Mineral_concentration_english.docx

by

Mineral Concentration (Ca, Zink And Fe) Of Breast Milk Based On Baby's Birth Weight

[1]Citrakesumasari, [1]Vonny kalsum, [1]Chaidir Masyhuri Majiding, [1]Tenri Andi Ayu Rahman, [2]Yessy Kurniati, [3]Anwar Malongi

[1]Department of Nutritional Sciences, Faculty of Public Health, Hasanuddin University, Indonesia

[2] Department of Public Health, Faculty of Medicine and Health Sciences, Alauddin State Islamic University, Indonesia

[3]Department of Environmental Health, Faculty of Public Health, Hasanuddin University, Indonesia

Main Author: Citrakesumasari, email: citeku@gmail.com

Abstract

Background and Objectives: essential minerals contained in breast milk is Ca, Fe and Zink. We assess the mineral concentration breastfeeding by infant birth weight. **Materials and Methods:** This study was a descriptive cross sectional. Sampling was conducted by random sampling and the sample size is 37 nursing mothers, consisting of 31 mother with normal weight babies and six mothers with Low Birth Weight (LBW) babies. Data were collected using a questionnaire with interview and breast milk sample taken as +30 ml to be analyzed using anatomical absorption spectrophotometry (AAS). **Results**: The results showed that there are differences in levels of micronutrient (Calcium, Zinc and Fe) in LBW and normal baby. Although found their tendency Calcium and zinc levels were higher in LBW infants than normal. While the Fe content tended to be higher in normal infants compared LBW. **Conclusion:** The content of micronutrient (calcium, zinc and iron) levels are almost the same in the breast milk of mothers who give birth to LBW and normal babies

Key words: micronutrient, breast milk, LBW, nutrition, infant

INTRODUCTION

Breast milk is the best food for babies. Makronutrient and micronutrient content of which is contained in it according to the needs of the baby. Breast milk contains a variety of bioactive molecules that protect the baby against infection and inflammation as well as contribute to the maturation of the organ and healthy microbial colonization[1]

WHO has stated that all babies should be breastfed as soon as possible after birth, including LBW[2]. Because the composition of breast milk will suffice all the needs of the baby. Including the micronutrient content such as Ca, Fe and Zink

Studies that examine the levels of iron, copper, zinc, calcium and magnesium in the mother's breast milk show that the study found all of the micronutrient, except calcium, abortion has to baby's needs based on the nutrition figures adequacy[3]

The micronutrient content of the milk is affected by several factors, such as stage of lactation, micronutrient levels in the mother's blood serum, as well as maternal factor and diet supplementation[4]. Various studies show that micronutrient content in milk decreased significantly from week 2 to month 7 post persalinan[5]. Another study showed that maternal serum micronutrient content not related to micronutrient content in milk. Maternal iron status is found to be correlated with iron content in breast milk[6]. Similarly, the use of supplementation and food consumed by the mother, it did not affect the levels of mikronutrient[7]. In general, the micronutrient content of breast milk is not affected by nutritional and socioeconomic status, diet, supplementation, age, number of births or use of contraceptives by the mother[4]

Although several studies found that environmental factors, such as the mother's residence, turned out to affect the content of breast milk. As a study conducted to compare the content of breast milk in nursing mothers from urban and sub-urban areas. The study found that there are differences in breast milk that signifikant between mothers from urban areas and sub urban[8]. Instead, the findings obtained in a meta-analysis of studies on breastfeeding infants micronutrient levels at term and preterm infant. Where the results show that the mineral content in the breast milk did not differ between preterm and term infants[9]. . Even one study that looked at the iron content of breast milk from preterm babies and term showed that the iron content in breast milk from mothers who gave birth to premature babies was higher than mothers who gave birth to normal babies[10]

One of the problems found in babies are LBW. Where birth weight less than 2500 grams. Various formulas have been created for the special for LBW infants. In fact, breastfeeding has been shown to meet the needs of both born babies are old enough or not. The researchers also wanted to prove that breast milk also contains suit the needs of LBW infants, especially micronutrient content. Therefore, this study wanted to see how the micronutrient content, particularly calcium, Fe and Zink in normal infants and LBW infants

