

Overview of HbsAg Testing Results for Chronic Kidney Disease Patients Undergoing Hemodialysis at Ciamis Hospital

Tison Suryadi¹, Doni Setiawan¹, Lili Solihah², Undang Ruhimat¹, Rivana Ariyadi^{1*}

¹Medical Laboratory Technology, STIKes Muhammadiyah Ciamis, West Java, Indonesia

²PTP Nusantara VIII Subang Hospital, Subang, West Java, Indonesia

*Corresponding author : rivana100@gmail.com

SUBMITTED 17 April 2024 **REVISED** 28 April 2024 **ACCEPTED** 30 April 2024

ABSTRACT

Background & Objective: Chronic renal failure is a slow and incurable disease. Regular treatment can halt the deterioration of kidney function, with kidney transplantation and hemodialysis being the most common options. However, hemodialysis patients are at risk of contracting the Hepatitis B virus due to repeated vascular access and high frequency of hemodialysis. This study aims to describe the results of HBsAg examination in patients with chronic renal failure who undergo hemodialysis.

Method: The research is a descriptive study that used a purposive sampling technique and was conducted in May-June 2022. The study included 44 chronic renal failure patients who underwent HBsAg examination using Immunochromatography.

Result: The study showed that all 44 respondents (100%) who underwent hemodialysis had negative HBsAg examination results, indicating they were not exposed to the Hepatitis B virus.

Conclusion: The study indicates that chronic renal failure patients undergoing hemodialysis are not at risk of contracting the Hepatitis B virus. Further research could include quantitative Hepatitis B antibody examinations.

Keywords: Hepatitis B; HBsAg; Chronic Kidney Failure.

Introduction

Chronic renal failure is a slow, progressive development of kidney failure and usually lasts for one year. (Pranandari & Supadmi, 2015). The kidneys lose the ability to maintain the volume and composition of body fluids under average food intake. Several risk factors can lead to chronic kidney diseases, such as hypertension, diabetes

mellitus, kidney infection, and urinary tract infection. (Tjekyan, 2014).

Chronic Renal Failure is a clinical syndrome caused by a decline in kidney function that is chronic, progressive, quite advanced, persistent, and irreversible (Amalia et al., 2023). The kidney is an essential organ in the human body, which regulates various functions to maintain the volume,

composition, and distribution of body fluids. Damage to the kidneys means that metabolic waste and water can no longer be excreted (Rivandi & Yonata, 2015). At certain levels, this waste can poison the body, causing tissue damage and even death. Chronic renal failure occurs slowly, over months or years, and is incurable. The deterioration of kidney function can be inhibited if patients take regular treatment. So far, two methods are known in the treatment of kidney failure. The first is kidney transplantation, and the second is dialysis or dialysis (Cahyani et al., 2022).

Hemodialysis patients are more at risk for Blood Borne Virus (BBV) infections such as hepatitis B, hepatitis C, and HIV due to the use of repeated vascular access with hemodialysis frequency levels. (Wahyudin & Basbeth, 2023). Three main risk factors affect the transmission of VHB infection in hemodialysis patients: history of blood transfusion, history of kidney transplantation, and frequency of hemodialysis with the prevalence of BBV in hemodialysis patients. Transmission of blood-borne diseases such as hepatitis B virus is a fundamental problem in patients undergoing hemodialysis.

Hemodialysis is a form of replacement therapy for patients with renal function failure, both acute and chronic. (Siwi, 2021). Patients suffering from kidney failure can also be helped with the help of a hemodialysis machine that takes over the function of the kidneys. Patients with kidney failure who undergo hemodialysis therapy require 12-15 hours of dialysis every week or at least 3-4 hours per treatment. (Rahayu et al., 2018). This activity will continue throughout their lives.

In general, hemodialysis in patients with chronic renal failure is performed once or twice a week and lasts for at least three months on an ongoing basis. Hemodialysis patients are one of the groups that have high-risk factors for contracting hepatitis B

because hemodialysis patients experience a decrease in body resistance, hemodialysis treatment such as non-sterile hemodialysis equipment, hemodialysis to post-hemodialysis handling and a history of hepatitis B where patients are infected with hepatitis B by household contacts.

