

شبكة المعلومات الجامعية







شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

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Borro

STUDY OF THE RELATION BETWEEN SOME HEAVY METALS LEVELS IN HAIR AND CHANGES IN IQ AND PSYCOLOGICAL BEHAVIOR IN CHILDREN

THESIS

Submitted for partial fulfillment of Ms.C degree in

Pediatrics

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N C R R T

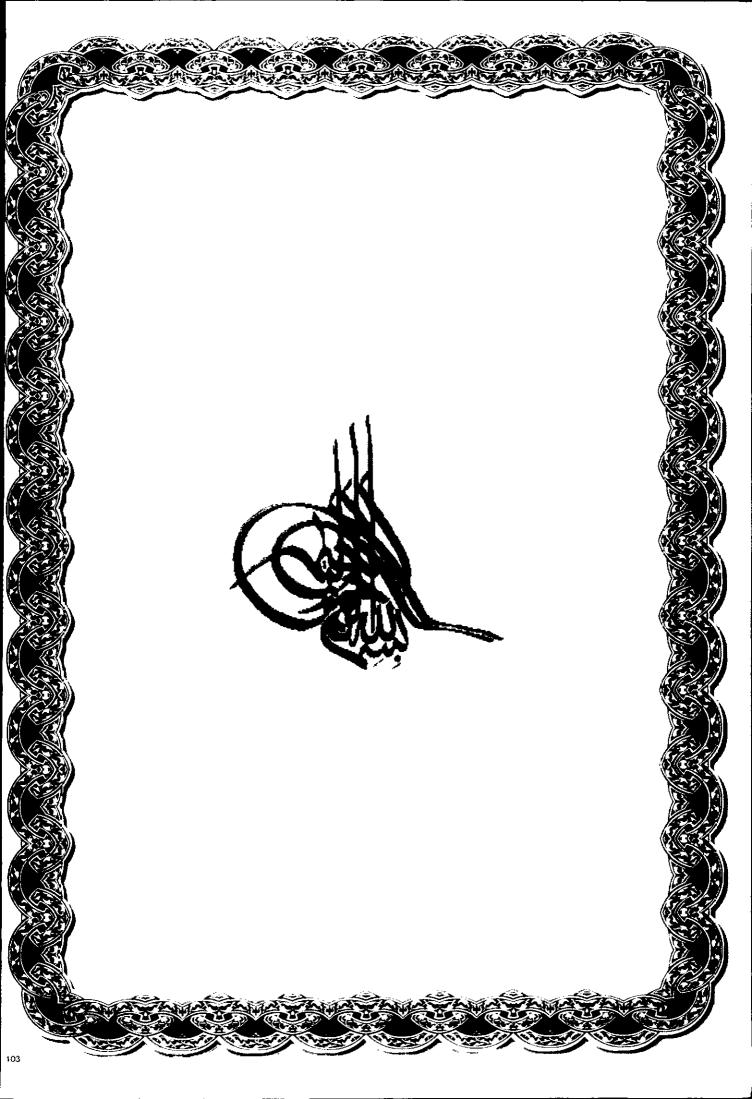
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List of Contents	Page
• Introduction and Aim of the work	1
• Review of Literature	3
• Lead	3
• Cadmium	26
• Zinc	34
• Copper	49
Psychiatric review	61
Disruptive Behavior	61
Mental Retardation	69
• Attention Deficit Hyperactivity Disorder	83
◆ Aggression	95
Subjects and Methods	99
• Results	106
• Analysis of the Results	120
• Discussion	123
• Summary	142
• Conclusion	145
• Recommendations	146
• References	147
◆ Appendix	179
• Arabic summary	

LIST OF TABLES

	Tables of literature	Page
Table-1:-	Sources of lead exposure	5
Table-2:-	Effects of chronic lead poisoning	22
Table-3:-	Treatment schedule of lead intoxication	24-25
Table-4:-	Zinc content in common food	35
Table-5:-	Factors which will influence the intestinal uptake and transfer of zinc	38
Table-6:-	Mechanisms and conditions predisposing to dietary and systemic zinc deprivation	47
Table-7:-	Clinical manifestations of severe human zinc deficiency	48
Table-8:-	The principle mammalian cuproenzyme activities	52
Table-9:-	Predisposing factors to disruptive behavioral disorder	62
Table-10:-	Differential diagnosis of the disruptive behavioral disorder	65
Table-11:-	Classification of mental retardation according to intelligence	72

	Table of the results	Page
Table-1:-	Distribution of the studied groups according to residence	107
Table-2:-	Distribution of studied groups according to socioeconomic status (SES)	107

	Table of the results	Page
Table-3:-	Weight, height and BMI among studied groups	108
Table-4:-	IQ and Total Aggression among studied groups	108
Table-5:-	Statistical analysis of Pb in studied hair samples	109
Table-6:-	Statistical analysis of Cd in studied hair samples	109
Table-7:-	Statistical analysis of Zn in studied hair samples	110
Table-8:-	Statistical analysis of Cu in studied hair samples	110
Table-9:-	Distribution of studied groups according to parent's job	111
Table-10:-	Relation of IQ and Total aggression to parent's job	111
Table-11:-	Distribution of studied groups according to special habits	112
Table- 12:-	Relation of special habits to IQ and Total Aggression	112
Table-13:-	Relation between the levels of hair's metals and the residence among studied groups	113
Table-14:-	Serum levels of metals studied in control subjects	113
Table-15:-	Correlation studies between serum and hair levels of metals	114
Table-16:-	Correlation studies between BMI to IQ, Total aggression and Pb	114
Table-17:-	Correlation studies between hair levels of metals to IQ and Total aggression	115

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	LIST OF Figures	Page
Figure-1:-	Residence among studied groups	116
Figure -2:-	Weight, height, BMI among studied groups	116
Figure -3:-	IQ, total aggression among studied groups	117
Figure -4:-	Pb, Cd among studied groups	117
Figure -5:-	Zn, Cu among studied groups	118
Figure -6:-	Correlation between Pb level and IQ score	118
Figure -7:-	Correlation between Pb level and Total aggression.	119
Figure -8:-	Correlation between Pb level and BMI	119

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LIST OF ABBREVIATIONS

AAMR:- American Association of Mental Retardation.