MATERIAL AND METHODS

The research was conducted at the Kassi Kassi Health Center, Makassar, Indonesia, for two months, starting in May through June 2016. The study design is cross sectional study

Population and Sample

The population in this study were maternal and child have been registered at the Kassi-Kassi Health Center. Collecting data for the calculation of the data obtained from the population jmulah maternal last month. Samples are breast-feeding mothers who met the inclusion criteria and are willing to be a sample of this study by completing the informed consent. The sampling method conducted random sampling. The criteria for inclusion is Mrs. birth to a child and alive, mother breastfeed her baby, mother who gave birth to full-term, up to 6 week-old baby, were willing included this study, Domiciled in Makassar and Mom have cohort data. Maternal data retrieval with a large population of N = 41. Sampling was done by random sampling with inclusion and exclusion criteria. The minimum sample size is calculated based on the formula that is n = 37 nursing mothers

Data collection

In this study, collected various data in accordance with the purpose of research. Data were collected maternal nutrition, infant birth weight and breast milk samples. Nutrient intake data were collected by 24-hour food recall questionnaire to assess eating habits picture samples was done 2 times and not consecutive (weekdays and holidays). After that, the data is processed using nutrisurvey to get nutrition in the mother. Maternal intake data were then compared with RDA. Data-birth weight taken from cohorts of women. If low birth weight <2500 g and 2500 g ≥ normal. While sampling for the concentration of the milk is done through various stages. The first step is how to squeeze the milk. Mother sat leaning forward, and can stimulate the flow of breast milk to sort out. Funnel pump mounted right in the nipple. The second stage of pumping breast milk. Pumping is done slowly and steadily, the use of a breast pump electric breast pump will automatically and regularly. Time required to use an electric breast pump around 15 minutes. If the milk flow stops during pumping, breast massaged and rested beforehand. The third stage is the storage of breast milk. Storage containers using glass bottles or plastic containers with lids tightly with free material bisphenol A (BPA). Each container of breast milk samples labeled with a code and the name of nursing mothers. Samples were subsequently confirmed ASI tightly closed and stored in the ice box to taken to a storage freezer. The fourth stage is the examination concentrations of calcium, zinc and iron ASI AAS method is the method used to obtain mineral levels in breast milk. The tools used Tanur, Pumpkin Measure 50 ml, set of tools AAS, analytical Scales.

Data analysis

Data analysis using SPSS. Univariate analysis was conducted to see the distribution of frequencies and percentages of each variable to explain the characteristics of each variable. The data is then presented in the form of presentation, mean and SD

RESULT AND DISCUSSION

Based on Table 1, it appears that in the sample, more female babies born with low birth weight (18.8%) compared to boys (14.3%). The age group most mothers give birth to babies with low birth weight is 20-35 years old (17.9%), which is an age group that dominates the sample. LBW babies that the sample in this study mostly at usia2-3 week when sampled (20.0%). Mothers who give birth to low birth weight babies most basic education (18.2%) and suffers from SEZ during pregnancy (28.6)

Based on Table 2 shows that the maternal intake during pregnancy differs between normal mothers who gave birth and LBW infants. Although the difference was not significant. Seen that pregnant women who gave birth to a normal intake of energy, protein, fats, zinc, calcium and iron are higher than in pregnant women who gave birth to low birth weight babies. While the carbohydrate intake appear higher in pregnant women who gave birth to low birth weight babies. Similarly adequate intake by RDA, showed that pregnant women who gave birth to normal babies have adequate intake of energy, protein, fats, zinc, calcium and iron are higher than in pregnant women who gave birth to low birth weight babies. While adequate intake of carbohydrate appear higher in pregnant women who gave birth to LBW

