IMMUNOLOGICAL VALUE POST HEPATITIS B IMMUNIZATION IN CHILDREN AGED 12-24 MONTHS IN BENGKULU CITY IN 2019

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Abstract
Hepatitis is a health problem in the world, including Indonesia. The hepatitis B virus has infected 2 billion people in the world, about 240 million of whom have chronic hepatitis B. As many as 1.5 million people die each year due to hepatitis. Indonesia is a country with the second largest hepatitis B high endemicity in the South East Asian Region (SEAR) after Myanmar. According to the 2013 Rikesdas, the prevalence of hepatitis is 1.2% of the population in Indonesia, of which 1-5% are pregnant women with hepatitis B virus. To determine the post-immunization immunological results in children 12-24 months in the city of Bengkulu in 2019 by comparing the first immunization, birth weight and completeness of immunization. This study is a laboratory study with respondents aged 12-24 months who are post-Hepatitis B immunization, samples were taken as many as 40 children who were post-Hepatitis B immunization. Samples were examined for HBs Ab against hepatitis B in the Clinical Laboratory of RSUD Bekasi, West Java. then analyzed using independent t-test. Protective immunity was obtained by 57.5% with an average titer of 76.144 m IU/ml for anal 12-24 months in Bengkulu city in 2019. And there was an effect between the first administration of immunization > 7 days, birth weight < 2500 grams and completeness of immunization for the formation of antibodies against Hepatitis B It is hoped that the Bengkulu city health office can increase the coverage of hepatitis B immunization, especially for HB0, as well as evaluate the implementation of immunization.

Keywords: hepatitis B vaccine, HBsAb, immunization, antibody

1. Introduction
Hepatitis is a health problem in the world, including Indonesia. The hepatitis B virus has infected 2 billion people in the world, about 240 million of whom have chronic hepatitis B. As many as 1.5 million people die each year due to hepatitis. Indonesia is a country with the second largest hepatitis B high endemicity in the South East Asian Region (SEAR) after Myanmar. According to the 2013 Rikesdas, the prevalence of hepatitis is 1.2% of the population in Indonesia, of which 1-5% are pregnant women with hepatitis B virus (Depkes RI, 2013). 8% positive HBsAg (Mustika 2018). This disease is increasing from year to year. When the incidence of this infection occurs in infants or...
under 5 years of age, it will result in chronic hepatitis or cirrhosis or liver cancer. Those who are infected will also become a source of transmission for other people in their environment.

Prevention means giving hepatitis B immunization to newborn children. Although currently there are many obstacles in achieving the target of the immunization program, one of the obstacles is the level of public understanding of the importance of immunization, and an immunological evaluation of immunization itself has not been carried out. This evaluation is needed to measure the success rate of immunization carried out. An incident that is often experienced by the community is that immunizations have been carried out but children are still infected with certain diseases, for example, if they have been immunized against measles, how come they are still exposed to measles. Oppose infection occurs.

Based on data from the Bengkulu City Health Office, immunization coverage from 20 to 15, 2016, 2017 and 2018 was above 90%. of 20 Puskesmas in Bengkulu city, Baski Rahmad Health Center has the highest coverage rate (98.2%) for Hepatitis B immunization coverage, (Bengkulu City Health Office, 2018). The hepatitis B immunization program is given to infants in 4 doses, namely the initial dose given to infants aged <24 hours, doses 1,2 and 3 to infants aged 1,2, and the last 3 months to infants aged 18 months. The administration of 3 doses of immunization is expected to provide the expected immunity. In 2001 in Java In the west, a study was conducted on children aged 2 years showing protective immunity of 91.6% with an average titer of 69.16 mIU/ml (benchmark > 10 mIU/ml (Prijanto, 2002)).

The level of immunity that occurs after immunization is influenced by several factors, including the presence of antibodies from the mother, low antibody response, age at the time of the first dose, nutritional status, and the accuracy of the immunization schedule. Data on immunity in children after hepatitis B immunization is very limited, so adequate research on hepatitis B antibodies is needed, so that the success rate of immunization is not only coverage but also the immunological aspect of transmission to other people in the environment.

2. Materials and Methods

Study this carried out in the city of Bengkulu, the election area conducted with consideration 1) coverage highest Hepatitis B immunization, 2) in the region has apply Hepatitis B immunization complete, 3) easy reachable. Design Cross Sectional research with pappolation and sample study with a total sampling of 40 children 12-24 months of age who have get Hepatitis B immunization is good complete nor no complete. 1) Selection sample based on Child 1-2 years old 2) Body healthy 3) body healthy 4) Willing follow study (person old has mark handle i Immunization conducted by officer Public health center in accordance with schedule that has been determined. Taking sample conducted to child with before ask agreement with parents. (Informed consent). Blood taken by officer special that has been experienced.

Anti- HBsab test done at home Sick General Bekasi with use flies try e- 411 analyzer with method elisa. Data analysis using univariate and bivariate with calculate the average antibody protective in comparison to first time get immunization, equipment immunization and weight body born. Analysis next use T- independent test. informed consent.

