CLINICAL CHARACTERISTICS OF TERSIANA AND TROPICAL MALARIA SUFFERERS IN OUTPATIENTS AT THE WIDIYA MEDIKA CLINIC, JAYAPURA REGENCY, PAPUA

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Abstract

Malaria is categorized as a re-emerging infectious disease or defined as a disease that has existed from ancient times that still shows its existence both from its occurrence, geography and host. This can be caused by the factor of increasing population mobility globally which is not directly involved in the spread of malaria cases, especially in non-endemic regions, including Indonesia, which has the top transmission. The incidence of malaria in Indonesia is 1/100 thousandth of the population. Malaria cases and deaths remain very high and bounce back in some settings, although recent developments inspire optimism. Malaria is caused by parasites of the genus plasmodium. There are four types of plasmodium that can cause malaria, namely plasmodium falciparum with an incubation period of 7-14 days, plasmodium vivax with an incubation period of 8-14 days, oval plasmodium with an incubation period of 8-14 days, and malarial plasmodium with an incubation period of 7-30 days. In Papua the most commonly found Plasmodium is Plasmodium Falciparum and Plasmodium vivax. The purpose of this study was to determine the Clinical Characteristics of tersiana and tropical malaria sufferers in outpatients at the Widiya Medika Clinic, Jayapura Regency, Papua. This research method is an analytical descriptive research and several variables using a cross-sectional study design. The results showed that patients who were treated for road treatment were affected by Tropical malaria 104 respondents (50.7%) and tersiana malaria 83 respondents (40.5%) and mixed malaria 18 respondents (8.8%). The average respondent suffering from tropical malaria and tersiana malaria will experience typical symptoms of increased body temperature, fever and sweating. In addition, the patient will also experience a dizzy head or headache as well as nausea and vomiting.

Keywords: Tropical Maria, Tertianal Malaria, Outpatient , Widiya Medika Clinic

1.Introduction

In today's millennial era, malaria remains a global health problem, especially in countries that are endemic to malaria (Kai & Roberts, 2008). According to WHO (2018) there are 207 million cases of malaria with 627,000 deaths. Indonesia is a tropical country and has a high amount of malaria and has more than 20 types of anopheles sp mosquitoes which are part of the malaria vector. The five provinces with the highest incidence and prevalence were Papua (9.8% and 28.6%), East Nusa Tenggara (6.8% and 23.3%), West Papua (6.7% and 19.4%), Central Sulawesi (5.1% and 12.5%), and Maluku (3.8% and 10.7%). Of the 33 provinces in Indonesia, 15 provinces have a malaria prevalence above the national rate, most of which are in Eastern Indonesia (Kemenkes RI, 2017).

Malaria is a life-threatening disease caused by a protozoan parasite of the genus Plasmodium and transmitted in humans by the bite of a female species anopheles mosquito that acts as a malaria vector. These mosquitoes mainly bite humans at night from dusk (dusk) to dawn (dawn). In humans, there are known to be 4 genera of Plasmodium, namely, Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale and Plasmodium malariae. Malaria is a global problem, so WHO sets a global commitment on malaria elimination for every country. The guidelines for the implementation of malaria elimination have been formulated by WHO in the Global Malaria Programme. In 2008, as many as 247 thousand cases of malaria were reported from around the world and more than one million of them died, mainly children in Africa. Every 45 seconds a child in Africa dies from malaria (WHO, 2020).

Indonesia is a country with a high risk of malaria. According to Soedarto in his book mentioned that in 2017 as many as 396 districts out of 495 districts in Indonesia were malaria endemic areas. According to expert calculations based on health economic theory, losses can reach more than 3 trillion and have an impact on the income of malaria-endemic areas. In Indonesia, malaria is still a health problem that must be considered. Outside Java and Bali, morbidity and mortality rates are still high. The explosion of cases or outbreaks that cause deaths is also still high, especially in transmigration areas which are areas with a mixture of population from endemic and non-endemic areas.