Based on Table 3, it appears that the levels of micronutrient (calcium, zinc and iron) are found not differ in infants with LBW and normal baby. Even though it looks mean higher levels of zinc found in infants with LBW (1.13 + 0.67 mg / L) compared to normal birth (0.84 + 0:52 mg / L). Mean calcium levels are higher in infants with LBW (381.73 + 115.80 mg / L) compared to normal birth (336.99 + 75.20 mg / L). While mean higher iron is found in normal birth (5.24 +9.10 mg / L) compared to infants with LBW (2.06 +1.53 mg / L)

Breast milk is the best food for any baby. But in certain circumstances, breast milk is questioned by some, is sufficient for a baby or not. Such efforts are undertaken is to fortify the breast milk to infants born less than 35 weeks. Due to low birth weight babies need protein and higher energy to support their growth[11]

LBW in infants remains a public health problem. Because the problem is associated with increased morbidity and mortality in infants. It is estimated that approximately 95% of infants with LBW in developing countries. Birth weight itself is influenced by many factors such as genetic, reproductive, obstetric, social and environmental. But the causes of LBW in infants is related to maternal factors, such as early marriage, too often pregnant women's nutritional status, anemia and infections suffered by mothers. Including the nutritional status and low education levels in girls. LBW are usually preceded by mallnutrisi in infants women who later grew into young women who are shorter and have small babies[12].

The results of this study found that babies with LBW were more common female. Studies conducted by Thomson et al, in pregnant women in Abardee between the years 1948-1964 found that there are no gender differences in birth weight up to 34-35 weeks of gestation. After 38 weeks of gestation, it was found that the baby boy weighs 150 grams more than babies perempuan[13]. But in a different study showed precisely the difference in weight based on sex has occurred since the first trimester of pregnant[14]

Factors that allegedly closely associated with low birth weight in infants are maternal factors. This study found that the incidence of low birth weight is more common in women age 20-35 years old, primary school education and suffer from SEZ during pregnancy. In one study it was found that the incidence of LBWin signifikant occur in women younger than 19 years old and a mother over the age of 40 years. At a very young mothers aged, the incidence of babies with LBW related to their readiness as mothers and poor nutritional status because of their reproductive organs perfect immature. Mothers with older age, the incidence of LBW associated with increased birth spacing meeting[12]. Another study found that mothers who are younger than 21 years had a low risk for having a baby with LBW, but mothers with age above 35 years old have a higher risk[15]. Whereas in this study, the incidence of LBW were more often found in women aged 20-35 years, because most research samples that are in that age group. Mother's educational status also has a relationship with LBW. Including the incidence of malnutrition in the mother during pregnancy, antenatal care and inadequate weight gain during pregnancy are insufficient. All of these factors are significant predictors of the LBW occurrence[16]

This study found that zinc and calcium levels were higher in infants with low birth weight than babies of normal birth, while the iron levels are higher in infants born to normal when compared to infants with LBW. A study conducted an analysis of the nutrient content in the milk of preterm and full-term babies found that high levels of minerals, calcium and phosphate mostly similar between premature and full-term infants[9]. The findings are similar to those on our results, taking the equation that premature babies usually have a LBW than infants month

Micronutrient content of the breast milk is influenced by lactation stage. Various studies show that the nutrients in the milk will change according to the stage of lactation. The content of micronutrient will decline over time. The content of the highest micronutrient found in colostrum. A study found that levels of zinc in the colostrum is of 5.32 microgram / ml and decreased to 1.12 microgram / ml after seventh months[17]. Fe content in colostrum was found to be 0.56 mg / L and decreased to 0.39 mg / L on day 30 postpartum[5]. Levels of calcium in the milk infants aged 6-12 months decreased to 125.4 mg / L[18]. These findings are compared to the measured levels of breastfeeding in infants aged 2-6 weeks, the calcium content of 336.99 mg / L in normal infants and 381.73 mg / L in infants of low birth weight

