Ratios of Age & Sex With Blood Group Prevalence’s in Dengue Fever

Sudhakar Thunguturthi*, Kolan Bhagavan Reddy, B.Sai Ravi Kiran

ABSTRACT

Occurrence of Dengue fever every year from 2008 to 2012 in the months of July to October. To study the prevalence of Dengue fever in Karimnagar dist, AP, India for its occurrences in age and sex with the IgM, IgG, NS1 and both IgM, IgG in percentages with blood group and Rh typing incidences during the winter seasonal variations. Analytical data of 100 patients for diagnosing Dengue fever from ages 13-82 yrs male /female were included for this study, who attended to medical OP’S and were admitted in Apollo Reach Hospital, Karimnagar, were investigated for differential detection of IgM and IgG antibodies by antigen/antibody test. The Blood group and Rh typing were done by using kit method as routine test in 26 patients. The non – Dengue fever patients were excluded. 100 samples of patients with Dengue fever were investigated for the prevalence and distribution of age and sex with IgM and IgG antibodies in 13 to 82 yrs showed mean and SD in males as 43.21 ± 17.9, and in females as 42.64 ±16.16. The mean Ratio is 1.0: 1.0 in both male and females in this study. The percentage of IgM in males were shown as 26% and females as 6%. Both males and females were 32%. The IgG in males showed as 18% and females were 12%. Both males and females were 30%. Both IgM and IgG in both sexes was 12%. Both sexes NS1 were 26%. The Blood grouping and Rh typing was recorded and showed as: ‘O’ group-57.6%, ‘B’ group was 34.8%, ‘A’ group was 7.6%, ‘AB’ group was without any occurrences in this study. Rh typing’s was positive in all the blood groups tested in this study. The age and sex distributions with Dengue antibodies and blood groups and Rh typing’s were done in this work to show the change of 2.5:1.0 as sex ratio mean stated previously for 1.5 to 44 yrs, is analysed to be 1.0: 1.0 for Dengue fever distribution in males and females in Karimnagar dist. In this present work with age range as 13 to 82 yrs. The community health education and awareness is to be fed up in seasonal variations to improve the quality of vector control measures and propagand to decrease the rise of complications and mortality in sight.

KEY WORDS: Dengue Fever, ABO Blood Groups, Antibodies

Introduction

The time has changed from routine fevers of different origin to noxious fevers of Dengue

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predominancy with the proportional decrease of vector control measures and ill sanitation, caused the mosquito born diseases on rampant in seasonal duration from July to October since 2008 onwards. The one disease in lime light is Dengue fevers of mosquito –borne causing mild constitutional symptoms to hemorhagic and shock syndromes in occurrences of major health problems. As per WHO estimates 40% of world population living in tropical and sub-tropical are at risk [1].

Early in the 20th century the epidemics of Dengue fever were common in temperate
areas of America, Europe, Australia and Asian countries but now Dengue fever has become epidemic in tropical Asia, south pacific islands, northern Australia, Tropical Africa, Carribean, Central and south America[2]. An estimated 1200 annual deaths occur out of these reported cases due to its complications [4]. Clinical manifestation of Dengue fever included headache, fever, myalgia, arthalgia, leucopenia and thrombocytopenia [4]. Infected with one Dengue Virus serotype in specific immunity to that serotype only; theoretically, individuals can be infected with all 4 serotypes. DEN-2 was the predominant serotype in the 1980’s and early 1990’s but in recent years, DEN-3 has been more predominant [6].

**Classification clinically:**

Dengue virus infection may be associated or may have 3 main clinical manifestation [6,7,]

1. Undifferential febrile illness ( UF) Viral syndrome.
2. Dengue fever
3. Dengue heamorrhagic fever ( with and without shock syndrome )

Infants and young children, especially those younger than 15 yrs may have an undifferentiated febrile illness with macro papular rash. According to the WHO and Pan American health organization [8]. A case of DHF (Dengue heamorrhagic fever) should meet all of the following clinical criteria; acute onset of fever, any hemorrhagic manifestations, thrombocytopenia (< 1 lakh platelets /ul), objective evidence of increase of capillary permeability and plasma leakage manifestations by an increase in Hct levels equal to greater than 20%, adrop in Hct levels than 20% following therapy signs of plasma leakage (pleural effusion, hypoalbuminemia or hypoproteinemia), Major health problems age and sex distribution with Dengue antibodies blood grouping and Rh typing were done in previous studies as sex ratio stated per 15-44 years.

**Materials and Methods**

In this study 100 patients samples were taken from clinically suspected Dengue fever in the department of lab services Apollo Reach Hospital, Karimnagar AP,India with standard guidelines for serum and blood collection. These were analysed for detection of IgM, IgG and NS1 by Rapid visual test which is rapid solid phase Immuno-Chromatographic qualitative detection [9, 10]. The routine blood grouping and Rh typings were done by monoclonal antibodies [11-15]. The results were documented with patient’s age and sex for calculations of percentage of prevalence of blood groups and Rh typings with age/ sex ratio.

