



The Grade of Dengue Hemorrhagic Fever in Children

Suradi Efendi¹, Nour Sriyanah¹, Hendrika Risa Buntu², Ilham Syam¹, Suarni¹, Djunaedi³

¹Sekolah Tinggi Ilmu Kesehatan Makassar, Jl. Maccini Raya No.197, Sinrijala, Kec. Panakkukang, Kota Makassar, Sulawesi Selatan 90232, Indonesia

²dr. La Palaloi Regional Hospital, Jl. Poros Maros–Makassar KM 3, Kelurahan Adatongeng, Kecamatan Turikale, Kabupaten Maros, Sulawesi Selatan 90516, Indonesia

³Sekolah Tinggi Ilmu Kesehatan Salewangang Maros, Jln Poros Makassar Maros, Taroad, Kec. Turikale, Kabupaten Maros, Sulawesi Selatan 90516, Indonesia

ABSTRACT

Dengue hemorrhagic fever is caused by the dengue virus, which infects humans through mosquito-mediated, and is characterized by severe clinical symptoms such as fever, hemorrhage, hematoma, and signs of circulatory collapse before the shock occurs. The more critical the condition of a child with suspected dengue fever when admitted to the hospital, the higher the degree of illness. According to the Ministry of Health, in 2015, there were 129,650 cases of the disease, and 1,071 people died (0.83%). This research aims to describe the incidence of dengue hemorrhagic fever in children in Seruni treatment room, dr La Palaloi regional hospital, Maros Regency. The type of research is descriptive, using a quantitative approach, with a total population of 92 people. Sampling used a total sampling technique with an observation sheet instrument to take secondary data in the medical record room. The results showed that from 92 samples of children with Dengue Hemorrhagic Fever (DHF), there were 49 people (53.3%) suffering from DHF grade II, 60 people (65.2%) had a fever for more than seven days, most of whom had DHF grade II as many as 34 people (37.0%), and 50 people (54.3%) had poor nutritional status, most of whom suffered from DHF grade II, and as many as 30 people (32.6%). This research concludes that the duration of fever and the nutritional status of children determine the degree of dengue fever. Further researchers are encouraged to use more diverse sample and use other research designs to refine the factors that influence DHF in children.

Keywords: degree of DHF; duration of fever; nutritional status

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INTRODUCTION

Dengue hemorrhagic fever is a disease caused by a virus that infects humans through mosquito-borne animals (Kemenkes RI. (2017), n.d.). The prevalence of dengue has increased over the past 30 years, and approximately 500,000 dengue fevers occur annually, and more than 20,000 deaths. The most commonly affected areas are the subtropics and tropics. Around 100 countries in the region are known to have endemic diseases, including the country of Indonesia (WHO. (2016), n.d.-a). Dengue fever is a period of fever, critical and recovery (WHO. (2016), n.d.-b). Dengue Hemorrhagic Fever (DHF) is a public health problem, and its demographic distribution tends to increase. This disease is associated with the onset of the early rainy season, in almost all regions of the world, especially in tropical environments.

Based on data from the Indonesian Health Profile in 2015, the number of DHF cases reported in 2015 was 129,650, with 1,071 deaths (morbidity = 50.75 per 100,000 population, mortality

= 0.83%). The incidence in 2015 increased compared to 2014, with an incidence rate of 100,347 and a prevalence of 39.80 per 100,000 population. Strategic Plan target in 2015, the prevalence of DHF in Indonesia is 49 per 100,000 population, but it has not been achieved (Kemenkes RI. (2015), n.d.). According to data from all over the world, Asia ranks first in the number of dengue cases from year to year. Meanwhile, between 1968 and 2009, WHO found that Indonesia was the country with the highest number of dengue patients in Southeast Asia. In 2014, DHF spread to 433 of 511 provinces/cities in 34 states. This disease is terrible and dengue fever can kill many victims in a relatively short period of time. One of the main causes of the increase in cases of DHF is unplanned and uncontrolled urbanization due to very high population growth, especially in big cities in developing countries. This high population growth leads to high population density, and dengue outbreaks occur rapidly in densely populated areas (Lutfi, Muhammad H.D, n.d.). Complications of dengue hemorrhagic fever (DHF) are usually accompanied by severe shock that lasts a long time and heavy bleeding. Excessive fluid intake in plasma leakage can cause massive exudation leading to respiratory failure and may result in electrolyte/metabolic disturbances: hyponatremia, hypocalcemia, or sometimes hyperglycemia. (Kemenkes RI. (2015), n.d.)

