The Relation of Blood Donors' Characteristic toward Prevalences of HbsAg and Anti-HCV on Blood Transfussion Unit of PMI in Province of East Nusa Tenggara

By Norma Kambuno

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ORAL

The Relation of Blood Donors' Characteristic toward Prevalences of HbsAg and Anti-HCV on Blood Transfussion Unit of PMI in Province of East Nusa Tenggara

Norma Tiku Kambuno
Afuiakani S.
Kuntum Ekawati Nurdin
Yoan Novicadlitha

Irma Siregar

Department Medical Laboratory Technic, Health Polytechnic of Ministry of Health Kupang

Department of Nurse Dental, Health Polytechnic of Ministry of Health Semarang

Email: norma.kambuno@gmail.com

Abstract

Hepatitis B is an inflammation of the liver caused by the Hepatitis B virus (HBV) which is a member of the Hepadna virus family. Hepatitis C is an inflammation of the liver caused by the hepatitis C virus (VHC) and in the long run causes cirrhosis of the liver. Both of these viruses can be transmitted vertically from mother to child or horizontally one of them through blood transfusion. This study aims to determine the prevalence of HBsAg and Anti-HCV in UTD PMI East Nusa Tenggara Province in 2017 which are associated with age, sex, and donor's employment. Kind of the research are cross sectional research with analytic correlation. The population in this study was taken from data of donor blood screening test in 2017. There are 400 samples used and obtained from the Solvin formula with random sampling technique. The data then processed with SPSS to determine the prevalence, relationships, and risk factors. The result was 14 (3.5%) HBsAg reactive donors, and 2 (0.5%) Anti-HCV reactive donors. It was concluded that there was no relationship between HBsAg status and anti-HCV status with age, sex, and donor's employment.

Keywords: Prevalence, HBsAg and Anti-HCV reactive, UTD PMI

*Correspondence: norma.kambuno@gmail.com
Present Address: Kupang, East Nusa Tenggara, Indonesia - 85111

INTRODUCTION

Hepatitis B and C are one of health problem in the world. The patients with this infection has a high risk to become liver cirrhosis and develop into hepar cell carcinoma (Brass dan karsinoma hepatoseluler) [5]. According to WHO (2017), there were 399.000 people died every year due to Hepatitis C. There were 257 million people live with Hepatitis B and 500.000 – 1.200.000 died due to this virus [17]. The most endemic area are Asia Pasifik, Africa, South Europe and Latin America [2]. Indonesia included to the moderate-high endemic area of hepatitis especially hepatitis B with 8%-20% prevalence [11]. It was predicted that 28 million of the population were contaminated with Hepatitis B and C. Moreover, 14 million of them were potentially becoming chronic and 1,4 million were becoming liver cirrhosis.

According to Health profile of Nusa Tenggara Timur in 2015, the sequence of hepatitis happened was Hepatitis B (29.6%), Hepatitis A (27.9%). The high prevalence of Hepatitis was caused by the vertical transmission from mother to her child in prenatal and peri-natal period [5] and horizontal transmission due to blood transfusion [12].

Blood transfusion is a medical treatment which transfers blood or blood's component into circulation system from the donor to recipient [9]. It should be healthy, comfortable, clinical effective and in good quality for the recipients, donors, health workers and society. Due to this condition, the product's safety must be maintained by medical selection through blood filter test. This test could detect the contagious infection from blood transfusion (IMLTD) such as *Human immunodefi- cency virus* (HIV), hepatitis B, hepatitis C, dan syphilis. From these four contagious infection, Hepatitis B and C are the serious problems for blood donor Unit. N. Ventiani stated that the positive HBsAG through blood filter test was 3.61% from blood donors in UTD PMI Padang in Januari-Decmber 2012 [15]. The prevalence of Hepatitis C among blood donors in Indonesi in 2012 was 0.39% [10]. Sudarmono and Gani (2013) detected there was 0.47% blood donors who reactive Hepatitis C in 24 branches of Blood Transfussion Unit in Indonesia.

According to the Ministry of Health Report, blood filter test detected the infection of Hepatitis B was 1.64% and Hepatitis C was 0.41%.

Blood Transfusion Unit PMI in Province of Nusa Tenggara Timur has 10 branches which are 6 branches of UTD Local Government and 4 branches of UTD PMI. UTD PMI had 12.000 blood donors in Kupang. This UTD PMI needs 1.800 blood bags every month. According to Public Health Office in Kupang, from 13.163 blood donors in 2016, there were 2.61% of Hepatitis B and 0.018% of Hepatitis C. But, there hasn't been any research of it before. Through this study, we could learn about the prevalence of Hepatitis B and C among blood donors in UTD PMI NTT.

METHODE

This was a cross sectional study with correlative analytic. The population was the blood donors who had blood filter test and reactived to Hepatitis B and C in UTD PMI in Province of Nusa Tenggara Timur in 2017. By Slovin, the samples were 400 blood donors. The data would be analyzed by Cramer correlation test and Chi Square.

