

HEPATITIS B SURFACE EXAMINATION PICTURE ANTIGENS ON CLEANING OFFICERS WORKING AT DUNDA LIMBOTO Hospital

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ABSTRACT

This study aims to determine the results of hepatitis B examination on janitors at RSUD Dr. MM Dunda Limboto. The method in this study used a qualitative descriptive, immunochromatography method, focused on examining hepatitis B and identifying risks to the safety and health of janitors working at Dunda Limboto Hospital, Gorontalo Regency.

The results showed that the examination of hepatitis b surface antigen on hospital cleaners, with a total sample of 14 serum samples using the HBsAg rapid test tool, the results obtained were 100 non reactive. Non-reactive results were obtained from the HBsAg rapid test tool, which only appeared a red line in the Control (C) area, while in the Test (T) area there was no red line. research results all samples (100%) Non Reactive. Suggestions for cleaners to be further improved in maintaining health and paying attention to safety when working, especially wearing personal protective equipment (masks, safe clothes, gloves, safe shoes if needed)

Keywords:HBsAg, Cleaning Officer.

INTRODUCTION

Occupational health and safety (K3) is the most important thing and must be carefully understood in all work areas, such as the formal sector or the informal sector. Especially in work areas that are susceptible to the impact of transmission of germs and a high hazard to the health of someone in the work area, and can trigger errors when doing work or being exposed to hazardous chemicals. Occupational health and safety (K3) is very mandatory in every field of work, from the start of work, management standards to other employees. According to the Constitution No.[13].

Occupational health is safety related to work equipment, materials and

processing processes, the basis of the workplace and its environment and ways of doing work. Occupational safety and health (K3) is a philosophy as a thought and effort to ensure the integrity and perfection of both the physical and spiritual workforce in particular and humans in general, their work and culture towards a prosperous and prosperous society. While scientific understanding is a science and its application in an effort to prevent the possibility of accidents and occupational diseases. Occupational health cannot be separated from the production process, both services and industry.

Health Law No.23 of 1992 Section 6 concerning Occupational Health, in

Article 23 as stated by Thamrin (2016) are as follows:

1. Occupational health is organized to achieve optimal work productivity.
2. Occupational health includes protection of occupational health, prevention of occupational diseases, and requirements for occupational health. And every workplace is obliged to organize Occupational Health

Working in a workplace that has a high risk of transmitting germs that can be transmitted by patients infected with the virus. The risk of transmission does not always occur only for medical personnel, but also for non-medical staff, namely cleaning staff. A public hospital is a place whose work area is strictly required to organize an occupational health program for its workers so that they are free from the transmission of dangerous germs and threaten the safety of workers who are in the hospital.

One of the non-medical personnel in the hospital is a janitor. Cleaning officers are employees who are tasked with cleaning the hospital environment to keep it clean, because the dangers that exist in hospitals such as disease transmission can occur if the hospital environment is not kept clean. The job of cleaning the hospital environment makes cleaning workers vulnerable to exposure to hazards that can interfere with their health

Direct observation activities have been carried out by researchers at public hospitals located in Gorontalo Regency, and have non-medical workers, namely janitors who have the task of cleaning the hospital environment as well as other rooms such as inpatient rooms, administration, pharmacy, BPJS, and other rooms. others in the hospital. And there are still some cleaning employees who work in the hospital, there are janitor employees who do not wear clothes safely and inappropriately, especially janitors who have the task of cleaning rooms that

are susceptible to viruses or bacteria. This can lead to the transmission of the seeds of disease to the janitor, whose symptoms are rarely noticed by infected patients.