According to statistical data obtained by the Basic Health Research (Riskesdas) in 2018, it is stated that the malaria parasite species that is widely found in Indonesia is Plasmodium falciparum which will result in falciparum malaria, with a prevalence rate of 86.4%. While the vector that is found especially in Central Java is Anopheles aconitus which breeds in rice fields and the time of its biting activity is before 24.00 (20.00 – 23.00). Since 2017, malaria can be monitored with the Annual Parasite Incidence (API) indicator with the requirement that each malaria case must be proven by examination of deleted blood preparations whose results are positive and must receive ACT (Artemisin – based 3 Combination Therapies) treatment. Based on the results of the Annual Parasite Incidence, the division of stratification areas obtained the results that the high stratification area is the eastern part of Indonesia, moderate stratification is several areas in Kalimantan, Sulawesi and Sumatra, while in Java and Bali it is a low stratification area, although there are still several villages or areas with high malaria cases.

The incidence of Malaria in Indonesia is estimated at 4.9 million out of 262 million people. Malaria cases in 2017 recorded 261,617 cases which have resulted in the death of at least 100 people. As many as half of the total 514 regencies/cities in Indonesia have reached the Malaria-free category. This means that 72 percent of the population in Indonesia lives in Malaria-free areas (Ministry of Health of the Republic of Indonesia, 2018). The malaria situation map is white or Malaria-free in Java and Bali, while the rest are mostly green (low endemic) such as in Sumatra, Kalimantan, and Sulawesi. Some areas in eastern Indonesia are still red or high endemic and yellow or middle endemic. The red and yellow areas are still widely found in eastern Indonesia, including Papua and West Papua, East Nusa Tenggara, and several areas of Kalimantan (Kemenkes RI, 2020). The prevalence of malaria in the Papua Province area in 2016 was 1.65 while in Jayapura City the prevalence was 0.17% (Riskesdas, 2018). In 2017 there was an increase in the prevalence of malaria in Papua Province by 24.3%. Especially for Jayapura City, the prevalence of malaria has increased to 27.8% (Riskesdas, 2018).

The malaria morbidity rate reflected in the Annual Parasite Incidence (API) in Indonesia was 0.93 per 1,000 population in 2019. This figure is an increase from 2018 which was 0.84 per 1,000 inhabitants. In Indonesia, the highest malaria morbidity rate is in Papua. The figure is even far compared to other national and provincial averages, reaching 64.03 per 1,000 inhabitants. The provinces that recorded the highest malaria API were West Papua (7.38), East Nusa Tenggara (2.37), and Maluku (0.72). Annual Parasite Incidence (API) per 1,000 population is the proportion between malaria-positive patients to at-risk residents in the region with a constant of 1,000. (Read: World Malaria Day, Indonesia's Malaria Morbidity Rate Rises in 2019).

Malaria is caused by infection with plasmodium parasites transmitted through the bites of female anopheles mosquitoes (Haldar, 2009 & Sudoyo, 2009). In Indonesia, malaria parasites that are often the cause of malaria infection are Plasmodium vivax which causes tertiana malaria and Plasmodium falciparum which causes tropical malaria (Karyana, et al, 2008). However, when compared to P. vivax and other types of plasmodium, P. falciparum is the most common plasmodium species found in Indonesia (Elyazar, 2011). P. falciparum is known as the deadliest type of malaria (Sudoyo, 2009) When viewed from geographical distribution, the small Sunda Islands or Nusa Tenggara and Papua are two archipelagic areas in Indonesia with the most locations of P. falciparum and P. vivax spread compared to other regions in Indonesia (Sudoyo, 2009).