Zink is one of the essential micronutrient. The zinc acts as a cofactor structural, catalytic or regulators for over 300 enzyme-synthesis and degradation of carbohydrates, lipids, proteins and nucleic acids. Zinc plays a key role in the synthesis and stabilization of the genetic material and required for cleavage sel[19]. Because of that zinc plays an important role for the baby. A study assessing the nutritional status and nutrient content in the milk of mothers in Vietnam found that found that quite a lot of breastfeeding mothers who suffer from anemia and low serum zinc concentrations. Although no relationship was found between the content of iron, zinc and copper with concentration and the micronutrient intake of maternal[20]. Studies that look at different concentrations of zinc in breast milk among mothers who had good nutritional status and who suffer from chronic energy less postpartum found that there were no differences in the zinc content of the milk of mothers tersebut[21]. In one study it was found that zinc supplementation to the mother did not have a significant effect on the content of zinc in breast milk[22]

Hb, RBC and iron profile looks different signifikant in infants born to mothers who are anemic compared to the control. Micronutrient content of the breast milk signifikant decreased in all women who suffer from anemia. Anemia in pregnant women affect the levels of iron in plasentas and ASI[23]. The different results seen in a study that measured levels in breastfeeding mothers Fe and Fe content in the mother's breast. The results show that the Fe content in the milk decreases rapidly from day 1 through week 14 and at month 6 in smua groups. But no significant changes in the breast milk of mothers of non anemia and anemia. Signifikant reductions were also seen in levels of lactoferrin breastfed from day 1 to week 14 in women who are non anemia and anemia. Hemoglobin and serum ferritin in both groups to have no relationship with the Fe content and lactoferrin in milk, either on day 1, week 14, and 6 month post partum[24]

CONCLUSION

The content of micronutrient (calcium, zinc and iron) levels are almost the same in the breast milk of mothers who give birth to LBW and normal babies

SIGNIFICANCE STATEMENT

The implication of this study is to support the improvement of maternal nutritional status during pregnancy to prevent the occurrence of LBW. If there is a low birth weight baby, it is still supported by exclusive breastfeeding. The best effort to meet micronutrient levels in breast milk is to improve the nutritional status of pregnant women. Because micronutrient levels in breast milk are not related to maternal factors after birth, but are associated with maternal mineral deposits before and during pregnancy, so that the nutritional status of the mother during pregnancy is improved, in addition to preventing LBW babies, also ensuring that the mineral reserves are sufficient to breast milk

The application of this study supports education about exclusive breastfeeding for mothers who give birth to LBW. Such education certainly includes good lactation management, so that exclusive breastfeeding for LBW can support the growth and development needs of the baby. This study recommends a follow-up study that studies the growth and development of LBW and normal infants who are given exclusive breastfeeding.

This study has limitations, namely the small number of samples and incomplete micronutrient parameters. The number of samples that are little feared cannot yet describe the micronutrient content in breast milk. However, this study can provide an initial description of the micronutrient content in breast milk of mothers who give birth to LBW and normal infants.

ACKNOWLEDGMENT

The researcher thanked the head of the Kassi-Kassi Health Center, Makassar and all the mothers who were respondents in this study. The researcher also expressed his gratitude to all those who supported this research

REFERENCES

1. Ballard, O and Morrow, AL, 2013. Human Milk Composition: Nutrients and Bioactive Factors. Pediatr Clin North Am, pp. 49-74.

2.WHO.2017. Breastfeeding of Low-Birth-weight Infants. [Online] http://www.who.int/elena/titles/supplementary feeding / en /.

3.Andrade MTS, Del Ciampo LA, et al, 2014. Breast Milk Micronutrients in lactating Mothers From Ribeirao Preto (SP), Brazil.. Brazil: Food and Nutrition Sciences, Vol. 5, doi.org/10.4236/fns.2014.513130.

4. Koreti, S and Prasad, N, 2014. Micronutrient Content of Breast Milk., Journal of Evolution of Medical and Dental Sciences, pp. 1633-1638.doi:10.14260/jemds/2014/2036

5. MD Silvestre, MJ Lagarda, R. Farre A et al, 2000. Copper, Iron and Zinc determinations in Humal With Milk Using Microwave Digestion FAAS. Food Chemistry, pp. 95-99.

6. Murray MJ, Murray AB, NJ Murray, Murray MB. 1978. The Effect of Iron Status of Nigerian Mothers on that of Their Infants at Birth and 6 Months and on the Concentration of Fe in Breast Milk, Br J Nutr, pp. 627-630.