Objective

The purpose of this study was to determine the description of the results of qualitative HBsAg examination in patients with chronic renal failure undergoing hemodialysis.

Method

This descriptive study uses a purposive sampling technique conducted in May- June 2022. Respondents in the study were chronic renal failure patients, with as many as 44 respondents. The instrument used was the Rapid Test HBsAg Immunochromatography method. This research was conducted at the Immunoserology Laboratory of STIKes Muhammadiyah Ciamis. The examination results were processed manually and displayed in tabular form for narration.

Results

The study was conducted on 44 samples from patients undergoing hemodialysis at RSUD Ciamis who had previously been tested for HBsAg with negative results and re-checked after four months because the incubation period of the Hepatitis virus is 30-180 days. With 30 people being female and 14 other people being male, the percentage can be seen in Table 1 below:

TABLE 1 Characteristics of Research Samples

Sample Characteristic	Quantity	Percentage (%)
Male	14	31,8
Female	30	68,2
Total	44	100

From Table 1, it can be seen that those sampled in the study were male, as many as 14 people, with a percentage of 31.8%, and female, with 30 people, with a percentage of 68.2%. Of the 44 samples, the results were negative with a percentage of 100%, which can be seen in Table 2 below:

TABLE 2 HBsAg Testing Result

Result	Quantity	Percentage (%)
Positive	0	0
Negative	44	100
Total	44	100

Discussion

The results of the Hepatitis B examination in patients with chronic kidney failure undergoing hemodialysis at Ciamis Regional Hospital who may have been exposed to the Hepatitis B virus in this study were negative. A person who is exposed to the Hepatitis B virus in the use of repeated vascular access with the frequency of hemodialysis and patients who have decreased endurance, hemodialysis treatment such as non-sterile hemodialysis equipment, hemodialysis to post-hemodialysis handling, blood transfusions, and a history of hepatitis B where the patient is infected with Hepatitis B by household contacts (Regina, 2019).

In the examination that was carried out, the sample used was venous blood, which was then centrifuged for 15 minutes at 3000 rpm. The centrifuged blood will form serum and then be examined using HBsAg strips. The HBsAg examination was conducted using the immunochromatography method by looking at the red line in the control area (C) and test area (T) (Djirimu & Supadmi, 2022).

Table 1 explains that included in the study were hemodialysis patients who had been tested for HBsAg; the results were

obtained in patients with Chronic Renal Failure who underwent hemodialysis for more than 30-90 days. Based on the gender of chronic renal failure patients undergoing hemodialysis at Ciamis Regional Hospital, there were more women, as many as 30 people, and 14 men. This is in line with the data reported by the US Renal Data System (USRDS), as an annual report between 2007 and 2012 showed that women suffered more than men. This is due to women having higher albumin and creatinine ratios than men and a decrease in the Glomerular Filtration Rate in women, which is higher than in men. (Arianti et al., 2020).

The duration of hemodialysis, based on the results of research conducted at Ciamis Hospital, is 30 to 90 days. The results of the HBsAg examination conducted on Chronic Renal Failure patients undergoing hemodialysis at Ciamis Hospital found that HBsAg was negative in as many as 44 people from the total number of participants, namely 44 people. Therefore, the results of the examination conducted by researchers on Chronic Renal Failure patients undergoing hemodialysis for 30 to 90 days were all negative.

The age of Chronic Renal Failure patients undergoing hemodialysis at Ciamis Hospital is, on average, less than 60 years old; from this age, a negative result is obtained because the increasing age decreases kidney function. These results are the following. Pranandari & Supadmi (2015) This states the relationship between age and the incidence of Chronic Renal Failure is a significant relationship between age less than 60 years and age more than 60 years in hemodialysis patients. Clinically, patients aged more than 60 years have a 2.2 times greater risk of developing Chronic Renal Failure compared to patients aged less than 60 years.

Conclusion

According to the research conducted, none of the respondents with chronic renal failure who underwent hemodialysis were found to be exposed to the Hepatitis B virus. However, quantitative Hepatitis B antibody examinations are recommended for further research.

Acknowledgment

The research team would like to thank all parties for their support and participation so that this research can be carried out smoothly.

Conflict of Interest

There were no conflicts of interest in preparing this research and article.

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