

***EFFECT OF FEEDING ON THE
LEVEL OF GASTRIN HORMONE
IN PRETERM INFANTS***

***Thesis
Submitted for Partial Fulfillment
of Master Degree in Paediatrics***



By

Yaser Ahmed Abu El-Azaym Hewala

(M. B.; B. Ch.)

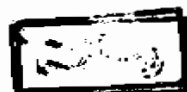
Supervised by

618-92011
y.a.
Prof. Dr. **Sanaa Y. Shaaban**

*Professor of Paediatrics
Ain Shams University*

Assist. Prof. Dr. **Hoda L. El-Sayed**

*Assistant Prof. of Paediatrics
Ain Shams University*



Dr. **Omnia F. El-Rashiedy**

*Lecturer of Paediatrics
Ain Shams University*

**Faculty of Medicine
Ain Shams University**

1998



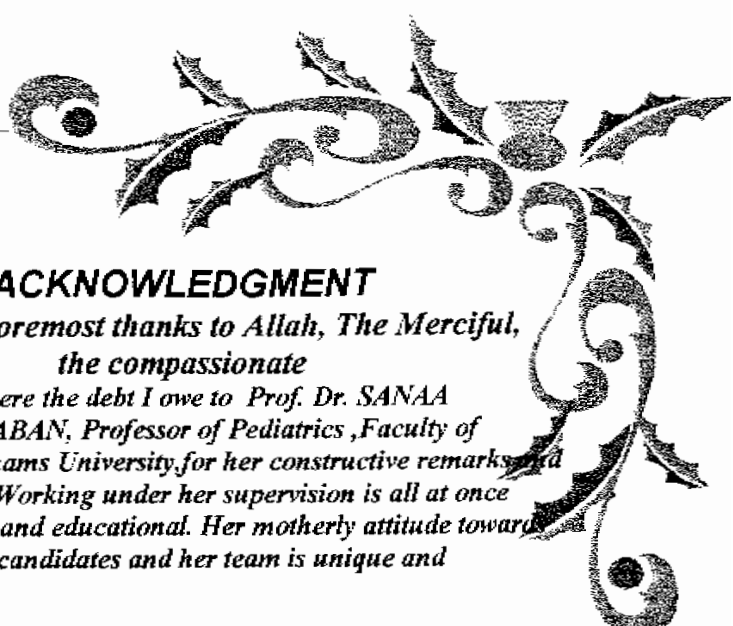
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَقَالُوا

سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا بِمَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صَدَقَ اللَّهُ الْعَلِيمُ

الآيَةُ (٢٩) سُورَةُ الْبَقَرَةِ



ACKNOWLEDGMENT

*First and Foremost thanks to Allah, The Merciful,
the compassionate*

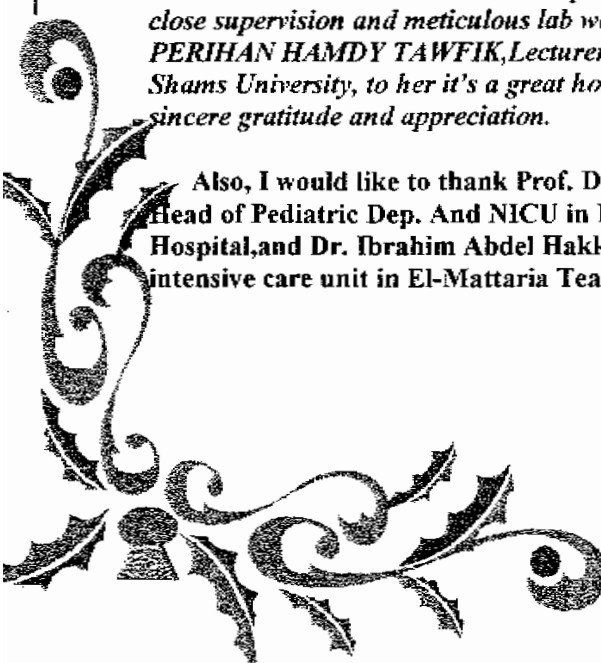
*I must state here the debt I owe to Prof. Dr. SANAA
YOUSSEF SHAABAN, Professor of Pediatrics, Faculty of
Medicine, Ain Shams University, for her constructive remarks and
valuable advice. Working under her supervision is all at once
both pleasurable and educational. Her motherly attitude toward
her patients, her candidates and her team is unique and
memorable.*

*To Prof. Dr. HODA LOTFY ELSAYED, Ass. Professor
of Pediatrics, Faculty of Medicine, Ain Shams University, I
like to express many thanks and sincere gratitude, she gave me
an excellent example of how a true scientist should guide and
supervise her student's work.*