7. Emel Orun, S Songul Yalcin et al., 2012. Zinc and Copper Concentration in Breast Milk at the Second Month of Lactation. Indian Pediatrics, pp. 133-135.

8. Jihon Qian, Tongxin Chen, Weiming Lu, Shengmei Wu, Zhu Jianxing, 2010. Breast Milk macro and micronutrient Composition in lactating Mothers From Suburban and Urban Shanghai. Journal of Paediatrics and Child Health.doi.org/10.1111/j.1440-1754.2009.01648.x

9. Gidrewicz DA and Fenton TR, 2014. A Systematic Review and Meta-Analysis of The Nutrient Content of Preterm and Term Breast Milk. *BMC Pediatrics* , doi: 10.1186/1471-2431-14-216.

10. Ejezie FE, Nwagha UI, Ikekpeazu EJ, Ozoemena OFN and Onwusi EA*, 2011*. Assessment of Iron Content of Breast Milk in Preterm and Term Mother in Enuga Urban.**.** Enuga : Annals of Medical and Health Sciences Research , Vol. 1.

11. Reali A, Greco M, Fanaro S, Atzei A, Puddu M, Moi M, Fanos V, 2010. Fortification of Maternal Milk for Very LBW(VLBW) Pre-Term Neonates. Early Human Development, pp. 33-36.

12. Manna N, Sarkar J, Baur B, Basu G, Bandyopadhyay, 2013. Socio-Biological Determinants of Low Birth Weight: A Community-based Rural Field Study From Practice Area of Medical College, Kolkata, West Bengal (India). Journal of Dental and Medical Sciences, pp. 33-39. www.iosrjournals.org

13. Thomson AM, Billewicz WZ, and Hytten FE., 1968. The Assessment of Fetal Growth. The Journal of Obstetrics and Gynecology of the British Commonwealth, pp. 903-916.

14. Bukowski R, Smith GCS, Malone FD, et al., 2007. Fetal Growth In Early Pregnancy and Risk of Delivering Low Birth Weight Infant: Prospective Cohort Study. British Medical Journal, pp. 836-838.

15. Beard JR, Lincoln D, D Donoghue, Taylor D, et al, 2009. Socioeconomic and Maternal Determinants of Small-for-Gestational Age Birth: Patterns of Increasing Disparity. Acta Scandinavica Obstetricia et Gynecologycal, pp. 575-583.

16. Mumbare SS, Maindarkar G, Darade R, Yenge S, et al, 2012. Maternal Risk Factors Associated With Low Birth Weight Term Neonates: A Matched-pair Case Control Study. Indian Pediatrics, pp. 25-28.

17. Rajalaksmi K, Srikantia SG., 1980. Copper, Zinc and Magnesium Content of Breast Milk on Indian Woman. Am J Clin Nutr, pp. 664-9.

18. Febria C, Masrul, Chundrayetti E., 2017. Hubungan Kadar Kalsium Dalam ASI, PASI dan MP ASI dari Asupan Bayi dengan Panjang Badan Bayi Usia 6-12 Bulan di Wilayah Kerja Puskesmas Lubuk Buaya Padang 2017. Andalas Medical Journal, pp. 662-667.

19. Grober, Uwe. Micronutrient. Jakarta: EGC Publisher 2009.

20. Nakamori M, Ninh NX, Isomura H, et al., 2009. Nutritional Status of lactating Mothers and Their Breast Milk Concentration of Iron, Zinc and Copper in Rural Vietnam. Journal of Nutritional Science and Vitaminology, pp. 338-345. doi:doi.org/10.3177 / jnsv.55.338.

21. Hamdiyah, 2018. The difference in concentration of zinc in breast milk Nutritional Status Between Good and Less Energy Postpartum Chronicle. Journal of Scientific Medical Diagnosis, pp. 346-350.

22. Figueiredo CSM, Palhares DB, Melnikov P, et al., 2010. Zinc and Copper Concentrations in Human Preterm Milk., Biological Trace Element Research, pp. 1-7.