RESULT & DISCUSSION

This research involved 400 donors of HBsAG and Anti HCV test based on the blood's donor data in UTD PMI Province NTT in 2017. The character of the donors could be seen on the table below:

Table 1. Characteristic of Blood Donors

No	Characteristic	Frequent	Percentage (%)
1.	**Sex**		
	Male	312	78 %
	Female	88	22 %
2.	**Age**		
	17-30	206	51,5 %
	31-40	120	30,0 %
	41-50	54	13,5 %
	51-60	19	4,8 %
	>60	1	0,2 %
3.	**Occupation**		
	Police/Soldier	42	10,5 %
	Govern employee	77	19,2 %
	Students	48	12,0 %
	Private employee	70	17,5 %

Farmer	7	1,8 %
Housewives	21	5,25 %
Driver	33	8,25 %
Medical Staff	30	7,5%
Social workers	48	12,0 %
Others	24	6%

Table 1 showed the distribution of blood donors in UTD PMI Province Nusa Tenggara Timur. Male (78%) was higher than female (22%). Some researchers said that male donors were higher from female [1]. Infodatin [8] also stated that in 2016, blood donors in Indonesia were 72.5% male and 27.5% female. Unlike female, male doesn't get menstruation period which could bring blood cell turnover. Due to this condition, male should donor their blood routinely in order to avoid Ferritin accumulation that might cause heart attack [10].

Moreover, most of the blood donors (51.5%) were around 17-30 years old and only one donor who was over 60 years old. This study was in line with the research of Salaudeen [14]. There were age limitation in blood donation. Blood donors are mostly found among adult due to the lower rejection of blood donation. The older the blood donor is, the more risk follows due to their health problems [6,7,13]. Based on the occupation, most of them were government employee (19.2%) and only 1.8 % worked as farmers.

All the blood donors had to take blood filter test on HBsAg and Anti-HCV. The result could be seen on the table below:

Table 2. Result of Blood Filter Test on HBsAg and Anti HCV

Test Result	HBsAg		Anti HCV	
	Frequent	Percentage	Frequent	Percentage
Positive	14	3.5	2	0.5
Negative	386	96.5	398	99.5
Total	400	100	400	100

From Table 2, we could see that the blood donors infected by Hepatitis B (3.5%) was higher than those infected by Hepatitis C (0.5%). This study was in line

with the research of Budihusodo [4] in Jakarta that the prevalence of HBsAg (5.7%) was higher than Anti HCV (1.9%). Infodatin [8]. also found that prevalence HBsAg in Indonesia in 2016 (1.31%) was also higher than Anti HCV (0.41%).

Data analyzes with statistic showed (Table 3) that the p value of each characteristic (Sex, Age and Occupation) toward Hepatitis B and C were > 0.005. It meant that there was no relation between blood donors' characteristic toward the Prevalence of Hepatitis B and C. The result was the same with the research in Ethiopia (2017), the prevalence of Hepatitis C on blood donors were only 0.32% and no significant difference. This might be caused by the lowest amount compared by the whole [5].

Table 3. Statistic Analyzes of Blood Donors' Characteristic

No	Blood Donors' Characteristic	HBsAg Positive		Anti-HCV Positive	
		Cramer's V Score	P value	Cramer's V Score	P value
1	**Sex** Male Female	0,958	0,958	0,451	0,451
2	**Age** 17-30 31-40 41-50 51-60 >60	0,274	0,274	-	0,076
3	**Occupation** Police/Soldier Govern employee Students Private employee Farmer Housewives Driver Medical'Staff Social workers Others	0,661	0,661	0,628	0,628

The distribution of blood donors characteristic toward Hepatitis B and C could be seen in table 4 below:

Table 4. Frequency distribution of Blood Donors Characteristic toward Hepatitis B & C

Blood donors characteristic	Frequency of Blood Donors	Frequency or HBsAg Positive		Frequency of Anti HBC Positive	
Sex					
Male	312	11	3.53%	2	0.64%
Female	88	3	3.41%	0	0.00%
Age					
17-30	206	4	1.94%	0	0.00%
31-40	120	5	4.17%	1	0.83%
41-50	54	3	5.56%	0	0.00%
51-60	19	2	10.53%	1	5.26%
>60	1	0	0.00%	0	0.00%
Occupation					
Police/Soldier	42	0	0.00%	0	0.00%
Govern employee	77	4	5.19%	1	1.30%
Students	48	1	2.08%	0	0.00%
Private employee	70	2	2.86%	1	1.43%
Farmer	7	0	0.00%	0	0.00%
Housewives	21	2	9.52%	0	0.00%
Driver	33	1	3.03%	0	0.00%
Medical Staff	30	3	10.00%	0	0.00%
Social workers	48	0	0.00%	0	0.00%
Others	24	1	4.17%	0	0.00%

We could see that in occupation category, medical staff were most contaminated with Hepatitis B. In research done by Ross[14]. in the year 2000 showed medical staffs mostly got infected with hepatitis B especially the ones whose work dealt with syringe and needles.

Outage data computerized donors become weaknesses in this study, where the amount of the required data must be input manually based on the donor form at UTD PMI Province NTT. In addition, the data input can be repeated because no available information how many times someone doing blood donation.

CONCLUSION

It could be concluded that the prevalence of Hepatitis B was 3.5% and 0.5% for Hepatitis C in UTD PMI in Province of NTT. There was no relation between the characteristic of blood donors toward the Prevalence of Hepatitis B and C

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