3. Results and Discussion

Amount accompanying child _ in study this as many as 40 people with results as following table 1.
Table 1 Distribution of HBs Ab respondents according to age at first immunization

<table>
<thead>
<tr>
<th>No</th>
<th>Age immunization first</th>
<th>Amount</th>
<th>p-Value</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 7 days</td>
<td></td>
<td>26</td>
<td>0.00</td>
<td>There's a Difference</td>
</tr>
<tr>
<td>&gt; 7 days</td>
<td></td>
<td>14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1 shows there is a difference among first-time hepatitis B immunization formation of antibodies against hepatitis B virus.

Table 2 Distribution of HBs Ab respondents according to completeness of immunization

<table>
<thead>
<tr>
<th>No</th>
<th>Immunization status</th>
<th>Amount</th>
<th>p-Value</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not complete</td>
<td></td>
<td>7</td>
<td>0.00</td>
<td>There is a difference</td>
</tr>
<tr>
<td>Complete</td>
<td></td>
<td>33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows there is a difference among completeness immunization with formation antibody against hepatitis B.

Table 3 Distribution of HBs Ab respondents according to birth weight

<table>
<thead>
<tr>
<th>No</th>
<th>BB was born</th>
<th>Amount</th>
<th>p-Value</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2500g</td>
<td></td>
<td>2</td>
<td>Not tested</td>
<td>Not can tested statistics</td>
</tr>
<tr>
<td>&gt;2500 g</td>
<td></td>
<td>38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From table 3 it is known there is as many as 2 children who have birth weight <2500 grams but no can tested statistics. This study aims to see the relationship between hepatitis B immunization and the level of antibodies formed in children who have been immunized. In addition, to evaluate the Hepatitis B immunization program implemented in Bengkulu City.

The hepatitis B immunization program is given to infants in 4 doses, namely the initial dose given to infants aged <24 hours, doses 1, 2 and 3 to infants aged 1, 2, and the last 3 months to infants aged 18 months. The administration of 3 doses of immunization is expected to provide the expected immunity. In 2001 in West Java, a study was conducted on children aged 2 years showing protective immunity of 91.6% with an average titer of 69.16 mIU/ml (benchmark > 10 mIU/ml (Mustika, 2018)).

Research conducted with 40 samples of children aged 12-24 months in Bengkulu city obtained protective immunity of 57.5% with an average titer of 76.144, this is different from the research conducted by Prijanto that protective immunity was obtained by 91.6% and the average titer was 69.16% mIU/ml, this was caused by the researchers involved subjects with birth weight <2500 grams and also incomplete immunization.

The same study was conducted by EN Kosasih which stated that antibodies are not always formed after completion of immunization. According to the vaccine maker Engrix B, the success of immunization is achieved around 90-95% in people who appear normal. The success of HBs AB formation after vaccination was carried out in 44 cases with a success rate of 93.6% with a titer of 429.4 Iu/L, 43 cases with respondents with moderate immunogenicity and one with low immunogenicity. The study was different from what the researcher did with the results of 17 people getting results < 10 mIU/ml this was due to the inclusion of respondents with incomplete immunizations as well as giving HB 0 which was >7 days. As Permenkes 53 of 2015 that immunization must be given to newborns immediately after birth.

Table 1 shows that there is a difference between the first administration of hepatitis B vaccine (HB0) and the levels of antibodies formed, this requires health workers to map out immunization coverage, because not all delivery assistance is currently carried out by health workers (in this case midwife). This study is in line with Prijanto's research which states that the role of midwives in administering HB) is still low. For this reason, it is hoped that the health office will increase immunization coverage. This study is different from that of Handayani (2005) which resulted in 100%
seroprotection, this is possible because it involves respondents with complete immunization, while researchers still involve respondents with factors that prevent the formation of seroantibodies.

In table 2 it is found that there is a significant difference between the complete and incomplete immunization groups (p<0.05) that the fully immunized group has a greater antibody titer than the incomplete group, this needs attention from the health department in this regard. Puskesmas to increase the completeness of hepatitis B immunization, especially for children under five.

In table 3 of the data, statistical tests cannot be carried out on the difference in birth weight between < 2500 grams and > 2500 grams because there are only 2 respondents who are < 2500 grams, however, in 2 respondents who weigh < 2500 grams, seroprotection results are obtained < 10 MIU/ml means the value is below the normal value. Low birth weight will affect the formation of antibodies to defend the body. In connection with this, it is hoped that the Bengkulu city health office can increase the immunization coverage, both the schedule and the completeness of the immunization.

4. Conclusion

Obtained immunity protective of 57.5% with an average titer of 76.144 mIU/ml at children 12-24 months in the city of Bengkulu in 2019. There are influence Among gift first immunization > 7 days, birth weight <2500 grams and completeness immunization for formation antibody against hepatitis B.

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