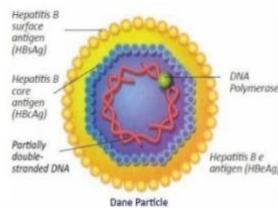
The initial data that can strengthen the observations that have been made by researchers is the increase in patients diagnosed with reactive hepatitis B in and out of the hospital, especially pregnant women who are about to give birth who are prone to have a risk or history of hepatitis B. This is closely related to the cleaning staff. which will clean the remaining infectious waste used in the examination. Therefore, it is very necessary to have complete personal protective equipment (PPE) and always pay attention to the sterility of janitors, namely by taking regular baths and washing hands with soap when starting work or after doing work. And always applied every day and don't forget to take care of your health with a regular diet[13]. Hepatitis is one of the infectious diseases that is a public health problem, which greatly affects morbidity, mortality, public health status, life expectancy, and other socio-economic impacts. Hepatitis is an inflammation of the liver that can progress to fibrosis (scarring), cirrhosis or liver cancer. Hepatitis is caused by various factors such as viral infections, toxic substances (eg alcohol, certain drugs) and autoimmune diseases. The most common causes of hepatitis are those caused by the hepatitis B and C viruses

Hepatitis B is a type of infection that can infect the liver in a person caused by the hepatitis B virus. This hepatitis B virus can be acute or chronic. And this infection of liver inflammation can cause damage to organs in body tissues and all liver organs. One of the ways to detect hepatitis B is by conducting laboratory examinations using HBsAg strips, which are the surface antigens of the Hepatitis B virus. Hepatitis B is a global health problem, and is a type of virus that can damage and infect

organs, even chronically in the body. someone [6].

Hepatitis B can interfere with various body functions, especially those related to metabolism because the liver has many roles in the body's metabolism. Hepatitis B that occurs can be acute or chronic, if hepatitis B develops into chronic hepatitis it will cause cirrhosis or liver cancer within a year.

Hepatitis B can be transmitted through infected body fluids, while body fluids that can be a means of transmission of hepatitis B are blood, vaginal fluids, and semen. Therefore, sharing needles and having sex without using a condom (condoms) with people with hepatitis B, it is very likely that someone will contract hepatitis B [6]



Hepatitis B Virus Forms

Hepatitis B disease has four stages that arise as a result of the acute liver inflammation process by the virus, namely:

1. The period of budding (incubation)
That is, since the entry of the virus into the body for the first time until it causes clinical symptoms. The budding period of each cause of the hepatitis B virus is not the same. Damage to liver cells mainly occurs at this stage.
2. The prodromal phase (preicteric phase)
This phase lasts several days. Symptoms and complaints arise in patients such as feeling weak, tired quickly, lethargic, no appetite (anorexia), nausea, vomiting, feeling unwell and abdominal pain, fever, sometimes chills, headache, joint pain (arthralgia), aches. - aches all over the

body, especially in the waist and shoulders (myalgia), and diarrhea. Sometimes sufferers will have a runny nose and cough, with or without a sore throat.

3. Yellow phase (jaundice phase) Usually after the body temperature decreases, the color of the patient's urine changes to a dark yellow like tea water. The whites of the eyeballs (sclera), the mucous membranes of the roof of the mouth, and the skin turn a yellowish color which is also known as jaundice. When there is obstruction to the flow of bile into the small intestine, the stool will be pale in color like putty, which is called faeches acholis. A yellow or icteric color will occur when the serum bilirubin level exceeds 2 mg/dl. At this time the patient just realized that he was suffering from jaundice will continue to increase, then persist. After 7-10 days, the yellow color of the eyes and skin will gradually decrease. At this time, the existing complaints generally begin to decrease and the patient feels better. This icteric phase lasts about 2-3 weeks. In advanced age, symptoms of obstruction to the flow of bile (cholestasis) are more severe, resulting in a yellow color that is more intense and lasts longer.
4. Healing phase (convalescent)
Characterized by the disappearance of existing complaints and the yellow color begins to disappear. Patients feel more refreshed although still easily tired. Generally complete clinical and laboratory healing takes about 6 months after the onset of disease.

Chronic hepatitis B virus infection is a long-term disease that occurs when the hepatitis B virus resides in a person's body. Most people who have chronic hepatitis B have no symptoms, but it is a

serious disease and can lead to liver damage (cirrhosis), liver cancer and death. People who are chronically infected can pass the hepatitis B virus to others, even if they don't feel or look sick.

The spread of the Hepatitis B virus can be caused by direct contact or direct contact with blood or body fluids from patients with hepatitis B disease (career). If your immune / immune system is lacking (in a vulnerable condition) it will easily increase the risk of contracting the Hepatitis B virus. Most people with Hepatitis B do not realize that they have been infected

There are two types of transmission (transmission) of hepatitis B, namely vertical transmission and horizontal transmission.

