

The Effect of Giving Halal Curd to Pregnant Woman for 10 Days

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Abstract

The use of antibiotic drugs that are not in accordance with the rules and dosage will be able to cause resistance to the user. Therefore, the use of antibiotic drugs should be in accordance with the type of germs from the blood culture. Antibiotics need to be given carefully especially in pregnant women, children and elderly and people with chronic diseases with low immune system. In addition antibiotic can cause resistance and also damage organs such as liver and kidneys when is used for long periods and high doses. Many pharmacologists seek treatment solutions for antibiotic replacement and they find it as an option by increasing the immune system and providing foods that contain bacteriocin. Curd also has a bacterial anti-listeriosin that can kill some types of bacteria such as *Listeria monocytogenes*. We conducted a study of 24 pregnant women who went to midwifery clinic and obstetric diseases General Hospital Royal Prima Medan from January 2017 to March 2017. This study method was using a cross-sectional analytical observation approach which the samples were taken from 20 pregnant women that were given 200 cc of curd and 4 pregnant women randomly. The result showed a significant difference of Erythrocyte Sedimentation Rate (ESR) after the administration of curd.

Keywords: Curd; Erythrocyte Sedimentation Rate; Probiotics.

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1. Introduction

Milk contains complete nutrition for human need. Various processed products that is made from raw milk have been developed in Indonesia as a source of healthy food, including curd. Curd is a traditional West Sumatra food is made with natural fermentation of buffalo milk in bamboo containing lactic acid bacteria (LAB) which produces antimicrobial substances including bacteriocin, but also enhances the immune system that has anti bacterial listeriosin which can kill several types of bacteria such as *Listeria monocytogenes* [1]. According to Syukur, S, Purwati, E. 2013 lactic acid bacteria from West Sumatera curd contain level 2a listeriosin that can inhibit the growth of *Listeria monocytogenes* [2]. In Ngatirah and his colleagues 2000, Pato 2003 research, lactic acid bacteria (LAB) isolation in curd was found 36 strains of *Lactobacillus* and *Streptococcus* [3,4] While Hosono and his colleagues found *Lactococcus* [5]. Surono and Nurani also found in non-LAB bacteria, such as *Micrococcus variance*, *Bacillus cereus*, and *Staphylococcus saprophyticus*, and yeast *Endomyces lactis* [6]. Miskiyah states that besides containing lactic acid bacteria, curd also contain *Lactobacillus casei* subspecies *Leuconostocparamasenteroides*, *Enterococcus faecalis* subspecies *liquefaciens*, *Lactococcus lactis* subsp *lactis* [7]. Sunarlim and his colleagues reported that *Lactobacillus plantarum* is the most dominant LAB in West Sumatera curd [8]. While Usmiati and Setiyanto reported *L. casei* is dominant in Sijunjung, West Sumatera curd [9,10]. Bacteria that is contained in buffalo milk curd from West Sumatera consist of Gram-positive bacteria 73,74% and Gram-negative bacteria 26,26% [11]. The previous study informed bacteria that contained in the curd were dominated by *L. plantarum* and other Gram-positive bacteria such as *L. brevis*, *S. agalactiae*, *Bacillus cereus*, and *S. uberis*, while Gram-negative bacteria such as *Escherichia coli* and *Klebsiella sp.* Curd contain 39.8% protein with amino acid, vitamine E and A, fairly complete sensial, calcium, and vitamine B and K that are formed during the fermentation process [7]. Syukur and his colleagues reported that the LAB of the curd can produce class II bacteria with a molecular weight below 10 kDa that is stable with high temperatures, and can inhibit the growth of some rotten food that contain some bacteria such as *S.aureus*, *E.coli*, *S.typhi*, and *Listeria monocytogenes* [12].

L.monocytogenes bacteria have resistance to various environmental stresses such as saline or acid and long-lasting solutions in foods, processed foods and cold temperatures [13]. Bajard and his colleagues; Farber and Peterki reported 98% of human listeriosis derived from the consumption of contaminated food [14,15]. *L.monocytogenes* can cause listeriosis in individuals with low immune systems such as infants, elderly, pregnant women, diabetics, cardiovascular diseases and corticosteroid therapy [16,17,18,19,20,21]. The purpose of this study was to see the effect of the curd that contain *Lactobacillus Fermentum* strain NCC2970 for 10 days (200 ml) in pregnant women.

2. Method and Material

The samples of pregnant women were taken who done Ante Natal Care in Polyclinic Royal Prima General Hospital Medan in January - March 2017 period. Sampling method use was cross-sectional approach which was taken from 24 pregnant women randomly. We did the last menstrual history taking, vital signs and ultrasound examination to ensure gestational age. Routine blood tests, protein, albumine, and globuline levels were performed before and after eating curd by clinical pathologists from Gatot Subroto Clinical Laboratory.

