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# RELATIONSHIP MAGNESIUM LEVELS IN BREASTMILK WITH WEIGHT OF BABY AGED 0-6 MONTH AT LUBUK BUAYA HEALTH CENTER PADANG

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## ABSTRACT

Exclusive breastfeeding is one way to improve the baby nutritional status. Breastfeeding has the ability to improve growth. Factors that greatly affect the nutritional content of breast milk is the mother energy intake. The purpose of this study was to find the relationship of magnesium levels in breast milk and maternal energy intake with weight of baby aged 0-6 months.The method of this research was cross sectional study. Research respondents were 44 mothers who had babies aged 0-6 months at the Lubuk Buaya Health Center in Padang, who met the inclusion and exclusion criteria. Magnesium levels in breast milk were examined at Balai Laboratorium Kesehatan (BLK) Laboratory Padang. Data was analyzed by using the Pearson correlation test. The results showed that the average magnesium level in breast milk was 4.8 mg / dl ± SD. There was a significant relationship between magnesium levels in breast milk with weight of baby (p = 0.04).In this study, we can concluded that there was a significant relationship between magnesium levels in breast milk with weight of baby aged 0-6 months.

***Keyword : Magnesium, maternal energy intake and weight of baby***

## INTRODUCTION

The first 1000 days of life movement is an effort to improve nutritional status starting from pregnancy to postpartum or until the baby is 2 years old. In the first 1000 days of life the fetus and baby need optimal nutrition to support their growth and development.

Infant growth and development can be measured in a variety of ways, one of which is anthropometric measurements.[17] Weight is an important anthropometric measure, which is used at every opportunity to check the child's health status in all age group.[15]

Weight measurement is used to assess the increase or decrease of all tissues that exist in the body, such as bones, muscles, fat, organs, and body fluids so that it can be known about the baby's nutritional or developmental status.[15] Nutritional disorders will cause stunting in growth and development in the future, causing the increasing the incidence of moderate and severe malnutrition.[14]

According to the Basic Health Research data in 2013, nationally, the prevalence of malnutrition in 2013 was 19.6%, with 5.7% classified severe and 13.9% classified moderate. When compared with the national prevalence rate in 2007 (18.4%) and in 2010 (17.9%) it seems to increase. The changes in prevalence of severe malnutrition mainly from 5.4% in 2007, 4.9% in 2010, and 5.7% in 2013. While the prevalence of moderate malnutrition increased by 0.9% from 2007 to 2013.

Breastmilk is the main food for babies up to the age of 6 months. Based on government al regulation number 33 in 2012, every mother who gives birth must give

exclusive breastfeeding to her baby. Minister of Health Regulation number 15 in 2013 stated that each institution must support the exclusive breastfeeding program by providing a special room for milking.

The increase in the incidence of malnutrition is related to the low coverage of exclusive breastfeeding. According to UNICEF, the average coverage of exclusive breastfeeding in the world is 38%. Based on the 2012 IDHS, the coverage of exclusive breastfeeding was 42%. While the report from the Provincial Health Office in 2013, the coverage of breastfeeding 0-6 months was only 54.3% .7 Meanwhile, the results of the 2012 IDHS, the coverage exclusive breastfeeding in baby aged 0-1 months amounted to 50.8%, 48.9% in baby aged 2-3 months, 27.1% in baby aged 4-5 months, and 3.4% in baby aged 6-8 months. This data does not rule out the possibility of breastfeeding, as the main nutrient in the baby, will be slow to reach the expected target, so that the health problems in babies are increasingly difficult to handle.

Based on above fact, one way to improve the nutritional status of infants is by giving exclusive breastfeeding until the age of 6 months. Exclusive breastfeeding for babies will have an impact on psychomotor, cognitive, social and clinical growth.[16] Scientific research also proves that babies will grow healthier and smarter by being given exclusive breastfeeding.[14]

The ability of breatfeeding to help growth is largely determined by the nutrient contained in breastmilk. Breastmilk content is strongly influenced by maternal energy intake. Better energy intake will lead to better quality and quantity of breast milk.