- a. Vertical Transmission Transmission occurs during childbirth (perinatal). This virus is transmitted from mother to baby which is also known as maternal and neonatal transmission. This method of transmission occurs because the pregnant mother suffers from acute hepatitis B disease or the mother is indeed a person with the hepatitis B virus. chronic. However, if the mother only has HBsAg (+) while HBeAg (-), then the chances of contracting it are only about 4% and generally the baby will recover and rarely becomes chronic hepatitis B.
- b. Horizontal transmission Horizontal transmission is the transmission and spread of HBV in the community. Transmission occurs due to contact with body fluids with hepatitis B virus or acute hepatitis B sufferers.

Hepatitis B infection rate can be reduced through behavior modification and increasing individual knowledge. In general, hepatitis B is a disease that is transmitted through contact with patient body fluids such as blood and blood products, saliva, cerebrospinal fluid, pleuritic fluid, semen, vaginal fluids, and

other body fluids. So the prevention that can be done is to avoid direct contact with the patient's body fluids. The universal principles that can be carried out are, using gloves when working or when dealing with patients directly, handling syringe waste properly, sterilizing tools in the right way before carrying out invasive procedures,

The HBsAg examination is useful for diagnosing hepatitis B virus infection, both for clinical and epidemiological purposes, for screening blood such as in blood transfusion units, as well as being used in the evaluation of chronic hepatitis B therapy. This examination is also useful for determining that the acute hepatitis suffered is caused by the B virus or superinfection with another virus. HBsAg positive with anti-HBc IgM and positive HBeAg indicates acute hepatitis B virus infection. Positive HBsAg with anti-HBc IgG and positive HBeAg indicates chronic hepatitis B virus infection with active replication. HBsAg positive with anti-HBc IgG and positive anti-HBe indicates chronic hepatitis B virus infection with low replication.

The HBsAg examination can be done in various ways, namely by the following methods:

1. Rapid Test Method In principle, HBsAg in the sample will bind to anti-HBc to form a complex that will move through the membrane of the test area that has been coated with anti-HBsAg. Then a reaction occurs to form a purplish pink line which indicates a positive result in the area, Rapid test is a quick test or examination. The principle of this rapid test method is that if there is HBsAg in the serum sample, then the antigen will form a complex with colloidal gold conjugated anti-HBs on the strip. The liquid will move across the nitrocellulose membrane and bind to the second immobilized anti-HBs

antibody on the membrane so that it can form a red line.

2. Immunochromatography or rapid test which is often referred to as a strip test. In reading the results using this method so that it can be done visually or can be seen with the naked eye, and it is much more practical and easy. The immunochromatographic method was used to detect specimens using two antibodies. The first antibody is present in the test solution or partially present on the porous membrane and test apparatus. Then these antibodies are labeled using latex particles or gold particles (labeled antibodies). Where the presence of an antigen will be recognized by the labeled antibody by forming antigen-antibody

Based on WHO statistical data (2017) states about the hepatitis B virus, it is known that there are 2 billion people in the world, around 240 million of whom are declared to have chronic hepatitis B, while the confirmed hepatitis C virus in the world is 170 million people. As many as 1.5 million people in the world die every year due to exposure to the hepatitis virus. In the Asian region found 100 million people living with chronic hepatitis B and 30 million people living with chronic hepatitis C. Each year in the Asian region, hepatitis B causes nearly 1.4 million new cases and 300,000 deaths. Meanwhile, hepatitis C has been recorded to cause around 500,000 new problems and around 160,000 deaths. [23].

