



KELOR (Moringa Oliefera) as an Alternative in Increasing Breast Milk Production

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Abstract

Background: The success of exclusive breastfeeding is strongly influenced by milk production. Moringa leaves contain active compounds (lactogogous) that can effect milk production.

Objective: To determine the effect of Kelor (Moringa Oliefera) in increasing breast milk production.

Method: The design of this study was Quasy-Experimental studies of non-equivalent control group design with purposive sampling with inclusion criteria. The number of research subjects in this study as many as 36 respondents divided into 2 groups respectively 18 respondents. The treatment group was given normal postpartum care and moringa leaf powder capsule for 2 weeks with a dose of 2 x 250 mg, the control group was given normal childbirth care only. Breast milk production is measured from breast milk fat and baby weight and data was analyzed by Mann Whitney test.

Results: kelor flour can significantly increasing breast milk production with indicator of breast milk fat and baby weight whereas in treatment group showed greater (6,622 > 2,744) for breast milk fat and (3,583 > 3,347) for baby weight compared to control group.

Conclusion: Kelor (Moringa Oliefera) flour can be used as an alternative to increase breast milk production.

Keywords: postpartum mother, moringa leaf, , breast milk.

Introduction

In 2006 the WHO (World Health Organization) issued a standard of child growth that was then applied worldwide which emphasized the importance of breastfeeding to infants from birth to 6 months of age. After that, babies are started to be fed complementary foods while breastfeeding until they are 2 years of age^[1].

In line with the regulations set by WHO, Indonesia is also implementing regulations regarding the importance of Exclusive Breast Milk by issuing Government Regulation No. 33/2012 on breastfeeding Exclusive^[2,3].

This is because breast milk has several properties, such as can reduce the risk of infants to suffer from various diseases, breast milk also helps the

growth and development of children's intelligence. According to the study, children that had not breastfed had an IQ (Intellectual Quotient) lower by 7-8 points compared with exclusively breastfed children because in breast milk there were nutrients needed for infant brain growth that were either absent or minimal found in cow's milk, such as: Taurine, Lactose, DHA, AA, Omega-3, and Omega-6^[2].

Although breast milk is the best and most appropriate food for babies, because it contains various nutrients needed in the process of growth and development of infants, but the fact breastfeeding in the field is still less encouraging because some mother's milk production is little or nothing at all in three or four days after giving birth.

This is because the wrong perception of milk production. So it becomes one of the factors causing failure in breast feeding^[4-6].

Lactagogum is a drug that can increase or facilitate the expenditure of milk. Lactogogue synthesis is not widely known and the price is relatively expensive and contains side effects. This leads to the need to use alternative lactogogues from natural ingredients as a safer and relatively cheaper way^[7].

one of them with Kelor Leaves, where Kelor leaf powder is an effective galactagogues to increase the volume and increase the composition of breast milk.^[7-9].

Methods

Design

This research is a Quasi-experimental study with non-equivalent control group approach in the work area of Puskesmas Bergas Semarang Regency on 15 March to 14 April 2017.

Population and sample

The population in this study were all postpartum days 4-5 in the working area of Bergas Public Health. Sampling technique was purposive sampling and got 15 respondent for each group. To anticipate the drop out then add 20% so the

number of samples is 18 respondents for each group.

Instruments

In this study Kelor powder was obtained from Moringa leaf powder used is obtained from the packaging of powdered kelor leaf sold in the market, namely Kelorina. The process of weighing and preparation of powdered kelor leaf capsules (250 mg) is done at the UNDIP Laboratory. Breast milk fat is measured through laboratory testing with Sokhletasi method in Semarang Muhammadiyah University Laboratory

Intervention

For 2 weeks all respondents from both groups were given balanced nutrition intake 2 times a day. Control group is given normal childbirth care by enumerator that is midwife of working area of Bergas public health with first done equation of perception about research which will be done. In treatment group is given treatment of normal childbirth care and giving of Kelor leaf powdered capsule daily 2x250mg. After 2 weeks of intervention, measurements of breast milk fat were measured again in both groups.

Data analysis

This study identifies the mean differences in breast milk fat before and after intervention in both groups using Mann Whitney test.