Breastmilk contains macronutrients and micronutrients. Macronutrients consisted of carbohydrates, fats, and proteins, which will be metabolized by the body to produce ATP and will be used for the various processes in the body. If the energy consumption exceeds the body needs, it will be stored in the form of glycogen in the liver and muscles, thus affecting body weight

Micronutrients consist of vitamins and minerals. One of the minerals contained in breastmilk is magnesium.[13] Magnesium (Mg) is an essential nutrient for the body and the body contains 25 grams of this element.[6] Although micronutrients such as magnesium is present in very small amounts in the body, it has an essential role in life, health, reproduction, and growth.

## MATERIAL AND METHODS

The design used was Cross Sectional. Data analysis used person correlation test. The research was conducted from Marc to May 2018. This study aimed to determine the relationship of Magnesium Levels in breast milk with weight of babies aged 0-6 months at Lubuk Buaya Health Center Padang.

The population in this study were all mothers who gave birth to infants who were exclusively breastfed in the working area of Lubuk Crocodile Padang Health Center. The number of samples in this study were 44 people aged 18 to 38 years, according to the inclusion and exclusion criteria. The respondent was examined the levels of magnesium in breast milk with simple random sampling technique. Research data obtained by observational on mothers who have babies aged 0-6 months who breastfeed their babies exclusively.The relationship between magnesium levels in breast milk and weight of baby was seen through trials (parametric). Magnesium levels in breast milk were measured using a kit with the AAS (Atomic Absorption Spectrophotometer) method.

## RESULT

The sample of this study were mothers who had 0-6 months babies exclusively breastfed as many as 44 people in the Working Area of Lubuk Buaya Health Center and BLK Laboratory Padang in March 2018 to May 2018.

**Tabel 1**

**Average levels of magnesium in breast milk**

| Variabel | Mean± SD | Min | Maks |
|---|---|---|---|
| - Magnesium level in breast milk (mg/dl) | 4,8 ±1,0 | 3 | 7 |

From table 1 it can be seen that the average energy intake of the mother is 2196.6 Kcal / day ± SD

**Tabel 2**

**Average weight of baby 0-6 Months**

| Variabel | Mean± SD | Min | Maks |
|---|---|---|---|
| - Berat badan bayi usia 0-6 bulan (gram) | 4704,6 ±1929,8 | 2800,0 | 9200,0 |

Table 2 illustrates that the mean weight of infants aged 0-6 months is 4704.6 grams ± SD.

**Table 3**
**Relationship of Magnesium Levels in Breast Milk with Weight of 0-6 Months Old Babies**

| Variable | Weight Gain of Baby Aged 0-6 Months | |
|---|---|---|
| | R | p value |
| Magnesium Levels in Breastmilk (mg/dl) | -0,311 | 0,04 |

## DISCUSSION

The results of this study showed moderate relationship (r = -0.311) with negative pattern. Based on statistical tests, the results obtained were significant between magnesium levels in breast milk and the weight of infants aged 0-6 months. In this study, a relationship with the negative pattern was found between magnesium levels in breast milk and infant weight, namely the higher the baby's weight, the lower the magnesium level in ASI. This is probably due to the breastmilk sampling technique which does not consider how long the baby has been breastfed, thus the process of magnesium homesotasis in breast milk has not occurred.

Magnesium ASI is secreted by epithelial cells in the mammary alveoli gland by several complicated and highly coordinated systems, which are carried from the blood to the mother's breast through transcellular pathways which involve activity with transport proteins in the apical membrane and basolateral mammary epithelial cells

The rapid sampling of breastmilk after breastfed babies will cause an incomplete process of transporting the magnesium from the blood to the breast, especially considering the breastmilk sample used is breast milk of mothers who exclusively breastfeed their babies, namely who breastfeed their babies as often as the baby requests, so that every contained magnesium will be consumed immediately by the baby, thus when the breastmilk sample is taken, a low magnesium level is found in the breastmilk.

## CONCLUSION

There is a moderate and negatively patterned correlation between magnesium levels in breast milk and weight of infants aged 0-6 months.

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