



The Effect Of Consuming Pineapple Juice (*Ananas Comusus* [L] Mer) Towards The Duration Of The Stage I Latent Phase

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Abstrak

Di Indonesia, persalinan lama merupakan salah satu penyebab Kematian Ibu. Persalinan berkepanjangan yang terjadi pada fase laten juga disebut fase laten berkepanjangan, persalinan yang berlangsung lebih dari delapan jam persalinan di primigravida. Penelitian ini dimulai oleh kebiasaan masyarakat dalam mengonsumsi buah-buahan salah satunya nanas yang bermanfaat untuk memperlancar proses persalinan. Nanas mengandung vitamin C dalam jumlah tinggi, gula, vitamin A, sejumlah mineral, dan enzim yang disebut bromelain. Bromelain adalah enzim yang merangsang produksi prostaglandin. Peningkatan prostaglandin menyebabkan kontraksi pada otot rahim sehingga persalinan terjadi. Penelitian ini bertujuan untuk mengetahui pengaruh jus nanas terhadap durasi tahap pertama fase laten. Metode penelitian ini adalah eksperimental semu. Penelitian dilakukan pada bulan Juli hingga Oktober 2018 di Pusat Kesehatan Masyarakat Ciruas, Serang, Banten. Sampel dalam penelitian ini adalah 80 ibu dalam fase laten. Pengambilan sampel dilakukan dengan menggunakan teknik consecutive sampling. Analisis perbedaan waktu dalam detasemen tali pusat diuji dengan menggunakan uji statistik Mann Whitney. Hasil penelitian menunjukkan bahwa rata-rata lama waktu pada tahap pertama fase laten pada kelompok intervensi adalah 91,53 menit, yang 57,75 menit lebih cepat dibandingkan dengan lamanya waktu kelompok kontrol, 149,28 menit. Ada perbedaan yang signifikan pada kelompok yang diberi jus nanas dengan mereka yang tidak diberi jus nanas dengan nilai $p < 0,002$ ($\alpha < 0,05$). Pemberian jus nanas dapat mempercepat durasi fase laten tahap I pada primigravida karena nanas mengandung enzim yang disebut bromelain dan serotonin. Konsumsi nanas dapat menjadi solusi untuk nutrisi yang dikonsumsi ketika persalinan dimulai pada tahap pertama fase laten dan membuat periode waktu fase laten lebih pendek dan mengurangi risiko intervensi selama persalinan.

Kata kunci: Jus Nanas, Tahap I Tahap Laten, Primigravida

Abstract

In Indonesia, prolonged delivery is one of the cause of Maternal Mortality. The prolonged delivery which occurs in the latent phase is also called prolonged latent phase, a labor which lasts over eight hours of labor in primigravida. This research was started by the society's custom of consuming fruits that are beneficial to smooth a labor process, consuming pineapples. Pineapples contain high amounts of vitamin C, sugar, vitamin A, a number of minerals, and an enzyme called bromelain. Bromelain is an enzyme that stimulates the production of prostaglandin. The increased prostaglandin causes contractions in the uterine muscle so that labor occurs. This study aims to determine the effect of pineapple juice towards the duration of the first stage of the latent phase. The method of this research was quasi experimental. The

study was conducted in July to September 2018 at Ciruas Public Health Center, Serang, Banten. The sample in this study was 80 mothers in latent phase. Sampling was taken by using consecutive sampling technique. The analysis of timing differences in umbilical cord detachment was tested by using the Mann Whitney statistical test. The result shows that the average length of time in the first stage of the latent phase in the intervention group was 91,53 minutes, which was 57,75 minutes faster compared to the control group's length of time, 149,28 minutes. There was a significant difference in the group given pineapple juice with those who were not given pineapple juice with p value 0,002 ($\alpha < 0,05$). Giving pineapple juice can accelerate the duration of the stage I latent phase in primigravida because pineapples contain an enzyme called bromelain and serotonin. The consumption of pineapple can be a solution for nutrients consumed when labor started at the first stage of latent phase and make the time period of the latent phase shorter and reduce the risk of intervention during labor.

