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The Effectiveness of Consuming Phoenix Dactylifera L to Increase Platelets in Dengue Hemorrhagic Fever Patients

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ABSTRACT

Introduction: Based on the data from Southeast Sulawesi Provincial Health Office in 2017-2020, the prevalence of Dengue Hemorrhagic Fever has increased from year to year. The prevalence of Dengue Hemorrhagic Fever (DHF) cases for Southeast Sulawesi Province in 2017 was 32.4 per 100,000 population, increased to 38.4 per 100,000 population in 2018, increased to 63.5 per 100,000 population in 2019, and increased to 70.5 per 100,000 population in 2020. This research aimed to analyze the effectiveness of consuming Phoenix Dectylifera L, to increase platelets in DHF patients.

Method: This research employed a retrospective cohort study. This research has been carried out for 30 days. The population was 176 people. The research sample consisted of 74recovered DHF patients. Meanwhile, home visits were conducted to observe the consumption of Phoenix Dectylifera L. The sampling technique was simple random sampling. The data was processed using the Data Normality Test (Kolmogorov Smirnov Test) and Anova Test.

Result: The results of this research showed that the value 0.000 of consuming Phoenix Dectylifera L, to increase platelets in Dengue Hemorrhagic Fever (DHF) patients with 6 (six) days of treatment.

Conclusion: There is an effect between consuming and not consuming Phoenix Dectylifera L, to increase platelets in Dengue Hemorrhagic Fever (DHF) patients.

Introduction

Dengue Hemorrhagic Fever (DHF) is an infectious disease caused by the dengue virus and transmitted by the AedesaEgypti mosquito. This is characterized by a sudden fever of 2 (two) to 7 (seven) days without a clear cause, weak or lethargy, restlessness, heartburn, accompanied by signs of bleeding on the skin in the form of bleeding spots (petechiae, bruising, ecchymosis) or a rash (purpura), sometimes nosebleeds, bloody stools, vomiting blood, decreased consciousness or shock. [1]

The Regency City data for Southeast Sulawesi Province showed that the highest incidence rates of Dengue Hemorrhagic Fever in 2017 were Kolaka Regency at 88.9 per 100,000 population, North Buton Regency at 69.0 per 100,000 population, Bau-Bau City at 62.6 per 100,000 population, South KonaweRegencyat 40.5,andKonaweRegencyat 42.6 per 100,000 population. In 2018, the incidence rates of Dengue Hemorrhagic Fever (DHF) were ranked first in Kolaka Regency at 87.2 per 100,000 population, South Konawe Regency at 52.1 per 100,000 population, Kendari City at 38.3 per 100,000 population, and Bau-Bau City 67, 4 per 100,000 population. In 2019, the incidence rates of Dengue Hemorrhagic Fever were Kendari City at 117.9 per 100,000 population, Kolaka Regency at 125.7 per 100,000 population, Bau-bau City at 95.5 per 100,000 population, and North Kolaka Regency at 100.8 per 100,000 population. In 2020, the highest incidence rateswereKendari City at 79.9 per 100,000 population, WakatobiRegencyat54.9% per 100,000 population, North Konawe Regency at 51.3 per 100,000 population, and Bau-Bau City at 41.8 per 100,000 population. In 2021, from January to October 2021, Dengue Hemorrhagic Fever cases in Kendari City amounted to 176 cases.[2]

Natural ingredients such as Phoenix Dactyliferal are chosen as an alternative to increase platelets in Dengue Hemorrhagic Fever (DHF) patients because Phoenix dactyliferalis widely available in traditional markets in Kendari City and has an easy to reach or relative price.Ajwa date palm (Phoenix Dactylifera L) contains sugar (a mixture of glucose, sucrose, and fructose), protein, fat, fiber, vitamins A, B1, B2, B12, C, potassium, calcium, iron, chlorine, copper, magnesium, sulfur, phosphorus, and several enzymes that can play an important role in healing various diseases and as anti-oxidants.[3]

Method

In conducting this research, the researcher employed quantitative research with a retrospective cohort study. A retrospective cohort study is a research design in the form of observing events that have occurred in order to find factors related to the cause. A retrospective cohort study is also research that examines backward using secondary data to see whether there is effectiveness between the independent variable and dependent variable. The independent variable in this research was Phoenix dectyliferal.to increase platelets in Dengue Hemorrhagic Fever (DHF) patients. This research has been carried out for 30 days. The population was 176 people. The research sample consisted of 74 recovered DHF patients. Meanwhile, home visits were conducted to observe the consumption of Phoenix Dectylifera l. The sampling technique in this research wassimple random sampling. The data was processed using the Data Normality Test (Kolmogorov Smirnov Test) and Anova Test.

Result

Table 1 shows that the average measurement of platelet level in Dengue Hemorrhagic Fever (DHF) patients when receiving treatment on day 1 (one) is 80,000 mm3/dl, while the average platelet level on day 2 (two) is 100,000 mm3/dl. Moreover, day 3 (three) decreases by 98,000 mm3/dl, day 4 (four) is 120,000 mm3/dl, day 5 (five) is 150,000 mm3/dl, and day 6 (six) is 195,000 mm3/dl.