**Results**

The results showed in the present study for age /sex mean ratio in Female and Male of ages 13 to 82 years suffering from Dengue fever seropositive patients as shown in the table below.

<table>
<thead>
<tr>
<th>Age in yrs</th>
<th>Positive cases Males</th>
<th>Positive cases Females</th>
<th>Total % in male &amp; Female</th>
<th>Ratio of Male/Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>13- 40 yrs</td>
<td>30</td>
<td>20</td>
<td>50</td>
<td>1.5</td>
</tr>
<tr>
<td>41- 60 yrs</td>
<td>24</td>
<td>12</td>
<td>36</td>
<td>2.0</td>
</tr>
<tr>
<td>61- 82 yrs</td>
<td>11</td>
<td>03</td>
<td>14</td>
<td>3.66</td>
</tr>
<tr>
<td>13-82 yrs</td>
<td>65</td>
<td>35</td>
<td>100</td>
<td>1.85</td>
</tr>
</tbody>
</table>

**TABLE-1**

Table-1 shows that the age and sex Mean Ratio with prevalence

50 % of cases of seropositive Dengue fever is of age group 13-40 yrs
36% of cases of seropositive Dengue fever is of age group 41 – 60 yrs, 14% of cases of seropositive Dengue fever is of age group 61- 81 yrs

### Table 2

<table>
<thead>
<tr>
<th>Age &amp; sex</th>
<th>Mean Ratio Of Age &amp; sex</th>
<th>% Of IgM</th>
<th>% Of IgG</th>
<th>% of Ns1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>43.21</td>
<td>1.02/1.0</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Female</td>
<td>42.64</td>
<td></td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

The current work on mean ratio of age and sex IgM and IgG detection in 13-82 yrs shows 1.0:1.0 Male to Female. IgM, IgG and both in detection and NS1 in percentage shows in males and females in total is as shown in Table-2. 32% occurrence with IgM, 30% occurrence with IgG. Both IgM and IgG Shows 8% in males and 4% in females. In total both IgM and IgG Shows 12%. NS1 in males is 15% and 11% in females shows as 26% of occurrences

### Table 3

<table>
<thead>
<tr>
<th>SEX</th>
<th>O group</th>
<th>B group</th>
<th>A group</th>
<th>AB group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male &amp; Female</td>
<td>57.6</td>
<td>34.8</td>
<td>7.6</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Table-3 - shows Blood group and Rh typing in 26 patients suffering from Dengue fever consisting of males and females with 57.7, 34.6, 7.7 and nil prevalence in O, B, A and AB Groups respectively. All Rh typing were to be positive typing’s.

### Discussion

The change in fever, causing mosquito borne scenario of diseases has been put the Dengue fevers in tropical and sub-tropical regions in priority. It was very virulent in 2008 but steadily decrease of cases is noted from 2009 to 2012 in Karimnagar dist. AP, India. The percentage of IgM, IgG, Both with IgM and IgG and NS1 were 32%, 30%,12% and 26% respectively showing the primary and secondary Dengue fever prevalence with IgM of 32% was highest prevalence in 2008 to 2012 July to October with seasonal variation in Males and Females.

The age /sex mean ratio happens to be 1.0:1.0 male to female of age 13 to 82 yrs had equal prevalence in both sexes, which differs with the previous study, which was 2.5 : 1.0 stated by Strick man D etal [17].

The present study shows the difference of value in terms of prevalence and distribution of age / sex ratio with in the region of tropical and sub tropical areas. As shown in the previous study the males being more affected than in females and in other previous studies on prevention by Khalid etal[18], showed male to female 1.2 :1.0 in adults. The present study indicates the near equal variance in age /sex ratio of mean as shown in the table-1 as 13 to 40 yrs male and females were 50% more at risk than the other age groups in the study. The sero positive young patients are at risk and should be anticipated for serious complications and put for proper treatment.

In other study showed that old age, grownups are predominantly affected [17-20] but in this study the adult age group are more at prone for Dengue fever. The present study correlated with the results of Ashwin Kumar etal [16] as stated that the most occurring Dengue fevers are of age group 15- 44 yrs and also study correlated with Dengue fevers in seasonal variation from July to October of these years from 2008. The situation has risen, that in these pre-monsoon and monsoon periods public awareness, vector control and improvements in sanitation and hygiene are needed to be taken up seriously for necessary action by the concerned authority.
It is noted that 1/3rd global cases of Dengue were reported in India [21]. Poor surveillance system in India makes it difficult to know the exact incidence of the epidemic in the country. There have been reports regularly in medical literature from various hospitals between September 2001 and 2002 during the epidemic of Dengue in Chennai, Tamilnadu, India nearly 800 cases were reported to the health systems [22].

**Conclusion**

The present study impinges on better health care provision of those at risk and locating the prone areas for prevention of Dengue fever, due to non-availability of vaccine, the focus should be for good diagnosis and treatment to avoid potentially fatal consequences which occur due to severe Dengue fevers.

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