Keywords: Pineapple Juice, The Stage I Latent Phase, Primigravida

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INTRODUCTION

The government has the commitment to improve the development of maternal and neonatal health status (1). A prolonged labor is a direct factor to Maternal Mortality Rate in Indonesia around 1,8% (2). The most common indicator of a labor progress is the cervix opening and depletion and the uterus that keeps contracting. The successful labor can be achieved with a rhythmic uterus contraction from an adequate frequency, intensity, duration, and changes in the connective tissue which results in cervix dilation (3). Uterine contractions are direct consequences to the significant electrical activity which happens in myometrium cells. The force of the uterine contractions needs to be measured to estimate the labor duration quantitatively by uterine fundal palpation (1). Normally, the duration of labor in the first stage latent phase according to Friedman's curve is 8 hours (4,5). However, there is a new alternative which started by a tradition developed in the society to consume a fruit which is believed to make the labor progress smoother: like consuming pineapples (6). Pineapples contain an enzyme called bromelain (7). Bromelain can be obtained from pineapple plants from different stems, leaves, fruit and stem skin. The content of the enzyme is more in the flesh of the fruit, this is reflected in its higher activity compared to the activity on the stem (8). This

enzyme stimulates the escalation of prostaglandin production. This escalation of prostaglandin generates contractions in the uterine muscle so that the labor happens (9). The World Health Organization (WHO) has recommended the use of an alternative therapy derived from medicinal plants, with an aim to open up opportunities for healthcare providers to develop complementary therapies which came from the efficacy of herbs. This study aims to find out the effect of pineapple (*Ananas Comusus* [L] Mer) towards the duration of the stage I latent phase.

MATERIALS AND METHODS

The design of this research is *quasi experiment, posttest only with control group design* with 80 primigravida mothers who were divided into two groups. This research was conducted from July to October 2018 in Ciruas Public Health Center. The sampling technique used *nonprobability sampling*, namely *consecutive sampling*.

1. The inclusion criteria were:

Mothers who do pregnant exercises during pregnant, Mothers who do not consume pineapple before the study, Able to communicate verbally and nonverbally, Servical Opening 1-3 cm, History of obstetric must be a term, single, head presentation

2. The Exclusion criteria were:
History of complications during pregnancy such as diabetes mellitus hyperemesis gravidarum and hypertension, Using pharmacological therapy that stimulates contractions during the study, History of complications during labor early rupture of membranes and preeclampsia/eclampsia, History of certain food allergies, History of gastritis, History of metabolic disorders, such as phenylketonuria and liver disease

c. The intervention group was given pineapple juice which was made of 100gr of pineapple hump and 50 ml of water. The control group was only given drink water. After that, the duration of the first stage of latent phase was measured. This research went on for three months and has passed the ethical test in STIKes Dharma Husada Bandung/ethical clearance with number 048/STIKes-DHB/Sket/PSKBS2/VII/2018.

RESULT AND DISCUSSION

Result

This research was done to 80 respondents of which each group consisted of 40 respondents and in the process of this research there was one respondent who dropped out.

Univariate Analysis

1. The characteristics of respondents based on age, education, and occupation of primigravida parturients in the the stage I latent phase

Table 1 Frequency distribution of the characteristics of respondents based on age, education, and occupation of primigravida parturients in the first stage active latent phase

No	Variable	Group	Mean	Min	Max	SD	P value
1	Age	Intervention	22,70	16	29	3,314	0,091
		Control	24,30	18	35	4,404	
2	Education	Intervention	n	%	n	%	0,69
		Control	2	5	33	82,5	
3	Occupation	Intervention	Working Mother		Housewife		0,68
		Control	n	%	n	%	
			26	65	14	35	
			20	50	20	50	2

**lavene's test*

As presented in table 1, the Threecategory group had similar characteristics (homogeneous) and, therefore, are comparable.