Research Ethics

In conducting this research, the researcher has received recommendation from Health Research Commission of Health Polytechnic of Kemenkes Semarang with Number: 144 / KEPK / Poltekkes-SMG / EC / 2017 dated March 17, 2017

Results

Table 1. Characteristics of Respondents

Variable	Mean±SD	P value*
Age (Years)		
Treatment group	29,89±1,231	0,834
Control group	29,61±1,092	
Parity		
Treatment group	2,33±0,485	0,487
Control group	2,28±0,461	
Breastfeed frequency (x/days)		
Treatment group	8,22±1,309	0,456
Control group	8,44±0,984	
rest (hour/days)		
Treatment group	5±0,686	0,115
Control group	4,61±0,778	
Education	JHS SHS	0,509
Treatment group	7 (38,9%) 11(61,1%)	
Control group	6 (33,3%) 12 (66,7%)	
Occupation	work Not work	
Treatment group	10 (55,6%) 8 (44,4%)	0,230
Control group	12 (66,7%) 6 (33,3%)	

Table 1 shows that age, parity, breastfeeding frequency, maternal rest, education and occupation have p value > 0,05 which means it can be concluded that all variables (age, parity, frequency of breastfeeding, rest, education and occupation) in both groups are no difference or homogeneous.

Table 2 The differences between breast milk fat and baby weight in both groups

Variable	N	Mean± SD		P value	
		Treatment group	Control group		
Breast milk fat	before	36	1,839±0,2355	1,733±0,2910	0,240 ^b
	after	36	6,622±2,3688	2,744±0,4148	0,001 ^b
Baby weight	before	36	2,889±0,2471	2,850±0,2128	0,616 ^a
	after	36	3,583±0,2376	3,347±0,2482	0,006 ^a

^aT-independent test, ^bUji Mann Whitney test

Based on table 2 it can be seen that p value of breast milk fat and baby weight in both groups before intervention was 0,240 and 0,616 (> 0,05) which means breast milk fat and baby weight in both groups was the same, but after intervention p value of breast milk fat in both groups was 0.001 (< 0.05) and for baby weight was 0,006 (<0,05) , which means there is a significant difference between breast milk fat and baby weight in the treatment and control group where the mean breast milk fat and baby weight in the treatment

group is greater than that of the control group (6,622> 2,744) for breast milk fat and (3,583>3,347) for baby weight.

Discussion

The results show that Kelor (*Moringa Oleifera*) can significantly increased breast milk fat and baby weight (table 2). For breast milk fat it showed that treatment group have greater results that control group based on their mean value.

The result of this research is in line with result of research of Titi Mutiara that stated that Kelor flour could significantly increase the secretion of white rat milk and increase the weight of the rats^[10]. Further research Jacelie S.King. M.D also stated that *Moringa Oleifera* increased milk production^[11].

In ColostrumThe fat concentration increased from 2.0 g / 100ml to about 4-4.5 g / 100 ml on day 14 after delivery. Fat levels also vary during feeding (fore milk) to 2-3 times higher at the end of breastfeeding (hindmilk). Compared with fat that varies in concentration, fatty acids are more stable. In breast milk, fatty acids consist of 42 percent saturated fatty acids and 57 percent unsaturated fatty acids, including DHA and AA which are indispensable for brain development of infants and young children. Fat supplies more than 50% of energy in breast milk^[12].

The benefits of breastfeeding are essential fatty acids, docosahexaenoic acid (DHA) and arachidonic acid (AA), which play an important role in brain growth from the first trimester of pregnancy to the age of 1 year of childhood^[12].

In Baby weight table 2 also showed that treatment group have greater results compared to control group based on mean value. This is in line with a study conducted by Ma.corazon et al, in which 2 mg of kelur flour powder 250 mg per 12 hours within 2 weeks may increase prolactin levels, mother's breast milk volume and increase in infant BB^[13].

Where micronutrient addition of Kelor flour which contains vitamins, minerals and lactogogum

increases infant weight after 2 weeks of kelor leaf capsule consumption.

Kelor plants have been used for centuries in Asia and in most of Africa. Many people refer to this tree as "nutritional dynamite" because it contains many important nutrients such as iron, calcium and vitamin A^[13-14].

