

Trace Elements In Breast Milk And Its Role On Infants Growth Impact of Social Standard

Thesis

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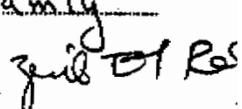
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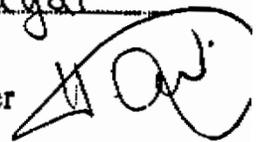
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LIST OF FIGUERS

Fig. No.	Title	Page
Fig.(I):	Distribution of lactating mothers according to stages of lactation	151
Fig.(II):	Distribution of lactating mothers according to their age ...	152
Fig.(III):	Distribution of mothers according to social level	153
Fig. (IV):	Distribution of mothers according to type of labour	154
Fig. (V):	Distribution of mothers according to their parity (number of labours)	155
Fig.(VI):	Distribution of breast milk zinc concentrations during different stages of lactation	159
Fig.(VII):	Distribution of breast milk copper concentrations during different stages of lactation	160
Fig.(VIII):	Distribution of breast milk manganese concentrations during different stages of lactation	161
Fig.(IX):	Distribution of breast milk iron concentrations during different stages of lactation	165
Fig.(X):	Distribution of breast milk selenium concentrations during different stages of lactation	166
Fig.(XI):	Distribution of breast milk iodine concentrations during different stages of lactation	167
Fig.(XII):	Distribution of breast milk chromium concentrations during different stages of lactation	168
Fig.(XIII):	Relationship between iron and manganese	172

Fig. No.	Title	Page
Fig.(XIV):	Relationship between iron and selenium	173
Fig.(XV):	Relationship between iron and iodine	174
Fig.(XVI):	Relationship between iron and chromium	175
Fig.(XVII):	Relationship between manganese and selenium	176
Fig.(XVIII):	Relationship between manganese and iodine	177
Fig.(XIX):	Relationship between manganese and chromium	178
Fig.(XX):	Relationship between selenium and chromium	179
Fig.(XXI):	Relationship between iodine and chromium	180
Fig.(XXII):	Frequency distribution of the weight measures of the infants	191
Fig.(XXIII):	Frequency distribution of the length measures of the infants	192

LIST OF TABLES

Table. No.	Title	Page
Table (1):	Mean \pm SD of Trace Elements (Zn,Cu and Mn) in relation to different stages of lactation as measured by Atomic Absorption	158
Table (2):	Mean \pm SD of Trace Elements (Iron, Selenium, Iodine and Chromium) in relation to different stages of lactation by using Neutron activation analysis	164
Table (3):	Pearson correlation matrix between the different trace elements in breast milk	170
Table (4):	Pearson correlation values (r and r ²) between the different trace elements measured in breast milk	171
Table (5):	Impact of social classes on Trace Elements level	182
Table (6):	Impact of type of delivery on the level of Trace Elements in breast milk	183
Table (7):	Impact of parity on the level of Trace Elements in breast milk	184
Table (8):	Relation between Anthropometry of the mothes and stage of lactation	186
Table (9):	Relation between the anthropometry of the mothers and the social level	188
Table (10):	Frequency distribution of the weight, length and weight-for-length of the infants.....	190

Table No.	Title	Page
Table (11):	Infants standardized weight in relation to the Anthropometric measures of the mothers	194
Table (12):	Infants standardized length in relation to the anthropometric measures of the mothers	195
Table (13):	Trace Elements in relation to infants standardized weight	197
Table (14):	Relation between the educational level of the mothers and their infants standardized weight	199
Table (15):	Relation between the educational level of the mothers and their infants standardized length	200
Table (16):	Relation between the educational level of the mothers and their infants standardized head circumference	201
Table (17):	Step wise regression analysis using infants weight as dependent variable versus all mothers characteristics and milk Trace Elements	203
Table (18):	Step wise regression analysis using infants length as dependent variables versus all mothers characteristics and milk Trace Elements	204
Table (19):	Stepwise regression analysis using infants head circumference variable versus all mothers characteristics and milk Trace Elements	205
Table (20):	Breast milk Trace Elements levels in colostrum stage in different countries	207
Table (21):	Breast milk Trace Elements levels in transitional stage in different countries	208
Table (22):	Breast milk Trace Elements levels in mature stage in different countries	209
Table (23):	Breast milk Trace Elements Contents versus Recommended dietary requirements (per other authors)	210
Table (24):	Breast milk Trace Elements contents versus infant formulns	211