Risk factors that influence the incidence of dengue fever include home environment (distance to house, house layout, type of water reservoir, height, and climate), biological environment, and social environment. The distance affects the spread of mosquitoes from one house to another. The closer the distance, the easier it is for mosquitoes to spread to the next house. The materials used to build the house, the construction of the house, the color of the walls, and the arrangement of objects in the house evoke a feeling of liking and antipathy towards mosquitoes in the house. Various infectious disease studies have shown that the prevalence of this disease increases in crowded and slum conditions (Andreset al, n.d.). The more severe the condition of the child with DHF upon admission, the higher the degree of illness, and of course the higher the risk of death. In addition to a sudden and rapid increase in body temperature that may be accompanied by heartburn, nausea, and even vomiting, the patient experiences lightheadedness, aches, and muscle aches. The most common ones occur on the skin, especially the arms, legs, red spots on the chest, nosebleeds, and bleeding gums after 25 days (Wati, n.d.). Many diseases have the same symptoms as DHF, and parents may not realize that their child has DHF. Therefore, parents need to have sufficient knowledge and high thoroughness. Differentiate dengue fever from other diseases.

Based on data obtained from the Regional Hospital of Dr. La Palaloi, Maros Regency, the number of patients with DHF in children in the last three years, namely; January-December 2018 as many as 162 people, in January-December 2019 as many as 168 people and in January-December 2020 as many as 92 people. The high morbidity rate in the incidence of DHF in Maros Regency increases every year, so researchers are interested in conducting research under the title "The degree of DHF incidence in children in the Seruni Treatment Room at the Regional Hospital of Dr. La Palaloi, Maros Regency".

METHOD

This research used a quantitative approach, with a descriptive research design. The population in this study were pediatric patients who were treated in the Seruni Care Room at the Regional Hospital of Dr. La Palaloi, Maros Regency with a diagnosis of dengue hemorrhagic fever in January - December 2020 as many as 92 people. By using the total sampling technique, a sample of 92 children was obtained. The type of data source in this research is using secondary data, where the data obtained from the Medical Records of the regional hospital of dr. La Palaloi, Maros Regency in the form of data on pediatric patients who were

treated with a diagnosis of DHF from January to December 2020. Univariate analysis was carried out on a variable.

RESULTS

Table 1
Characteristics of Children with DHF (n=92)

Characteristics	f	%
Gender		
Male	56	60,9
Female	36	39,1
Umur		
0 - 2 Years old	4	4,3
3 - 4 Years old	8	8,7
5 - 6 Years old	14	15,2
7 - 12 Years old	41	44,6
13 - 20 Years old	25	27,2

Table 1 shows that the majority of DHF sufferers in children are male as many as 56 people (60.9%), and the most age group is 7-12 years as many as 41 people (44.6%).

Table 2.
Distribution Based on the Duration of Fever (n=92)

Fever duration	f	%
1 - 7 days	32	34,8
>7 days	60	65,2

Table 2 shows that from the 92 samples of children with DHF in Seruni Treatment Room, Dr. La Palaloi Regional Hospital, Maros Regency, most of them had fever > 7 days as many as 60 people (65.2%), while those who had fever for 1 - 7 days were 32 people (34.8%).

Table 3
Distribution Based on the Nutritional Status of Children with DHF (n=92)

Nutritional status	f	%
Obesity	1	1,1
Overweight	13	14,1
Malnutrition	50	54,3
Normal	28	30,4

Table 3 shows that from the 92 samples of children with DHF in Seruni Treatment Room, Dr. La Palaloi Regional Hospital, Maros Regency, most of them belong to the category of malnutrition as many as 50 people (54.3%), and the least include the nutritional status of obesity category as many as 1 person (1.1%).

Table 4 shows that from the 92 samples of children with DHF in Seruni Treatment Room at the Regional Hospital of Dr. La Palaloi, Maros Regency, most of them were diagnosed with DHF Grade II category as many as 49 people (53.3%), and none with DHF Grade IV category (0,0%).