Malaria has a common clinical characteristic in the form of acute fever. In individuals that have not yet formed their immunity to the plasmodium or have the first infection, symptoms appear on the seventh day or more (usually the 10th to 15th day) after the bite of the first mosquito infected with the plasmodium. Early symptoms such as fever, headache, chills and vomiting are mild and difficult to identify as symptoms of malaria. Whereas if left untreated within 24 hours, severe tropical malaria can result in death. Children with severe malaria experience symptoms such as severe anemia, respiratory distress related to metabolic acidosis, or cerebral malaria. Realizing how varied the signs and symptoms of malaria, especially tropical malaria, which has uncertain prodromal symptoms and is difficult to distinguish from other types of malaria even though if not treated quickly and appropriately it can be life-threatening, researchers decided to examine the clinical characteristics of people with tropical malaria. Research conducted by Junarli & Somia (2017) showed that the characteristics of tropical malaria patients experienced hypertemy of 64.8%, experienced petikie 55% and intravenous quinine treatment 22.5% and long-time inpatients went home in a state of 22.5% or 4 days of treatment in patients who were hospitalized.

The study was conducted in Papua Province which is a malaria endemic area in Indonesia with the first highest number of malaria cases in Indonesia. The research site that will be used as a sampling place is the Health Service Clinic in the Jayapura Regency area. The respondents who will be taken are outpatients in the clinic, because many patients think that to get services easier and faster to seek treatment at the clinic do not have to wait in line for a long time. Furthermore, during a pandemic like this, patients do not dare to come for treatment to puskesmas or public hospitals because they have to rapid test and PCR swab test.

The clinic where the research is carried out is usually per day at least 5-10 people who seek treatment who are diagnosed with malaria. Then in one month approximately 150-300 people are treated for malaria. For this reason, it is necessary to conduct a study with the title" Clinical Characteristics of Tersiana and Tropical Malaria Sufferers at the Outpatient Widiya Medika Clinic, Jayapura Regency, Papua.

2. Method.

This research method is an analytical descriptive study and several variables using a cross secctional study design. The population in this study were patients diagnosed with malaria who came for treatment at the Widiya Medika Clinic, Jayapura Regency. Sample determination is carried out by purposive sampling technique, namely by selecting samples among the population based on the criteria desired by the researcher in accordance with the objectives and problems of the study, so that the sample can represent previously known population characteristics (Sugiyono, 2017). The study was conducted in

September – November 2020 total 205 respondents.

3.Result and Discuss

Tabel 1. Socio-demographic characteristics of tropical and tersiana malaria patients at the Widiya Medika Clinic, Jayapura Regency, Papua (n: 205).

No	Sosio demographic	N	%
1.	Age (year)	average	28,33±16,71
	0-10	50	24,4
	11-20	21	10,2
	21-30	49	23,9
	31-40	38	18,5
	41-50	31	15,1
	51-60	10	4,9
	>60	6	2,9
2.	Gender		
	Male	131	63,9
	Female	74	36,1
3.	Religion		
	Moslem	105	51,2
	Protestan	86	42,0
	Catholik	14	6,8
4.	Education		
	No - education	45	22,0
	Elementary School	7	3,4
	Middles School	6	2,4
	Senior High School	42	20,5
	University	106	51,7
5.	Job		
	Civil Servant/Police /Army	29	14,1
	self-employed	107	52,2
	housewife	9	4,4
	student	60	29,3
6.	Marital Status		
	Married	124	60,5
	Unmarried	81	39,5
7.	Type of blood		
	A	21	10,2
	B	1	0,5
	AB	23	11,2
	O	160	78,0
8.	etnic		
	Papua	33	16,1
	Non-Papua	172	83,9
9.	Residence		
	Mountain	179	87,3
	lakeside	22	10,7
	coast	4	2,0
	Total	205	100

The results showed that the age of the most respondents was between the ages of 0-10 years with a total of 50 people (24.4%). This is in accordance with research conducted by Junarli & Somia (2014) that the characteristics of respondents in tropical malaria patients who are hospitalized are mostly aged 0 – 10 years. However, in contrast to the results of research conducted by Siahaan Lambok (2008) said that malaria patients who are in endemic areas are mostly in adulthood. Jayapura Regency is an endemic malaria zone. Age 0-10 years is an age that is still weak in its immunity so that suffer is easily affected by malaria.