According to the World Health Organization (WHO) (2015) Hepatitis B virus (HBV) has infected as many as 2 billion people in the world, around 360 million of whom are hepatitis B sufferers, of which 2 are chronic and 600,000 people have died from it. Hepatitis B prevalence is highest in sub-Saharan Africa and East Asia. Most patients in this region are infected with Hepatitis B virus in childhood and as much as 5-10% of the

adult population is chronically infected. High rates of chronic infection are also found in the Middle East and India, 2-5% of the general population being chronically infected. In Western Europe and North America less than 1% of the population is chronically infected

Based on *World Health Organization*(WHO), (2018) explained that Hepatitis B is a global health problem, and is a type of dangerous hepatitis virus, which until now has not been found with hepatitis B sufferers that can be cured and greatly affects other body organs. Globally, in 2015 there were 257 million people living side by side with hepatitis B infection. Meanwhile, a total of 780,000 people died each year due to hepatitis B virus, such as liver cirrhosis and liver cancer [24].

Data from the Ministry of Health of the Republic of Indonesia (Kemenkes RI) in 2011 confirmed that Indonesia was in the third place with the highest hepatitis disease in the world after India and China, which accounted for around 30 million people [12].

From the results of the 2018 Basic Health Research (RIKESDAS), the most positive results for HBsAg were found in pregnant women, including 2.7%, so 95% per year will be found with 150 thousand children born to be confirmed to have chronic hepatitis infection (cirrhosis or liver cancer) at the age of 30. five provinces based on the level of Hepatitis B that have been diagnosed by doctors, namely, Papua (0.7%), West Nusa Tenggara (0.6%), Central Sulawesi (0.6%), Gorontalo (0.6%)), and West Sulawesi (0.6%). Meanwhile, in Southeast Sulawesi Province, it was found that 36 samples of cleaning staff at Bahteramas General Hospital on HBsAg examination found two samples were declared reactive exposed to Hepatitis B and 34 samples were declared non-reactive.[16].

The data obtained is based on a report from the Gorontalo Provincial Health Office (2019). The health department profile for the most confirmed cases of Hepatitis is in Gorontalo Regency with 7,132 confirmed patients and 149 reactive patients, Gorontalo City is in second place with 4,196 confirmed patients and 86 reactive patients, then in Bone Bolango Regency, confirmed patients as many as 3,490 and reactive patients as many as 38 patients. Finally, in the North Gorontalo Regency area, there were 2,713 confirmed patients with 60 reactive patients [4].

Based on the data obtained at the Regional General Hospital Dr. MM Dunda Limboto, Gorontalo Regency, namely in 2019 every month there are 2 patients diagnosed with reactive hepatitis B status with an average age of 26 years and over, and most of them are women and pregnant women. Meanwhile, in 2020 every month there is an increase of 7 -10 patients with diagnosed reactive hepatitis B status ranging from children to adults with an average age of 40-50 years and over (Medical Record Data at RSUD Dr. MM Dunda Limboto)

From direct observation at the Dunda Limboto Hospital, Gorontalo Regency, the results for reactive hepatitis B patients have increased every month, especially in inpatients such as pregnant women, toddlers, children and even elderly parents. And it can be seen that the application of personal hygiene for janitors is still quite lacking, and has a high risk of being infected with hepatitis B because hospital cleaning services play a role in handling samples. Such as cleaning the former examination tube or disposing of examination blood, and used medical equipment. In addition, there are certain rooms that can support the transmission of the amount of reactive HBsAg in hospitalized patients.

Researchers are interested in find out more about the level of risk of occupational safety and health and transmission of the HBsAg virus to hospital cleaners by conducting a hepatitis B examination.

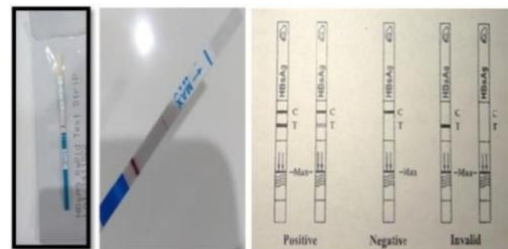
RESEARCH METHODS

The type of research used in this research is descriptive in nature, namely to get a description or descriptive of the description of an object under study. This study was conducted with the aim of knowing the description of the results of the HBsAg examination on janitors working at RSUD Dr. MM Dunda. The research approach used in this study is a qualitative approach. Qualitative approach is an approach to be able to investigate, find, describe and explain qualitatively, then the research results obtained will be narrated.