Table 4.
Distribution based on the degree of dengue fever in children with dengue fever(n=92)

Dengue Fever Degree	f	%
DHF Grade IV	0	0,0
DHF Grade III	7	7,6
DHF Grade II	49	53,3
DHF Grade I	36	39,1

Table 5.
Cross Tabulation of Dengue Fever Degrees Based on Fever Duration(n=92)

Fever duration	Dengue Fever Degree								TOTAL	
	DHF Grade IV		DHF Grade III		DHF Grade II		DHF Grade I		f	%
	f	%	f	%	f	%	f	%		
1-7 days	0	0,0	4	12,5	15	46,9	13	40,6	32	100,0
>7 days	0	0,0	3	5,0	34	56,7	23	38,3	60	100,0

Table 5 shows that from the 60 children (100.0%) with DHF in Seruni Treatment Room at the Regional Hospital of Dr. La Palaloi, Maros Regency who experienced fever symptoms >7 days, most of them suffered from DHF grade II as many as 34 people (56.7%). Meanwhile, for 32 children who experienced symptoms of fever for 1-7 days, most of them suffered from grade II DHF as many as 15 people (46,9%).

Table 6
Cross Tabulation of Dengue Fever Degrees Based on Nutritional Status(n=92)

Nutritional Status	Dengue Fever Degree								Total	
	DHF Grade IV		DHF Grade III		DHF Grade II		DHF Grade I		n	%
	n	%	n	%	n	%	r	%		
Obesity	0	0,0	0	0,0	1	100,0	0	0,0	1	100,0
Overweight	0	0,0	0	0,0	6	46,2	7	53,8	13	100,0
Malnutrition	0	0,0	3	6,0	30	60,0	17	34,0	50	100,0
Normal	0	0,0	4	14,3	12	42,9	12	42,9	28	100,0

Table 6 shows that of 50 children (100.0%) with DHF in the Seruni Treatment Room at the Regional Hospital Dr. La Palaloi, Maros Regency, who have nutritional status in the malnutrition category, most of them suffer from dengue fever, including in the DHF grade II category. as many as 30 people (60.0%). Meanwhile, for 1 child (100.0%) whose nutritional status is in the obesity category, suffers from dengue fever which is included in the DHF grade I category..

DISCUSSION

Characteristics of respondents.

The results showed that based on gender, the majority of DHF patients in children were male, as many as 56 people (60.9%). This is in line with the theory presented by (Soedarmo, S.S.P., n.d.) that males are more susceptible to infection than females because the production of immunoglobulins and antibodies of females is genetically and hormonally more efficient in producing immunoglobulins than males. This difference occurs because the number of female samples is greater than the number of male samples. This assumption is supported by the results of research conducted by (Sukohar A., n.d.) that there is no significant difference in the relationship between male and female gender to the incidence of DHF with p-value = 0.637. While the results of the study were based on age group, the most DHF patients in children

were in the 7-12 year age group, namely 41 people (44.6%), while the 0-2 year age group was the age group with the fewest DHF sufferers in children. The results of this study are in accordance with the results of research conducted by (Anggraeni S, n.d.) that most of the age group of patients with Dengue Hemorrhagic Fever (DHF) in the study area, namely Boyolali Regency, are in the age group of less than 15 years. In the age group less than 15 is the age group of school-age children.

Duration of Fever, Nutritional Status and Degree of Dengue Hemorrhagic Fever

Duration of Fever

The results showed that of the 92 samples of children with DHF in the Seruni Treatment Room at the Regional Hospital of Dr. La Palaloi, Maros Regency, most of them had fever > 7 days, namely 60 people (65.2%), while those who had fever 1-7 days were 32. people (53.8%). The diagnosis of DHF was established based on diagnostic criteria, consisting of clinical and laboratory criteria. The use of these criteria is intended to reduce overdiagnosis (overdiagnosis). One of the clinical criteria for assessing dengue fever is sudden high fever, for no apparent reason, lasting for 2-7 days. From the results of research conducted by (Agustin II, Bangkele EY, Salman M, Munir MA, n.d.), of the 49 children sampled, the longest duration of fever was < 7 days, namely 42 people (85.0%). The results were the same in a study conducted by (Berawi MM, Nisa K and Agustina D, n.d.), of the 85 children sampled, most of the children had a fever of 4-5 days (<7 days) as many as 48 children (56.1 %). From the results of the research carried out and the results of the existing literature, there are indeed differences, this could be because the researchers only looked at the patient's inpatient status based on the length of fever experienced by the child through parental reports and body temperature measurements while the child was treated. So that researchers could not validate specifically from parental reports regarding the length of fever experienced by the child before being hospitalized. In addition, fever that occurs in children can be more than 7 days caused by complications experienced by children during the treatment period.