Table 2 shows that of the 74 respondents who have recovered from Dengue Hemorrhagic Fever (DHF), there are 23respondents (31.08%) who consumePhoenixdectyliferal.when receiving treatment at the Public Health Centers or Hospitals, and 51 respondents (68.91%) who do not consume Phoenix dectyliferal.when receiving treatment at the Public Health Center or Hospital.

Table 3 shows that of 74 respondents, the average difference who consume Phoenix dectylifera l.is 154 times, while the average for those who do not consume Phoenix dectylifera l. is 105 times. The difference between the average consuming and not consuming Phoenix dectylifera l. is 49 times. The statistical test results using the Anova test obtain the value of Sig. 0.000 < 0.05. Ha is accepted, which means a difference between the average consuming and not consuming Phoenix dectylifera l. when receiving treatment at the Public Health Centers or HospitalsinKendari City.

Table 1
Distribution of Respondents Based on Increased Platelet Levels Patients who have recovered from Dengue Hemorrhagic Fever (DHF)cases from day 1 (one) to day 6 (six) in Kendari City Area

No.	Measurement Time	Average Platelet Level
1	Day 1	80.000 mm^3/dl
2	Day 2	100.000 mm^3/dl
3	Day 3	98.000 mm^3/dl
4	Day 4	120.000 mm^3/dl
5	Day 5	150.000 mm^3/dl
6	Day 6	195.000 mm^3/dl

Table 2
Distribution of Phoenix Dectylifera L in Dengue Hemorrhagic Fever (DHF) patients who have recovered in Kendari City Area

Phoenix Dectylifera L	n	Percentage (%)
Consuming	23	31,08
Not Consuming	51	68,91
Total	**74**	**100**

Table 3
Differences in the effectiveness of Phoenix Dectylifera L on recovered DHF patients at the Public Health Centers and Hospitals in Kendari City Area in 2022

Phoenix Dectylifera L	Mean	SD	*Sig.*	n
Consuming	153,61	12,809	0.000	74
Not Consuming	105,46	9,887		

Discussion

Date palm (Phoenix dectylifera l.) is a natural ingredient with high sugar and isoflavone content so that it is beneficial for the body when consumed. In addition to being reported to increase platelet aggregation, the content of glucoside flavonoid compounds in date palmcan also inhibit the activity of the hyaluronidase enzyme in the decomposition process of hyaluronic acid, which is the basic material (matrix) of bone marrow. Flavonoids are thought to be able to increase the number of platelets. The effect of the content of date palmin increasing the number of blood platelets is related to the number of glucoside flavonoids contained in date palm. The chemical structure of flavonoid glucoside greatly determines its biological activity, bioavailability, and physiological effects. [4]

The results of a study conducted by the researchers showed that most recovered DHF patients had platelets >190,000mm/dl after undergoing treatment. It was always recommended to consume lots of mineral water and vitamins to increase endurance and consume nutritious food. [5]

Date palmcontains a number of important polysaccharides such as rhamnose, arabinose, xylose, mannose, galactose, and glucose.[6] The content of date palm, which is thought to play an important role in increasing platelet production, is the presence of a number of carbohydrates such as mannose, galactose, arabinose, and xylose as

ingredients for the formation of glycoproteins in platelet granules. In a previous study conducted by Wijayanti entitled the effect of giving date palminfusion (Phoenix dactylifera) on changes in platelet count in white male rats induced by cotrimoxazole after administration of date palm infusion (Phoenix dactylifera) at a concentration of 10% for 3 (three) daysfound that the results of date palminfusion can increase the platelet count of cotrimoxazole-induced mice.[7] Another study conducted by Dzikro entitled the effect of giving tahnikdatepalmto the total number of leukocytes showed that the percentage of the number of monocytes and blood lymphocytes and the antibody titer of mice with a dose of 225 mg/day can increase the total leukocytes.

Glucose levels in date palmare very high, reaching 50-57%. High glucose levels are very good when used as a source of energy for the body. This glucose is obtained from the absorption of food, especially carbohydrates, by the small intestine mucosa. Glucose is abundant in blood plasma, which also maintains the balance of blood hematocrit. Blood plasma glucose forms the glucose-6-phosphate and glucose-1-phosphate. Date palmis thought to help play an important role in repairing blood vessels.[8] Date palmcontains a number of compounds that can help repair blood vessels, such as ascorbic acid, which has a function in binding fabrics, namely as a transporter of sulfate groups needed in the formation of chondroitin sulfate (glycosaminoglycans), which is a basic substance gel between organ cells.[9]

Based on the research results, 74 respondents indicated that the average difference who consumed Phoenix dectylifera l. was 154 times, while the average for those who did not consume Phoenix dectylifera l. was 105 times.[10] The difference between the average consuming and not consuming Phoenix dectyliferal.was 49 times. The statistical test results using the Anova test obtained the value of Sig. 0.000 < 0.05. Hawas accepted, which means a difference between the average consuming and not consuming Phoenix dectylifera l. when receiving treatment at the Public Health Centers and Hospitals in the Kendari City area.

Conclusion

In conclusion, there is a difference between consuming and not consuming Phoenix dectylifera l.to increase platelets in Dengue Hemorrhagic Fever (DHF) patients in the Kendari City area.

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