*Also many thanks to Dr. OMNIA FATHEY EL-RASHIEDY,
Lecturer of Pediatrics, Faculty of Medicine, Ain Shams University,
for her continuous encouragement and valuable suggestions.*

*This work have never been completed without the great help,
close supervision and meticulous lab work offered by Dr.
PERIHAN HAMDY TAWFIK, Lecturer of Clinical Pathology, Ain
Shams University, to her it's a great honour to me to express my
sincere gratitude and appreciation.*

*Also, I would like to thank Prof. Dr. ESSAD KHALLAF,
Head of Pediatric Dep. And NICU in El-Mattaria Teaching
Hospital, and Dr. Ibrahim Abdel Hakk, Supervisor of neonatal
intensive care unit in El-Mattaria Teaching Hospital.*



A decorative border with intricate floral and scrollwork patterns surrounds the text.

DEDICATION

TO

Our Beloved, Great Prophet Mohamed

Who learned us and learned all the world..
How to be a human being

And to

My father (My first teacher) and My mother

CONTENTS

	Page
* <i>List of abbreviations</i>	
* <i>List of Tables</i>	
* <i>List of Figures</i>	
* <i>Introduction</i>	1
* <i>Aim of the Work</i>	2
* <i>Review of Literature:</i>	
- <i>Gut peptides</i>	3
- <i>Gastrin</i>	8
~ <i>Chemistry and distribution</i>	9
~ <i>Regulation</i>	11
~ <i>Gastrin release</i>	12
~ <i>Gastrin inhibition</i>	14
~ <i>Action of gastrin</i>	15
~ <i>Trophic action of gastrin</i>	19
~ <i>Gastrin metabolism</i>	20
- <i>Biologic clock of GIT development</i>	21
- <i>Role of gut peptide in postnatal adaptation</i>	23
- <i>Gut hormones in the fetus</i>	24
- <i>Gut hormones and infant feeding</i>	25
- <i>Nutrition</i>	30
~ <i>Parenteral nutrition</i>	33
~ <i>Enteral nutrition</i>	42

* <i>Subjects and Methods</i>	69
* <i>Results</i>	80
* <i>Discussion</i>	108
* <i>Summary and Conclusion</i>	123
* <i>Recommendations</i>	128
* <i>References</i>	129
* <i>Arabic Summary</i>	

LIST OF ABBREVIATIONS

μg	Microgram
μg/kg	Microgram/kilogram
μIU/ml	Micro international unit/milliliter
AF	Artificial fed
APUD	Amine precursor uptake and decarboxylation
BF	Breast fed
Ca	Calcium
CCK	Cholecystokinin
CGR	Calcitonin gene related peptide
Cl	Chloride
CS	Caesarean section
Cu	Copper
D10W	Dextrose 10%
ECL	Enterochromaffin like cell
FAB	Fraction of antigen binding
Fe	Iron
GIP	Gastric inhibitory polypeptide
GIT	Gastrointestinal tract
GLI	Glicentin
gm	Gram
GRP	Gastrin-releasing peptide
h	Hour
Iu	International unit
Kcal	Kilocalory
kg	Kilogram

LBW	Low birth weight
mEq	Milliequivalent
mg	Milligram
mg/dl	Milligram/diciliter
ml	Milliliter
Na	Sodium
NVD	Normal vaginal delivery
P	Phosphorus
pg/ml	Picogram/milliliter
PP	Pancreatic polypeptide
RDS	Respiratory distress syndrome
SGA	Small for gestational age
VIP	Vasoactive intestinall polypeptide
vit D	Vitamin D
VLBW	Very low birth weight
Zn	Zinc

LIST OF TABLES

for Review

No.	Title	Page
Table 1	<i>Gastrointestinal regulatory peptides</i>	6
Table 2	<i>Control of gastrin secretion</i>	12
Table 3	<i>Development of GIT in human fetus</i>	22
Table 4	<i>Hypothesized role of gut hormones in postnatal adaptation</i>	23
Table 5	<i>Duration of survival expected in starvation and semistarvation</i>	32
Table 6	<i>Recommended daily intakes of electrolytes for parenteral nutrition solutions</i>	40
Table 7	<i>Suggested daily intake of essential trace elements.</i>	41
Table 8	<i>Energy requirements of premature infants</i>	44
Table 9	<i>Estimated requirements and advisable intakes for protein (gm) as derived by the factorial method</i>	45
Table 10	<i>Advisable intakes for Ca, P, proteins, Na and vit D compared with selected feeding</i>	51
Table 11	<i>Enteral feeding schedule for LBW infants</i>	57
Table 12	<i>Comparison of premature versus standard formulas for feeding LBW infants</i>	65
Table 13	<i>Composition of human milk,</i>	66
(a&b)	<i>premature infant formulas and standard formulas.</i>	67