23. El Farrash RA, Ismail EAR, AS tone, 2011. Cord Blood Iron Micronutrients Profile and Breast Milk in Maternal Iron Deficiency Anemia. Pediatric Blood and Cancer, p. doi: 10.1002 / pbc.23184.doi.org/10.1002/pbc.23184

24. Shahiraj, Faridi MMA, Singh O, U. Russia. 2006. Mother's Iron Status, Demonstrate Iron and lactoferrin-Are they Related? The European Journal of Clinical Nutrition, pp. 903-908. doi: 10.1038/sj.ejcn.1602398

Table 1. Characteristics of Respondents

Characteristics of Respondents	Status Birth Weight				Total	
	Normal (n=31)		Low (n=6)			
	N	%	n	%	N (37)	% (100)
Gender of Babies						
Male	18	85,7	3	14,3	21	56,8
Female	13	81,3	3	18,8	16	43,2
Age Group Mothers						
<16 y	1	100,0	0	0,0	1	2,7
16-19 y	2	100,0	0	0,0	2	5,4
20-35 y	23	82,1	5	17,9	28	75,7
35-45 y	5	83,3	1	16,7	6	16,2
Age Group Babies						
2-3 w	12	80,0	3	20,0	15	40,5
4-6 w	19	86,4	3	13,6	22	59,5
Education of Mothers						
Primary Education	9	81,8	2	18,2	11	29,7
Higher Education	22	84,6	4	15,4	26	70,3
Status Upper Arm Circumference Pregnancy						
Non SEZ	26	86,7	4	13,3	30	81,1
SEZ	5	71,4	2	28,6	7	18,9

Table 2. Comparison of Mother's Nutrient Intake

Nutrients	Status Birth Weight Normal (n=31)	Low (n=6)	Total	P
Intake	Mean ± SD	Mean ± SD	Mean ± SD	
Energy /kcal	1.799,76± 514,11	1.776,38 ± 436,89	1.795,97 ± 496,84	0,918
Protein/ g	66,39 ± 23,38	62,01 ± 19,49	65,68 ± 22,60	0,67
Fats/g	59,06 ± 30,12	57,28 ± 27,63	58,77 ± 29,37	0,894
Carbohydrate /g	252,14 ± 67,40	254,78 ± 69,73	252,57 ± 66,80	0,931
Zinc/ mg	6,45 ± 2,22	5,70 ± 2,33	6,33 ± 2,22	0,454
Calsium/mg	384,17 ± 311,66	280,92 ± 218,47	367,43 ± 298,43	0,446
Iron/mg	8,60 ± 5,23	7,26 ± 3,80	8,39 ± 5,00	0,554
Intake percent by RDA 2013				
Energy /kcal%	71,68 ± 20,87	69,35 ± 17,14	71,30 ± 20,11	0,799
Protein/ g%	86,25 ± 30,72	81,48 ± 25,75	85,48 ± 29,69	0,724
Fats/g%	77,35 ± 41,01	68,75 ± 31,79	75,95 ± 39,40	0,631
Carbohydrate /g%	70,09 ± 18,43	71,42 ± 19,17	70,31 ± 18,29	0,874
Zinc/ mg%	42,32 ± 15,30	38,00 ± 15,65	41,62 ± 15,23	0,533
Calsium/ mg%	30,99 ± 26,08	21,88 ± 16,78	29,52 ± 24,85	0,419
Iron/mg%	26,95 ± 16,32	22,72 ± 11,90	26,26 ± 15,62	0,551

Table 3. Comparison of Mineral Concentration breastmilk

Mineral Concentration breastmilk	Status Birth Weight		Total	P
	Normal (n=31)	LBW (n=6)		
(Units / L)	Mean ± SD	Mean ± SD	Mean ± SD	
Zinc/mg	0,84 ± 0,52	1,13 ± 0,67	0,88 ± 0,55	0,230
Calsium/mg	336,99 ± 75,20	381,73 ± 115,80	344,25 ± 82,79	0,231
Iron/ mg	5,24 ± 9,10	2,06 ± 1,53	4,73 ± 8,41	0,404