The results showed that the sex that was most predominantly affected by malaria was men with 131 people (63.9%). This is different from the research conducted by Junarli & Somia (2017) which is the most numerous, namely women. In the research we conducted, namely outpatients in private clinics. Male patients predominantly get malaria due to men as heads of households so many work overtime, besides that men prefer to stay up late than women. The bite of this malarial naymuk is more common at night. Until now, there are still 41 regencies/cities in Indonesia that have high malaria endemism.

The results showed that the most patients were Muslims, namely 105 people (51.2%). From the observations of patients who come and around the clinic, they have Islamic beliefs. No relation to religion.

The results showed that the most number of respondents were highly educated, amounting to 106 (51.7 %). This shows that in the area around the new doyo is a growing residential area. There was no association with patients with the knowledge of poorly educated and highly educated respondents. However, it is also likely because of private clinics so that people who cannot afford it do not dare to seek treatment prefer to go to the Public Health Center. The results showed that the most respondents' jobs were self-employed, estimated to 107 people (52.2%). This shows that respondents worked as construction workers, day laborers, motorcycle taxi drivers, and traders. The

community around Doyo Baru area during this pandemic has experienced very limited physical activities to work but during September – November 2020, surrounding shops have been given a deadline allowance for selling or trading until 09.00 PM. Non-sedentary work or high mobility are at greater risk of malaria, such as service duties in endemic areas for long periods of time up to years for example nursing health workers, doctors, military officers, missionaries, construction workers of the 2021 National Sports Week project and others.

The results showed that the respondents affected by malaria were the most blood type O totaling 160 people (78.0%). Based on a study from Japan, precisely from the Institute of Pest Control Technology, mosquitoes are more interested in blood type O than other blood types (A, AB, B). However, another unique fact of people who have blood type O is said to tend to have a lower risk of suffering from malaria. This is because the deadly malaria protein is difficult to attach to blood cells O. Blood type O is the only type of blood group that does not have antigens. Researchers from Scandinavia (Mats Wahlgren, 2015) explain the reasons why this can happen. This is all because malaria-carrying mosquitoes that secrete proteins (such as glue) into human blood cells will clog blood flow, causing death. This protein will easily clog in blood type A, but it is so weak when flowing in blood type O.

The results showed that the most respondents came from Non-Indigenous Papuan Tribes (Non-OAP) totaling 172 (83.9%). This is different from the research conducted by Jimmy Sembay (2018) that of the 1112 respondents of the Papuan tribe, there were more than 90 people (80.35%), while the Non-Papuan tribe was 22 people (19.6%). We think our respondents' researchers are more Non OAP tribes because we do research in private health clinics so that indigenous Papuan people rarely go to private health clinics and more to government-owned public health service places such as public health centers and hospitals. In addition, indigenous Papuans have a Papuan health insurance card. So they prefer public places.

Tabel 2. Results of laboratory examination of tropical malaria patients at Widiya Medika Clinic, Jayapura Regency, Papua

No	Result of laboratory	average	Standar deviasi
1.	Hemoglobin	14,23 gr/dL	1,35
2.	lecocyte	6939,02/ mm^3	1502,49

The results showed that hemoglobin levels of 205 tropical and tersiana malaria patients were 14.23±1.35 gr / dL. In this study, the overall hemoglobin level of the patient was within the normal range. Similarly, research conducted by Junarli & Somia (2017) that patients who were hospitalized with malaria disease showed normal hemoglobin levels on average. Some patients have anemia. Research conducted by Rosa (2011), proved that parasites in malaria also affect changes in hematology, this can be seen in the presence of symptoms of anemia, namely paleness, fatigue, and the body feels weak. The results of a study conducted by Armedy (2010), that Plasmodium Falsiparum infection causes changes in the shape of erythrocytes that trigger erythrocytes that trigger erythrocytes in the spleen, inducing an immune response to increase phagocytic opsonization through activation of the immune system, which can lead to a decrease in hemoglobin levels.

