ABSTRACT

The current study aimed to detection of seroprevalence of IgG, IgM antibody against Epistine–barr virus in medical staff of Tikrit hospitals. For this purpose (91) serum sample were collected from the medical staff and ELISA technic where conducted for detection of antibody. The rate of positive case of IgG, IgM against EBV (95.6%, 30.7%) respectively. The highest seroprevalence of anti EBV antibody were recorded in age group (30-39 and >40). And all the positive cases of the ELISA test for the detection of the IgM antibody were positive for the IgG antibody at a percentage of 100%. The percentages also increased with age, and the gender was not affected by infection with the virus. Depending on the serological diagnosis, the presence of late primary infections was observed (30.7%). The percentage of cases that included reactivation of the virus (9.8%).

Keywords: Epistine –barr virus, infectious mononucleosis, medical staff

I. INTRODUCTION

Epstein-Barr virus is Belonging to the family Herpesviridae classified into the subfamilies gamma herpes virus, has a double stranded linear DNA with approximately 172 Kbp base pairs and 85 protein-coding genes. (Thompson & Kurzrock, 2004). EBV infection is common, worldwide, and largely subclinical in early childhood. This virus is the main causative agent of infectious mononucleosis, which occurs most frequently in late adolescence or early adulthood. (Mcsherry, 2003; Johannsen, 2015).

EBV has a biphasic life cycle, divided into latent infection and lytic infection. Latent infection is defined as a state of persistent viral infection without viral or active virus production (Oдумade et al., 2011). the genome of EBV remain in episome-independent form in the latent infections and only a few latent genes are expressed (Murata, 2014). The virus undergoes lytic replication in epithelial cells and leads to a lifelong latency phase in memory B lymphocytes, the virus has the ability to periodically reactivate from the latency phase through viral gene expression, and the production of virion (Andrei et al., 2019).

EBV is transmitted through contact with oral secretions (saliva), EBV is secreted in the oral secretions consistently and at high concentrations over six months after acute infection and intermittently and at low concentrations throughout life EBV is also found in male and female genital secretions and is transmitted through sexual contact. (Jenson, 2011). the most frequent incidence of EBV infection were commonly in medical staff (Abrahamyan et al., 2020).

II. MATERIALS AND METHODS

(91) blood samples were collected during the period from October 2020 to January 2021. Blood samples were taken from medical personnel who did not show clear clinical symptoms, and their ages ranged from (20) to (50) years, including 67 males and 24 females use the serum to diagnose EB virus infection by using the ELISA technic, the EBV VCA IgM antibody test kit is based on the principle of enzyme immunoassay (EIA) and the use of the kit manufactured by the German company Demeditec, The same steps were used in the detection of the two antibodies, according to the leaflet attached to the test kit. The results were analyzed statistically using the Chi square test, with $p<0.01$ and $p<0.05$. 

www.turkjphysiotherrehabil.org
III. RESULT AND DISCUSSION

Results of ELISA test for the detection of IgM antibody showed that the percentage of positive cases (30.7%) that is (28:91), and the age group (30_39) is the highest studied age group with a percentage 44%, and all positive cases of the ELISA test for the detection of IgM antibody were positive for IgG with a percentage of 100%. As in table (1)

Table (1): Percentages of IgM+ antibody test results for study groups according to age groups.

<table>
<thead>
<tr>
<th>Age group</th>
<th>male</th>
<th></th>
<th></th>
<th>female</th>
<th></th>
<th></th>
<th>Total of IgM+</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sample</td>
<td>IgM+ve</td>
<td>%</td>
<td>sample</td>
<td>IgM+ve</td>
<td>%</td>
<td></td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>41</td>
<td>9</td>
<td>22</td>
<td>18</td>
<td>7</td>
<td>38</td>
<td>16</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>13</td>
<td>5</td>
<td>38</td>
<td>5</td>
<td>3</td>
<td>60</td>
<td>8</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>&gt;40</td>
<td>13</td>
<td>4</td>
<td>31</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>18</td>
<td>26.8</td>
<td>24</td>
<td>10</td>
<td>41.6</td>
<td>28</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The percentage of IgM antibody reached (30.7%), and this percentage indicates the presence of a late primary infection among health personnel in the hospitals under study. The results of the current study were agreed with (Moeini et al., 2015), who recorded the percentage of IgM antibody was (30.00%). The percentages differed from the percentage recorded from (Abrahamyan et al., 2020), which it is 95%. Perhaps the reason for this is the variation in the geographical location, and the researcher indicated that (20-40) age group was the most susceptible to infection, and this is identical to the study groups.

On the other hand, not all positive case of the IgM antibody can be considered as infection case because of antigenic mimicry theory occur among EBV and the others infectious agent like (cytomegalovirus, which belongs to the same family as EB virus, Toxoplasma gondii hepatitis A), (Paschale and Clerici 2012; Lang et al., 2001). In current study showed that no significant difference among age group according to age of employment, this supported the result of (Fourcade et al., 2017), that refer no correlation between the length of stay in the hospital and the period of exposure to infection.

results of the ELISA test for the detection of IgG immunoglobulins from table (2) showed that rate of positive case were 95.6% (87:91) and the age group (30-39) and (over 40) are the highest age group with rate of 100%.

Table (2) Distribution of cases of study groups according to age groups for IgG antibody

<table>
<thead>
<tr>
<th>Age group</th>
<th>male</th>
<th></th>
<th></th>
<th>female</th>
<th></th>
<th></th>
<th>Total of IgG+</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sample</td>
<td>IgG+</td>
<td>%</td>
<td>sample</td>
<td>IgG+</td>
<td>%</td>
<td></td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>41</td>
<td>38</td>
<td>92</td>
<td>18</td>
<td>17</td>
<td>94</td>
<td>55</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>13</td>
<td>13</td>
<td>100</td>
<td>5</td>
<td>5</td>
<td>100</td>
<td>18</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>&gt;40</td>
<td>13</td>
<td>13</td>
<td>100</td>
<td>1</td>
<td>1</td>
<td>100</td>
<td>14</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>64</td>
<td>95.8</td>
<td>24</td>
<td>23</td>
<td>95.5</td>
<td>87</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The results of the study showed that 95% of the health staff in the hospitals had given positive results for the antibody IgG, which indicates the presence of a previous infection with EB virus during their life stage. (Abusalah et al., 2020) refer to increase in the incidence of EB virus in 90% of the world's population. and the researcher (Altintas et al., 2017) indicated the high rate of IgG antibody in the study group, reached to 96.4% in the entire community, and a percentage of 100% for health staff.

in current study showed that 28 case in percentage 30.7% of cases were positive for (IgGandIgM) this indicated to late primary infection according to the researcher (Paschale and clerici2012), there is a significant difference between these two groups (P<0.0001), and the researcher (Kasifoglu et al., 2018) reported there was a late primary infection in his study groups due to the high percentage of IgG, IgM antibody, as the percentage of IgG antibody was (92%) and IgM (22), The researcher pointed out that the percentage of immune antibody IgM gradually disappears after (3-6) months from primary infection. the results of the researcher (Zajac et al., 2020) is correspond with our study who recorded high seropositivity of EB virus for IgG immune antibody among nurses working in the health care field, as it reached 100%.

The conclusion from the study that Epstein-Barr virus was spread among health personnel in Tikrit hospitals. The seroprevalence of EB virus is not limited to a specific sex or group, It was noted that all age groups in the study
group had previous infections. the of age of employment to the medical staff is not related to the period of exposure to the infection.

REFERENCES