Dr Gary Bracey, an author, entrepreneur, motivator, and health expert in Africa publishes in moringadirect.com, that the powder of leaf Kelor contains: 37 Vitamin A, 10 times more than Carrots; Beta Carotene, 4 times more than carrots; Vitamin B1, 4 times more than pork; Vitamin B2, 50 times more than Sardines; Vitamin B3, 50 times more than Peanuts; Vitamin E, 4 times more than Corn Oil; Protein, 2 times more than Milk; Protein, 9 times more than Yogurt; Amino acids, 6 times more than garlic; Iron, 25 times more than spinach; Potassium, 15 times more than bananas; Calcium, 17 times more than that of Zinc 6 times more than almonds; Fiber (Dietary Fiber), 5 times more than vegetables in general; (gamma-aminobutyric acid) 100 times more than red rice; Polyphenol, 2 times more than Red Wine^[14-15].

Moringa leaf powder is an effective galactagogues to increase the volume and increase the composition of breast milk^[14]. Galactagogues are herbs that increase volume and smooth the flow of milk. Several studies confirm the efficacy of galactagogue in assisting breastfeeding mothers. However, it is usually promoted and given 3 days after delivery to induce lactation. Moringa leaves increase the lactation effect as evidenced by a greater increase in maternal serum prolactin levels. Prolactin is the most important hormone in lactation initiation^[16].

Limitations in this study is researcher not done nutritional assessment (food recall) mother's day-to-day and not done assessment of psychological disorders prior to the study.

Conclusion

Kelor leaf powder is proven to increase breast milk production with indicator of breast milk fat and baby weight.

Reference

1. Wiji, N. Rizki. (2013). *ASI dan Panduan Ibu Menyusui*. Yogyakarta :NuhaMedika.
2. Roesli. (2009). *Panduan Praktis Menyusui*. Jakarta: Pustaka Bunda : hal.35-4
3. Dinas Kesehatan Propinsi Jawa Tengah. (2016). *Profil Kesehatan Propinsi Jawa Tengah Tahun 2015*. Semarang : Dinkes Jateng
4. Kementerian Kesehatan. (2013). *Laporan Nasional Riset Kesehatan Dasar*. Jakarta
5. KNPPI RI. (2010). *Pemberdayaan Perempuan Dalam Peningkatan Pemberian ASI*. Kementerian kesehatan RI.
6. Kementerian Kesehatan RI. (2010). *Buku Kesehatan Ibu dan Anak*. Jakarta
7. Jacelie S. King, MD. et al. (2013). *Moringa Oleifera (Malunggay) as a Galactagogue for Breastfeeding Mothers: A Systematic Review and Meta-Analysis of Randomized Controlled Trials*. The Philipines Journal of Pediatrics Vol. 61 No. 2
8. Nichol ,K.P. (2005). *Panduan Menyusui* (wilujeng. T.A, Penerjemah). Jakarta: Prestasi Pustaka;13-20
9. Fahey J (2005). A review of the medical evidence for its nutritional, therapeutic and prophylactic properties. *Trees life* J.1.Kasolo et al. 757
10. Ma. Corazon P. Estrella, M.D., et al. (2000). *Moringa Oleifera For Augmentation of The Volume of Breastmilk among non Nursing Mothers of Preterm Infants*. Journal of Pediatrics From Department of Pediatric. UP-PGH Medical Center: Vol. 49 No. 1
11. Jacelie S. King, MD. et al. (2013). *Moringa Oleifera (Malunggay) as a Galactagogue for Breastfeeding Mothers: A Systematic Review and Meta-Analysis of Randomized Controlled Trials*. The Philipines Journal of Pediatrics Vol. 61 No. 2
12. Nadia Svenskarin Nahrowi. (2015). *Keragaman Kandungan Asam Lemak Essensial ASI dan Tingkat Kecukupannya Pada Bayi di Indonesia*. Bogor: Institut Pertanian Bogor

13. Titi Mutiara. K. (2011). *Uji Efek Pelancar ASI Tepung Daun Kelor (Moringa Oleifera (Lamk)) Pada Tikus Putih Galur Wistar*. Penelitian Desertasi Doktoral. Universitas Brawijaya
14. Anwar F, Latir S, Ashraf M, Gilan A (2007). *Moringaoleifera a food plant with multiple medicinal uses*. *Phytother. Res.* 21: 17-25
15. Badan Pengkajiandan Penerapan Teknologi. *Tanamanobat Indonesia*. [Online Journal]. (2005). Tersediadari: http://www.iptek.net.id/ind/pd_tanobat/view.php?mnu=2&id=133. [27 Januari 2016]
16. Makkar H, Becker K (1997). *Nutrients and anti-quality factors in different morphological parts of the Moringaoleifera tree*. *J. Agri. Sci. Cambridge.* 128: 311-322.