2. The mean of duration of the stage I latent phase in the intervention and the control group

Table 2 Frequency distribution of the duration of the first stage latent phase in the intervention and the control group (in minutes)

Variable	Mean (minutes)	Min	Max	SD
Intervention	91,53	30	380	73,535
Control	149,28	34	590	116,703

Bivariate Analysis

1. Normality test for the duration of the stage I latent phase

Table 3 Normality test for the duration of the stage I latent phase to the intervention and the control group

Variable	Intervention		Control	
	Mean (minutes)	SD	Mean	SD
Duration of the stage I latent phase	91,53	73,535	149,28	116,703
Kolmogorov	0,024		0,005	
Smirnov				

Based on the normality test to the intervention group and control group shows the *sig.* value $< 0,05$ It can be concluded that the data is not normally distributed. The difference test used in this research is Mann Whitney test.

2. The difference of duration of the stage I latent phase between the intervention and the control group

Table 4 The difference test of duration of the stage I latent phase between the intervention and the control group

No	Group	Mean (minutes)	SD	SE	P value
1	Intervention	91,53	73,53	0,374	
2	Control	149,28	116,70	0,374	0,002

Table 4 presents significant differences average duration of the stage I latent phase between the intervention group and the control group (p value 0,002 smaller than p value $< 0,05$).

Discussion

Based on the results of the research, the average duration of the first stage latent phase in the intervention group is shorter than that in the control group 91,53 minutes. This was caused by the enzyme bromelain in pineapples that has the ability to increase prostaglandin and resulting in the increase of uterine contraction (9). Consumption before pregnancy can cause abortion or miscarriage, but consumption at the beginning and labor contain active principles which can enhance oxytocin induced uterine contractions, assist labor and help remove retained placenta (10). The laboratory test done by Muzzamanin 2009 that tested the effect of pineapple extract shows a significant result on the experimental animal (a guinea pig). It can be concluded from the research that the more amount of pineapple extract given, the more the experimental animal's uterine muscle activity increases. So, there is a significant difference in the duration of the first stage latent phase between the intervention and the control group (11). Puspitasari in 2010 do research in pregnant woman over 36 weeks who consumed pineapple affect uterine contractions during childbirth (12)

There has not been a research that experimentally tested the effect of pineapple juice towards the duration of the stage I latent phase yet, so the result of this research is that pineapple juice can be beneficial for midwives as one of the complementary therapies to prevent complications during the first stage latent phase. Besides, pineapples are easy to be found in any part of Indonesia, especially Serang, so it makes it easy for the mothers giving birth to find the fruit. There are also several descriptive researches that mention that pineapples are the fruits that can be used by women in full term pregnancy to stimulate labor contractions. It is because pineapples contain 125,0208 mg of enzyme bromelain, 11.484,18 U of total enzyme activity, 91,86 U/mg of bromelain's specific activity that are adequate to stimulate the release of prostaglandin. The increasing hormone prostaglandin in a mother's body causes uterine contractions (11,13).

There is also another research which stated that giving only 0,2 ml of pineapple extract to an experimental animal can kill the embryo when the

gestational age is only 2 to 4 days due to the uterine contraction. Therefore, pineapples belong abortifacient herbs. In that research, it was suggested for mothers in the early term of pregnancy not to consume pineapples (14). This is in line with other researches which stated that consuming plentiful amount of pineapples causes preterm labor, because the enzyme bromelain can provoke early contractions (13).

CONCLUSION AND RECOMMENDATION

The conclusion to this research is giving pineapple juice to delivery can shorten the duration of the first stage latent phase. The average duration of latent phase in the intervention group is 91,53 menit. The average duration of latent phase in the control group 149,28 menit. There is a significant effect of giving pineapple juice (*Ananas Comusus* [L] Mer) towards the duration of the stage I latent phase.

It is necessary to develop a research with more sample in order to be generalized for a greater population, and add another variable in order to see how big the effect is.

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