Observation was done as follows: 200 cc of curd was prepared in bamboo, then was eaten 2 tablespoons twice daily (20 cc per day) without dilution and other additives. During the research, pregnant women did not take drugs, or other vitamins other than curd. The data is then processed statistically using SPSS 22.

3. Result and Discussion

3.1. Characteristics of Pregnant Women Who Eat 200 cc of Curd

From a total of 20 patients were given 200 cc of curd and 4 controls in Royal Prima General Hospital Medan conducted from January 2017 to March 2017 diagnosed with pregnancy through the date of last menstruation and ultrasonography examination. The results are in Table 1 below.

Table 1: Characteristics of pregnant women who eat 200 cc of curd

No.	Category		Frequency	Percentage (%)
1.	Age	< 20 years	0	0
		21 – 35 years	20	100
		> 36 years	0	0
		Total	20	100
2.	Old pregnancy	0 – 12 weeks	4	20
		13 – 20 weeks	16	80
		Total	20	100
3.	Total of pregnancies	1 – 3	17	85
		> 4	3	15
		Total	20	100
4.	Total of abortions	1	18	90
		2 – 3	2	10
		> 3	0	0
		Total	20	100
5.	Residence	City	20	100
		Village	0	0
		Total	20	100

The total of 20 samples were given 200 cc of curd and 4 controls were not given curd in Royal Prima General

Hospital Medan. The characteristic of sample, the most age is 21-35 or 100%, old pregnancy between 13-20 weeks 80% and the total pregnancy between 1-3 is 85%, while the first abortus is 90% and 100% of the pregnancy women live in Medan city. From statistical analysis found significant difference in age sample, old pregnancy, number of pregnancy, number of abortion and residence.

3.2. Description of the nutritional content in the curd

From 3 of 50 rounds of curd were taken randomly for the examination of nutrient levels. 3 curd from other villages and 3 curd from other cities as control. The nine samples were examined in the Faculty of Animal Husbandry of Andalas University according to the research protocol. The results were analyzed using SPSS 22 statistics and the results are shown in Table 2 below.

Table 2: The mean percentage nutritional of curd

No.	Categories		Percentage (%)
1.	Protein	AC	4,2
		AV	4,7
		KL	4,14
2.	Fat	AC	6,4
		AV	7.0
		KL	7,2
3.	Water	AC	80
		AV	73
		KL	65
4.	pH	AC	4,02
		AV	4,07
		KL	4,14
5.	Acidity	AC	2,12
		AV	1,71
		KL	1,35

From Table 2 above this study use AV sample type contain the highest protein and fat. In conclusion, the curd is a good source of nutrition for pregnant women. As Sirait dan Setiyanto research, curd contained water (82,10%), protein (6,99%), fat (8,08%), acidity (130,150D), and pH (4,99) [10,11] Pato research that curd contained high number of protein (39,8%) with essential amino acids, calcium, vitamine B and K that are formed during fermentation process [16].

3.3. Overview of Laboratory Results of Pregnant Women Who Eat 200 cc of Curd

From a total of 20 patients were given 200 cc curd and 4 controls in the Royal Prima General Hospital Medan conducted from January to March 2017 which was diagnosed with pregnancy through the latest menstrual date and ultrasonography. Periodic blood tests, protein, albumine, and globuline levels before and after administration of the curd by clinical pathologists from the Gatot Subroto Clinical Laboratory were found in the Table 3 below.

Table 3: Laboratory results of 20 pregnant women before and after two weeks of giving 200 cc of curd for 10 days

Blood Test	Mean	
	Before Giving	After Giving
Haemoglobine	11.8350	11.8100
Leukocyte	10630.000	9688.500
ESR	33.950	23.650
Trombocyte	285250.0000	274090.0000
Protein	7.0200	7.0700
Albumine	3.8800	3.7800
Globuline	3.1900	3.2750

3.4. Overview of Statistical Analysis from the Laboratory of Pregnant Women Eating 200 cc of Curd

From a total of 20 patients were given 200 cc curd and 4 controls in the Royal Prima General Hospital Medan conducted from January to March 2017 diagnosed with pregnancy through the latest menstrual date and ultrasonography. Periodic blood tests, protein, albumine, and globuline levels before and after administration of curd by clinical pathologists from the Gatot Subroto Clinical Laboratory were analyzed using SPSS 22. The results are in Figure 1 and 2 below.

