with potential fetal outcomes and complications. Worldwide, in recent decade the incidence of infections has increased¹. In a report published by WHO, where they estimate the dengue virus infect more than 50 million of people throughout the world every year. A total of 1% of these persons are given a diagnosis of dengue hemorrhagic fever (DHF) and of these persons, the disease causes death in approximately 4% of the cases². It is foresaid that the Southeast Asia region contributes 52% of the cases annually. Pakistan is one of the seven identified countries in this region that regularly reports dengue fever/dengue hemorrhagic fever (DF/DHF) outbreaks. Pakistan appears to be transforming into a major hyper endemic place for dengue infection. Increasingly, previously unaffected areas are being struck by the dengue epidemic^{3,4}. To our knowledge very few studies available in this region for the severity of the outcome of dengue. Therefore the aim of the study was to determine the mortality rate in dengue patients.

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MATERIAL AND METHODS

The design of the study was observational retrospective, where the data was retrieved for 200 patients from the hospital registers and electronic database. The duration of study was of two years starting from May 2014. The exclusion criteria for the study includes all those patients who lose follow up or dengue patients with no information on disease outcome, whereas all those patients who diagnosed for Dengue fever and admitted to the hospital were included in the study. The demographic and medical history of all patients was noted. Moreover, the outcome of the treatment was of special focus. An approval was taken from the hospital ethical committee.

Statistical analysis:

All the collected data was stored electronically & analyzed later by using SPSS version 18. Descriptive statistics were applied to calculate mean and standard deviation. Frequency distribution and percentages were calculated for qualitative variables like gender, outcome of dengue fever. Over all a P values less than 0.05 was considered statistically significant.

RESULTS

There were a total of 200 dengue patients whose data was retrieved from the hospital records. 140 (70%) out of the total were male and 60 (30%) were

females. The average ages of all patients were 42.1 ± 10.5 . The average age of male patients were below 50 and of females were above 50 years. We observed 34(17%) of the patients where the outcome was death whereas the 83% of the patients survived, the distribution of the dengue outcome was given in figure 1.

The distribution of severe Dengue fever outcomes was given with respect to demographic of the patients in table 1.

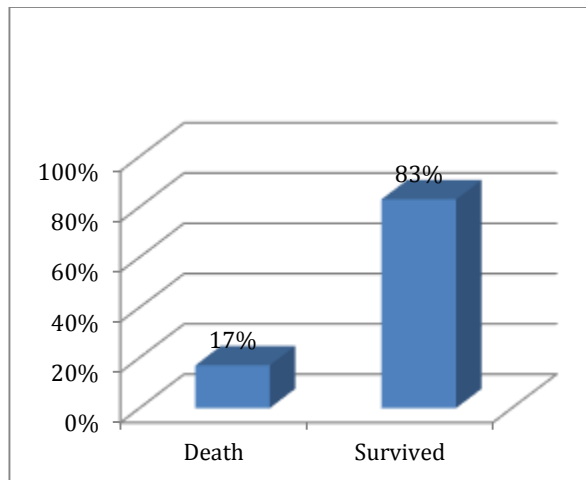


Fig 1: Outcome of the Dengue fever

Table 1: Dengue outcome with respect to demographics of the patients.

Characteristic	Death (n)	Percentage	No Death	Percentage
Gender				
Male	11	32%	129	78%
Female	23	68%	37	22%
Age				
0-14	5	14.7%	26	15.7%
15-49	20	58.8%	116	69.9%
≥50	9	26.5%	24	14.5%
Living Area				
Urban	20	59%	148	89.2%
Rural	14	41%	18	10.8%
Sign and symptoms*				
Fever and 2 symptoms	4	11.8%	10	6.0%
Fever and 3-5 symptoms	13	38.2%	56	33.7%
Fever and 6-8 symptoms	12	35.3%	88	53.0%
No fever and < 2 symptoms	5	14.7%	12	7.2%

*Headache, exanthema, retro-orbital pain, prostration, myalgia, nausea/vomiting, arthralgia, and diarrhea.

DISCUSSION

This study is one of its own kinds, which was conducted to determine the mortality rate in dengue patients. To our knowledge there was no study in the region to focus the outcomes of the dengue fever. Through literature it is known that Dengue is an avoidable cause of death,^[5] and its infection is preventable. All the prevention can be made by health promotion activities and vector control. However an early appropriate diagnosis and later its management can prevent a person who becomes infected. Therefore, awareness of health care professionals is as fundamental in all-primary healthcare setups. In our study we observe higher rate of mortality among dengue patients. Similar rates were observed by other published reports^{6,7}. We also observed that the patients who were of equal or above 50 years of age had greater mortality risk than of patients of age 1-4 years. Similar higher mortality risk was reported during dengue epidemics in Puerto

Rico and Taiwan⁷. Our study reports most dengue cases in young ages; similar results were reported in Malaysia, where the dengue cases were most common among adults of 13-35 years of age⁸⁻¹¹. We also observe the mortality rate was high in the same age group.

In present study we report higher mortality among female dengue patients. Studies available showing the similar findings to our results, a higher tendency of females to develop DHF/DSS,^[11,12] with higher mortality rate in females¹³. In Vietnam during 1996-2009 most deaths occur among females of pediatric age with dengue fever^{14,15}. At present no authentic and satisfactory reason to support the phenomenon, but many studies suggest that this is due to the more vigorous immune response among females, to be more disposed to develop greater inflammatory responses to capillary permeability^{16,17}. Common clinical symptoms in our study for dengue mortality were headache, exanthema, retro-orbital

pain, prostration, myalgia, nausea/vomiting, arthralgia, and diarrhea. Some of the symptoms were with cautioning signs of severe dengue³. Similar symptoms were reported by other published studies although the geographical and ethnic differences were obvious.

CONCLUSION

In conclusion, our study demonstrate high mortality rate among dengue patents, seen primarily in adult females. While majority of patients with fetal outcomes presented with common clinical symptoms of severe dengue and seen in all ages.

Running Title: Mortality Rate in Dengue Fever

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