The results of the lecocyte examination in a study at the Widiya Medika Clinic, Jayapura Regency, showed that the average lecocyte was normal. This is similar to the research of Junarli & Somia (2017) that lecocytes in patients who are hospitalized in Atambua Normal hospital. In addition to hemoglobin levels, the results of leukocyte and platelet counts in 71 tropical malaria patients at the Mgr. Gabriel Manek Regional General Hospital, SVD Atambua also showed normal values. Research conducted by Olutola and Mokuolu in 2006 on children with malaria with severe anemia in the pediatric emergency department at a hospital in Nigeria instead showed an increase in leukocytes and a decrease in platelets. Of the 93 study subjects, 4.4% had leukopenia, 41.9% had a normal number of leukocytes and 53.7% had leukocytosis. Meanwhile, 76.4% of patients had thrombocytopenia, 21.5% were normal, and 2.2% had thrombocytosis.

Tabel 3. Symptoms felt by tropical malaria patients at the Widiya Medika Clinic, Jayapura Regency, Papua.

Symptoms	N	%
Fever		
Yes	205	100
No	0	0
Shiver		
Yes	205	100
No	0	0
sweating		
Yes	150	73,2
No	55	26,8
nausea and vomite		
Yes	155	75,6
No	50	24,4
Headache		
Yes	150	73,2
No	55	26,8
weakness		
Yes	152	74,1
No	53	25,9
Pale		
Yes	149	72,7
No	56	27,3
Total	205	100

Based on the symptoms felt, all tropical malaria patients (100%) at the Widiya Medika clinic in Jayapura Regency felt symptoms of fever and chills. Some symptoms are felt by some tropical malaria patients, but not felt by others. A total of 150 patients stated that they experienced symptoms of sweating (73.2%), while another 55 patients (26.8%) stated that they did not feel it. The presentation also occurred in headache symptoms, where as many as 73.2% of patients experienced it and 26.8% of other patients did not experience headache symptoms.

This is in accordance with research conducted by Putra (2011) showing that clinical syndromes caused by malaria differ depending on whether the patient lives in an area with stable (continuous) endemic malaria transmission or stable (sometimes and / or rarely). In regions with stable transmission, the disease affects the child and adults in different ways. The child has a chronic infection with recurrent parasitemia resulting in severe anemia and frequent death. The life-resistant of this recurrent infection can be partially immune at the age of five and this immunity remains restrained in adulthood.
Adults develop asymptomatic infections. After an increase in temperature, malaria sufferers will experience chills / feel cold, at this stage the patient experiences a fever attack. The patient's face becomes red, the skin is dry and feels very hot like burning, headaches get harder, and are often accompanied by nausea or vomiting. The patient's pulse becomes strong again. Usually sufferers feel thirsty coconut milk and body temperature can increase to 41 C. this stage lasts for 2-4 hours. At the advanced stage, the patient will experience a lot of sweating, until it wets the bed. But the body temperature in this phase drops rapidly, sometimes to below normal. Usually the sufferer falls into a deep sleep and at the time of wakefulness, he feels weak, but without other symptoms. The stadium lasts for 2-4 hours (Singh, et al, 2012).

4.Conlussion and Sugestion

The average patient suffering from tropical malaria and tersiana malaria will experience typical symptoms of increased body temperature, fever and sweating. In addition, the patient will also experience a dizzy head or headache as well as nausea and vomiting.

For the next researcher to see how to conduct qualitative research on why malaria patients are tersiana and tropical typical symptoms that appear.

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