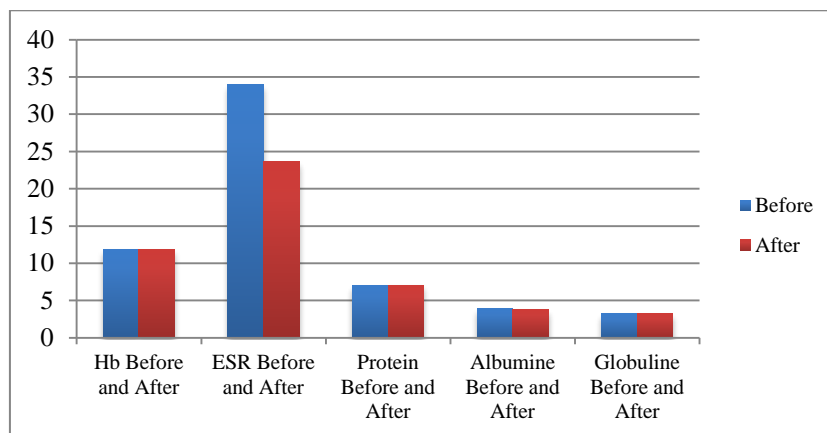


Figure 1: Before and after blood test result of patients who eat curd

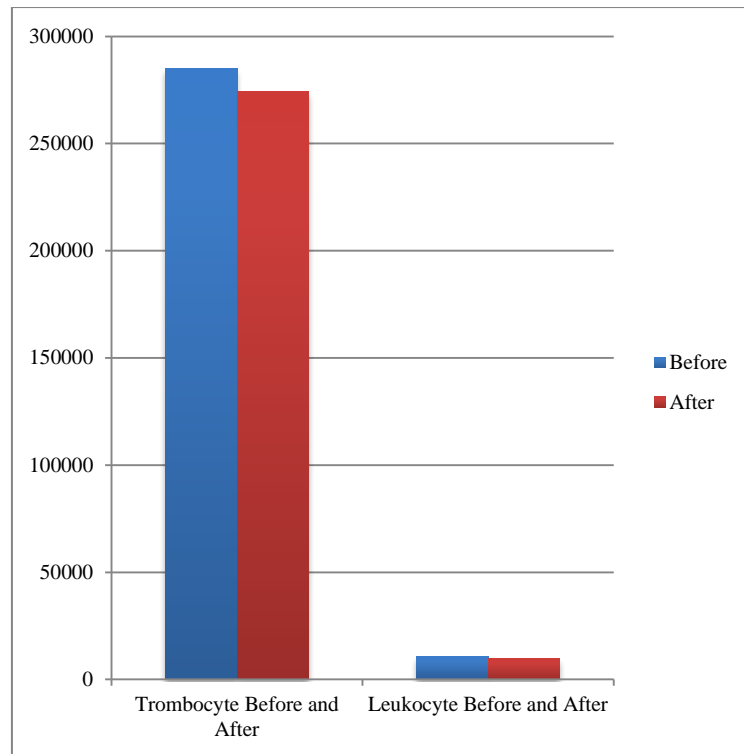


Figure 2: Before and after blood test result of patients who eat curd

From Table 3 above, leukocyte level after administration of curd is $9.688,5 / \text{mm}^3$ and before administration of curd is $10.630 / \text{mm}^3$. This conclude that there is a decrease of pregnant women leukocyte level after eating curd is $0.9415 / \text{mm}^3$ but there is no significant difference in the average leukocyte level, but it was suspected that have an effect in case of acute infection.

Meanwhile the average Erythrocytes Sedimentation Rate (ESR) after administration of curd is $23,650 \text{ mm} / \text{hour}$ and before the curd is $33,950 \text{ mm} / \text{hour}$. This conclude that there is a decrease $10,300 \text{ mm} / \text{hour}$ in maternal plasma levels after consuming curd. There is a significant difference on the average ESR which means there is an effect of curd to the changes of ESR in pregnant women.

4. Conclusion

From the results of routine blood tests such as haemoglobine (Hb), leukocytes, Erythrocytes Sedimentation Rate (ESR), platelets, total protein level, albumine, globuline obtained that the levels of Erythrocytes Sedimentation Rate (ESR) effect the provision of curd significantly ($\alpha = 0.05$). This is suggested as the use of therapy in acute infections of pregnant women. Curd contained of 16 amino acids (13 essential amino acids and 3 non-essential amino acids) and vitamine A $1,70-7,22 \text{ IU/g}$ that showed it is a healthy food that can be absorbed in the body easily^[22]

5. Suggestion

Suggestion of curd as halal probiotics can be recommended for pregnant women who are suspected of having

infection.

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