ABBREVIATIONS

X	Mean
wt	Weight
WHO	World Health Organization
S.D.	Standard Deviation
r	Correlation Coefficient
p	Probability Coefficient
Ht	Height
L	Length
Zn	Zinc
Cu	Copper
Mn	Manganese
Se	Selenium
Fe	Iron
I	Iodine
Cr	Chromium
BMI	Body Mass Index
Fig.	Figure
CS	Caesarian SEction
N.S.	Not Significant
Ref.	Reference

CONTENTS

	Page
INTRODUCTION	1
REVIEW OF LITERATURE	4
I-Breast Feeding	4
II- Breast Anatomy and Development	13
III- Physical Properties of Human Milk	17
- Physiology of lactation	28
- Breast milk and Infant Growth	30
IV- Factors Affecting Breast feeding in the community	32
V- Trace Elements	45
- Introduction	45
- Iron	53
- Zinc	58
- Copper	86
- Selenium	103
- Manganese	115
- Chromium	121
- Iodine	128
* SUBJECT AND METHODS	135
* RESULTS	149
* DISCUSSION	212
* SUMMARY	233
* CONCLUSION and RECOMMENDATION	238
* REFERENCES	241
* APPENDIX	
* ARABIC SUMMARY	



INTRODUCTION

Introduction

Human milk is considered to be the optimal source of nutrition for the infant (Casey & Hambidge, 1983 and Lonnerdal & Hernell, 1994).

The benefits of breast feeding for the new born infants are well recognized and current recommendations on infant-feeding generally include a period of exclusive breast feeding for the first 3-4 months of life (Prentice, 1991).

However the question of whether the composition of breast milk changes with duration of lactation in different countries and communities has not been answered (Chierici et al., 1992 and Lonnerdal & Hernell, 1994).

In general, breast milk is enough for covering the nutritional requirements of healthy infants during the first six months of life (Vasquez, 1992).

Nutrient levels in milk based formulas and milk substitutes for infants are generally modeled on the composition of human milk, however composition of human milk is not constant (Casey & Hambidge, 1983).

Studies of human lactation are complex, they are involving many intervening variables including dietary intake, extra dietary supplementation, nutrient bioavailability, stage of lactation and other factors (Karra et al., 1988).

Trace elements are of these nutrients. They are necessary for normal growth and development in infancy and childhood. They are necessary for cellular growth, division and differentiation (Niggers et al., 1990).

Although trace elements are required only in small amounts intakes may not always be adequate for populations where food intake may be restricted by cultural, economic and/or climatological factors need to be studied to determine how a limited dietary intake affects health (Lønnerdal & Hernell, 1994).

Simmer et al. (1988) discovered that deficiency of some trace elements may occur in communities where breast feeding is continued for several years with only small amounts of additional food.

Requirements for trace elements increase during periods of rapid growth such as pregnancy, infancy and puberty.

Deficiencies of trace elements may limit the rate of growth or weight gain, accentuate anemia, bone diseases, glucose intolerance, increase risk of neonatal mortality and susceptibility to infection (Sutton et al., 1985).

In Egypt, breast feeding is continued up to two years and minimal additional feeding is allowed (El-Deeb, 1994). So, information on the maternal status of trace elements and the impact of age, parity, body built of the mother, stage of lactation and the family socio economic standard on the level of trace element should be present.

Accurate data on the concentrations of these elements in human milk throughout lactation are important. A relation-ship between maternal trace elements and birth weight is found, such information would be useful because birth weight is an important factor that affects neonatal mortality and is a significant determinant of infant and childhood morbidity (Prentice, 1991).

Milk of all species is notoriously low in trace elements, typical concentrations being one tenth (1/10) those present in other biological samples (Mannan & Picciano, 1987 and Chierici et al., 1992).

Little is known of the breast milk concentrations of essential trace elements in developing countries. Previous studies revealed that iron, copper, zinc, iodine, manganese, magnesium, chromium, sulfur, selenium and molybdenum are important in the development of the preterm and fullterm neonates (Butt et al., 1987).

Accordingly, this work is focused to new born babies and infants who receive exclusively breast milk, to measure the level of some trace elements in human milk of healthy lactating mothers from different socio economic levels and at different stages of lactation. The aim of this study is to measure the concentration of some trace elements in breast milk of Egyptian mothers and studying its relation to some parameters for example, different stages of lactation, mother characteristics, socio economic levels and the interaction between different trace elements and also to put data of comparison with other countries.