AAS: - Atomic Absorption Spectrophotometry.

ADHD: - Attention Deficit Hyperactivity Disorder.

ALAD: - Amino Levulinic Acid Dehydratase.

BAL: - British Antilewiste.

δ**ALA:** - Delta Amino Levulinic Acid.

BMI: - Body Mass Index.

Cd: - Cadmium.

CDC: - Center for Disease Control.

CaNa₂EDTA: - Calcium disodium ethylene diamine-tetracetic acid.

Cu: - Copper.

DSD:- Disruptive Behavioral Disorders

DSM-IV:- Diagnostic and Statistical Manual of Mental Disorders-

the fourth edition

EDTA: - Ethylene Diamine-Tetra acetic Acid.

EP: - Erythrocyte Protoporphyrine.

FEP: - Free erythrocyte Protoporphyrine.

ICD-10:- The 10th Revision of International Statistical

Classification of Diseases and related Health problems

IQ: - Intelligence Quotient.

MR: - Mental Retardation.

NCRRT: - National Center for Radiation Research and Technology.

Pb: - Lead.

ppb: - Part per billion.

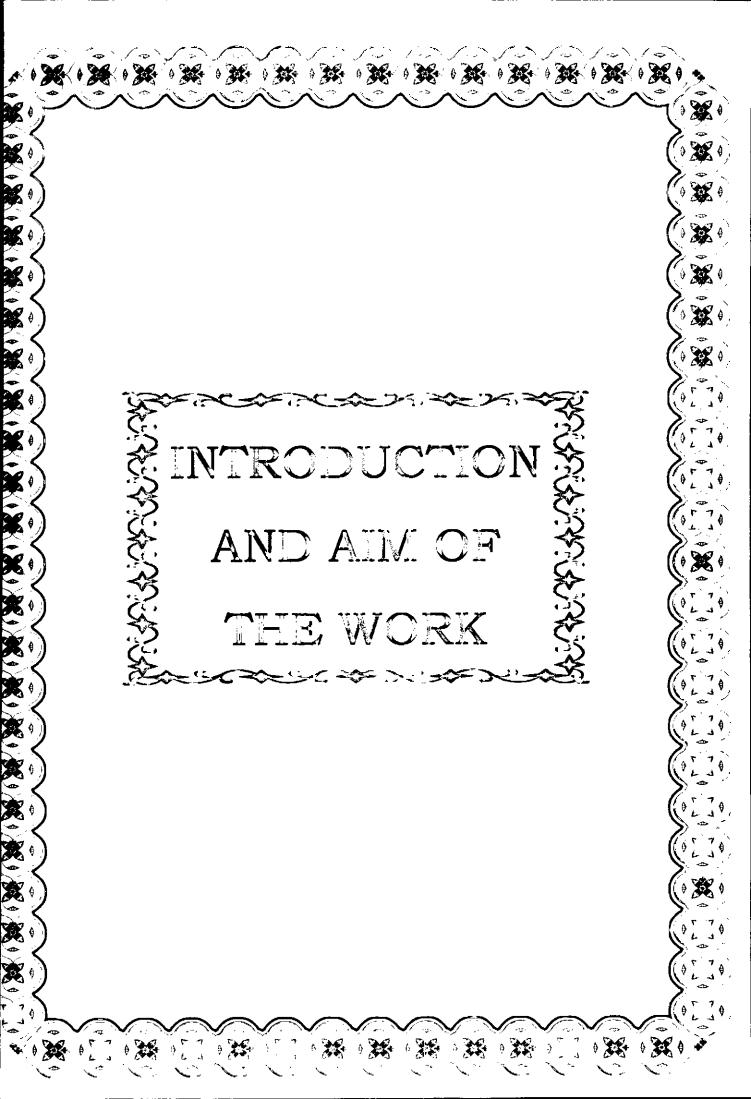
ppm: - Part per million.

Sb: - Still Birth.

μg/dl: - Microgram per deciliter.

WHO: - World Health Organization.

Zn: - Zinc.



INTRODUCTION

Increased urbanization and industrialization in many developing countries have resulted in atmospheric pollution and contaminant health problems. The determination of trace elements levels in hair has been a subject of continual interest in the biomedical and environmental sciences. The significance of such measurements as an indices for assessing nutritional status, diagnosis of intoxication and monitoring environmental exposure. (Cortes Toro et al., 1993)

Several reports have associated the presence of sub-toxic concentrations of various non-nutrient-metals with behavioral and learning disabilities in children. (Capel et al., 1981) Examination of hair is a good non-invasive method which should be used in screening studies of children living in high polluted areas. Since pollutants accumulate in hair reaching higher levels in children exposed to pollution than in those unexposed. (Chlopicka et al., 1995)

Several years ago there has been public concern that concentrations of lead which were previously considered to be safe in humans may be related to impaired performance by children on intelligence tests and to hyperactivity, other behavior disorders and poor attainment in school. (Needleman et al., 1979) Many children are considered to have behavioral problems before the diagnosis of lead poisoning is entertained. (Shannon and Graef, 1992) It is possible that many who do not progress to the stage of frank encephalopathy are never diagnosed and treated and