How the HBsAg test works:

1. Samples were centrifuged for 15 minutes.
2. A rapid test strip is issued.
3. Dip the rapid test strip into the sample and hit the plasma, then read the results after 15 minutes.

Result Interpretation:



- a. Reactive (+) : There are two colored lines in the test line zone and one in the control zone. This indicates that plasma contains HBsAg.
- b. Non Reactive (-): There is one colored line in the control line zone only, it means that there is no HBsAg in plasma.
- c. Invalid: There is no red line at all or it only appears in the test section. and can be caused by

improper collection and storage of specimens or poor quality (contaminated) specimens.

RESEARCH RESULT

Based on the research that has been done based on the characteristics of the respondents, the following results were obtained:

1. Characteristics by Gender Janitor

Table 1. Characteristics by Gender Janitor

Gender	Frequency	(%)
Man	10	71
Woman	4	29
Amount	14	100

Source: Research Primary Data, 2021

It can be seen that the sample of male sex is 10 people (71%) and the sample is female is 4 people (29%). This shows that there are more male cleaners than female cleaners.

2. Characteristics Based on Age of Hospital Hygienist

Table 2. Characteristics Based on Age of Hospital Hygienist

Age (Years)	Frequency	(%)
19-23	11	29
30-51	3	71
Amount	14	100

Source: Research Primary Data, 2021

It can be seen that the sample of janitors aged 19-23 years is 11 people (79%) and aged 30-51 years is 3 people (21%). This shows that those who do the HBsAg examination are at most 19-23 years old and at least 30-51 years old.

3. Characteristics Based on Length of Service of Hospital Cleaning Officers

Table 3. Characteristics Based on Length of Service of Hospital Cleaning Officers

Length of work	Frequency	(%)
6 months	9	65
7 months	3	21
8 months	1	7
9 months	1	7
Amount	14	100

Source: Research Primary Data, 2021

It can be seen that the characteristics of the respondents based on the length of work of the cleaning staff, namely 9 people (65%), who worked for 7 months, 3 people (21%), who worked for 8 months, 1 person (7%) and those who worked for 8 months. worked for 9 months amounted to 1 person (7%).

4. Characteristics Based on the Origin of the Room Cleaned by the Cleaning Officer.

Table 4. Characteristics Based on the Origin of the Room Cleaned by the Cleaning Officer.

Room Origin	Frequency	(%)
Ugd	3	21
Icu	2	14
Surgery	2	14
postpartum	2	14
Isolation	2	14
Hemodialysis	2	14

Laboratory	1	7
Amount	14	100

Source: Research Primary Data, 2021

It can be seen that the characteristics of respondents based on the origin of the room that cleaned the ER room were 2 people (14%), the ICU room was 3 people (21%), the central surgery room was 2 people (14%), the postpartum room was 2 people (14%), isolation rooms are 2 people (14%), hemodialysis rooms are 2 people (14%) and laboratory rooms are 1 person (7%). This shows that the majority of respondents' rooms are in the emergency room, followed by the intensive care unit, surgery, postpartum, isolation, hemodialysis, and at least the laboratory room.

DISCUSSION

The cleaning staff at the hospital are very at risk of being infected with disease because of small things that are not noticed when working, one of which is about the use of personal protective equipment when starting work. There are several factors that can strengthen the results of laboratory examinations on blood samples of hospital janitors, including healthy habits that are applied by janitors after cleaning hospital rooms by practicing a healthy lifestyle such as bathing and changing clothes used at work, taking adequate rest. enough before starting work again and eating regularly there are even some cleaners who bring lunch from home.

Hepatitis is one of the infectious diseases that are often encountered in the community and become a health problem for the community and can affect mortality rates, public health status, expectations and other socio-economic impacts. Hepatitis is an inflammation of

the liver that can progress to fibrosis, cirrhosis, or liver cancer. There are several types of viral hepatitis consisting of hepatitis A, acute hepatitis B, chronic hepatitis B, hepatitis C, hepatitis D and hepatitis E.