Mineral_concentration_english.docx

ORIGINALITY REPORT

%15	%9	%12	%1
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	"Human Lactation 2", Springer Nature America, Inc, 1986 Publication	%1
2	www.iosrjournals.org Internet Source	%1
3	Nagayama, J.. "Concentrations of organochlorine pollutants in mothers who gave birth to neonates with congenital hypothyroidism", Chemosphere, 200706 Publication	%1
4	doiserbia.nb.rs Internet Source	%1
5	jemds.com Internet Source	%1
6	Fahimeh Khoushabi, G Saraswathi. "Impact of nutritional status on birth weight of neonates in Zahedan City, Iran", Nutrition Research and Practice, 2010 Publication	%1

7	Marco Túlio Soares Andrade, Luiz Antonio Del Ciampo, Ieda Regina Lopes Del Ciampo, Ivan Savioli Ferraz et al. "Breast Milk Micronutrients in Lactating Mothers from Ribeirão Preto (SP), Brazil", Food and Nutrition Sciences, 2014 Publication	%1
8	espace.library.uq.edu.au Internet Source	%1
9	edepot.wur.nl Internet Source	%1
10	Submitted to Universitas Islam Bandung Student Paper	%1
11	Khymenets, Olha, Montserrat Rabassa, María Rodríguez Palmero et al. "Dietary epicatechin is available to breastfed infants through human breast milk in the form of host and microbial metabolites.", Journal of Agricultural and Food Chemistry Publication	%1
12	Shashi Raj. "A prospective study of iron status in exclusively breastfed term infants up to 6 months of age", International Breastfeeding Journal, 2008 Publication	<%1
13	Emmett, P.M.. "Properties of human milk and their relationship with maternal nutrition", Early	<%1

Human Development, 19971029
Publication

14	"Increased Breast Milk Iron in Severe Maternal Anemia: Physiological (quote)Trapping(quote) or Leakage?", Acta Paediatrica, 3/1985 Publication	<1%
15	www.internationalbreastfeedingjournal.com Internet Source	<1%
16	bmcpediatr.biomedcentral.com Internet Source	<1%
17	beman.ase.ro Internet Source	<1%
18	www.jpnim.com Internet Source	<1%
19	www.science.gov Internet Source	<1%
20	www.globalhealthaction.net Internet Source	<1%
21	www.research-collection.ethz.ch Internet Source	<1%
22	www.idpas.org Internet Source	<1%
23	krishikosh.egranth.ac.in Internet Source	<1%

24	elmondo.org Internet Source	<%1
25	C BATES. "Vitamins, minerals and essential trace elements", Drugs and Human Lactation, 1996 Publication	<%1
26	www.nice.org.uk Internet Source	<%1
27	Barbara A. Piperata. "Anthropometric characteristics of pregnant women in Cali, Colombia and relationship to birth weight", American Journal of Human Biology, 01/2002 Publication	<%1
28	file.scirp.org Internet Source	<%1
29	tampub.uta.fi Internet Source	<%1
30	"Poster Presentations Part II (pp. 431–528)", Annals of Nutrition and Metabolism, 2009 Publication	<%1
31	Sunita Koreti, Nitin Prasad. "MICRONUTRIENT CONTENT OF BREAST MILK", Journal of Evolution of Medical and Dental Sciences, 2014 Publication	<%1

32	"Infectious cost of leisure (Keynote lecture)", Clinical Microbiology and Infection, 2001 Publication	<%1
33	Wado, Yohannes Dibaba, Mesganaw Fantahun Afework, and Michelle J. Hindin. "Effects of Maternal Pregnancy Intention, Depressive Symptoms and Social Support on Risk of Low Birth Weight: A Prospective Study from Southwestern Ethiopia", PLoS ONE, 2014. Publication	<%1

EXCLUDE QUOTES	ON	EXCLUDE MATCHES	< 5 WORDS
EXCLUDE BIBLIOGRAPHY	ON		