Nutritional Status

Several studies have linked nutritional status with the development of dengue shock syndrome in children. Nutritional status is a risk factor for dengue virus infection. Abnormal nutrition is more likely to transmit than people with normal nutrition and infected with the dengue virus. Other studies say that the risk of shock in patients with dengue fever occurs in obese children. The risk of shock syndrome is 4.9 times greater in obese children than in non-obese children (Soedarmo, S.S.P., n.d.). Based on immunological theory, nutritional status affects the severity of disease, namely good nutrition increases antibody response. The reaction of antigens and antibodies in the body due to viral infection causes dengue virus infection to be more severe. In the pathogenesis of DHF, the complement system plays an important role. The low level of complement in malnourished children causes dengue fever children to rarely experience shock (Soedarmo SPS. Garna H. Hadinegoro SRS. Satari HI. 2008, n.d.) Palaloi Maros Regency, mostly included in the category of malnutrition as many as 50 people (54.3%), and the least included in the nutritional status category of obesity as many as 1 person (1.1%).

However, based on research conducted (Permatasari, n.d.) at the Tangerang Hospital, good nutritional status actually has a higher incidence of dengue fever in pediatric patients. The results are the same as the research conducted by (Permatasari DY, Ramaningrum G and Novitasari A, 2015), showing that of the 77 children suffering from DHF, most of them have good nutritional status (63.6%). From the results of the research carried out and the results of the existing literature, it can be seen that there are differences, this could be due to the data

collection carried out by researchers only through secondary data in the medical record room of the Regional Hospital Dr. La Palaloi, Maros Regency, so that the nutritional status data in children cannot be validated by researchers.

Degree of Dengue Hemorrhagic Fever

Based on the results of the study, it was shown that of the 92 samples of children with DHF in the Seruni Treatment Room at the Regional Hospital of Dr. La Palaloi, Maros Regency, most of them were diagnosed in the Grade II DHF category, namely 49 people (53.3%), and no children were treated at the hospital. The Seruni Treatment Room at the Regional Hospital of Dr. La Palaloi, Maros Regency, is included in the DHF Grade IV category (0.0%). From the results of research conducted by (Putri RD, n.d.) the results obtained from 113 children who were sampled, most of the patients diagnosed with DHF grade I were 61 people (54.0%). Similar to the research conducted by (Agustin II, Bangkele EY, Salman M, Munir MA, n.d.), the most severe degree of severity experienced by pediatric patients with Dengue Hemorrhagic Fever at Undata Palu General Hospital in 2017 of 49 cases the majority experienced grade I as many as 28 people (57%). In contrast to the research conducted by (Berawi MM, Nisa K and Agustina D, n.d.), the majority of pediatric patients suffering from DHF, mostly suffered from DHF grade II, as many as 50 people (58.8%).

From the results of the research carried out and the results of the existing literature, it can be seen that there are similarities and differences, this can be due to many factors that can affect the degree of DHF experienced by children, including the nutritional status of children, duration of fever at home, platelet count and hematocrit levels. However, researchers have not yet reached the stage of further research to see factors related to the degree of DHF experienced by children (Garna, H., n.d.). In providing nursing care, family involvement is needed, this is very important considering that children always need parents while in hospital such as in play activities or other care programs such as treatment. The importance of this family involvement can affect the healing process of children, especially children who are treated with dengue cases where the number of days of care is rather long (Sriyanah et al., 2021).

CONCLUSION

sebagian besar anak yang dijadikan sampel mengalami demam > 7 hari, termasuk dalam kategori gizi kurang, terdiagnosis dalam kategori DBD derajat II. Anak yang dijadikan sampel baik yang mengalami gejala demam >7 hari maupun yang mengalami gejala demam 1 – 7 hari sebagian besarnya menderita demam berdarah kategori DBD derajat II, dan anak yang dijadikan sampel sebagian besar berstatus gizi kurang dan mengalami DBD derajat II.

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