Hepatitis B disease is one of the infectious diseases, and those who are susceptible to it are hospital staff and cleaning staff who work in hospitals. Hepatitis B itself is caused by the hepatitis B virus. is a carrier that can transmit to other officers, hospital patients, or visitors at the hospital

In this study, the sample used was a serum sample, which was taken by performing a phlebotomi (venous blood collection) then the sample was put into a centrifuge for 10-15 minutes until the serum was formed, followed by an examination using HBsAg strips. The method used is the immunochromatography method according to the interpretation of the results, namely seeing the red line in the Control Area (C) and Test Area (T). If a reactive result appears two red lines in the Control (C) and Test (T) areas, if a non-reactive result only appears one red line in the Test (T) area. This HBsAg examination uses HBsAg strips with the immunochromatographic method, this method used because it is the easiest and fastest way to get the results of the examination.

Based on research that has been carried out on 14 samples of janitors working at Dunda Limboto Hospital, the results obtained are non-reactive after two examinations, there is only one red line in the control area (C) and no red line is found in the test area (T.)

In line with the previous study conducted by Sabrianto (2015), with the title of a description of hepatitis infection in the Cleaning Service at the Bahteramas General Hospital, reactive samples were found from janitors working in hospitals,

further research conducted by Thamrin (2016). with the title description of HBsAg on janitors working in public hospitals in the city of Kendari, reactive samples were found in samples of janitors working in hospitals. Several factors affect workers' reluctance to use personal protective equipment, including difficult, uncomfortable, or disturbing to use, low understanding of the importance of safety equipment, and indiscipline in the use of personal protective equipment and lack of implementing a healthy living culture.

Furthermore, the results of the research conducted by Nurul Afifah (2019), with the title of the study of the results of the hepatitis b surface antigen (HBsAg) examination on cleaning workers working at H. Andi Sulthan Hospital Daeng Radja Bulukumba, with a sample of 23 samples of cleaning workers obtained overall results. sample is Non Reactive. This happened because the janitors who worked at H. Andi Sulthan Hospital Daeng Radja Bulukumba generally already had knowledge about the risk of contracting hepatitis B and always paid attention to personal hygiene before and after work, with the work being done as hospital janitor employees [1].

According to researchers, during the HBsAg examination on cleaning staff working at the Dunda Limboto Hospital, no reactive HBsAg results in serum were obtained, this was because the hospital cleaners had implemented the correct use of personal protective equipment (PPE) according to standards and had implemented appropriate personal hygiene. good and right.

These related matters are supported by several theories proposed by Everyanti (2012) that to be able to work safely and comfortably, work procedures are needed. Work procedures are instructions or work steps that have been arranged in such a way as a guide for workers in doing work. To prevent accidents or occupational

diseases by paying attention to occupational health and safety (K3), namely by always using personal protective equipment in the form of masks, gloves, and boots. The effect of the use of PPE on the incidence of work accidents shows that compliance or always using PPE can make the number of accidents at work lower. [7].

Furthermore, Thamrin (2016) added that the prevention of occupational disease transmission is to improve the health of workers by carrying out routine checks at the nearest health center, through vaccination, wearing personal protective equipment (PPE) at work, and always washing hands before and after the action [20]. .

Until now, there are several indicators from laboratory results that can be used to assess Hepatitis B infection. In acute infection conditions, antibodies to HBcAg appear first, followed by the appearance of HBsAg and serum HBeAg. If the patient recovers spontaneously after suffering from acute hepatitis B, there will be seroconversion of HBsAg and HBeAg, which is indicated by the levels of these two markers will no longer be detectable in the serum. Meanwhile, anti-HBs and anti-HBe actually started to be detected. On the other hand, in patients with chronic hepatitis B, HBsAg and HBeAg will continue to be detected in the patient's serum. Patients with chronic hepatitis B, HBV DNA should be examined to monitor the course of the disease history. In some types of mutant viruses,

CONCLUSION

Based on this research, it can be concluded that:

1. From the results of the research that has been carried out on the description of the hepatitis B surface antigen (HBsAg) examination on janitors working at RSUD Dr. MM Dunda Limboto it can be concluded that of the

14 samples of hospital cleaners on the Hepatitis B Surface Antigen examination, all samples (100%) were non-reactive.

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