

**Effect of Medium Chain Triglyceride
formula Enteral Feeding versus Standard
Formula on the Outcome of Pediatric
ICU Patients**

Thesis

*Submitted for Partial Fulfillment of Master Degree
In Pediatrics*

By

Ahmed Reda Ali Aboalazm

M.B.B.Ch

Ain Shams University (2011)

Under Supervision of

Prof. Hanan Mohamed Ibrahim

Professor of Pediatrics

Faculty of Medicine - Ain Shams University

Dr. Mervat Gamal Mansour

Assistant Professor of Pediatrics

Faculty of Medicine - Ain Shams University

Dr. Yasmin Gamal ElGendy

Lecturer of Pediatrics

Faculty of Medicine - Ain Shams University

Faculty of Medicine

Ain Shams University

2016



Acknowledgment

*First of all, I thank **ALLAH** for blessing this work as a part of his generous help throughout my life.*

*I would like to acknowledge my deepest gratitude and appreciation to **Prof. Hanan Ibrahim**, Professor of Pediatrics, Faculty of Medicine, Ain Shams University, for her support and encouragement.*

*I would like to express my sincere gratitude and deepest thanks to **Dr. Mervat Gamal**, Assistant Professor of Pediatrics, Faculty of Medicine, Ain Shams University, for her support, faithful advice and meticulous supervision.*

*I would like to display my indebtedness to **Dr. Yasmin Gamal**, Lecturer of Pediatrics, Faculty of Medicine, Ain Shams University, for suggesting and planning this work, and for her meticulous supervision, scientific support and judicious guidance throughout this work.*

Last but not least, I would like to thank my family for their support.

Ahmed Aboalazm



Contents

List of Abbreviations	I
List of Tables	II
List of Figures	IV
Introduction	1
Aim of Study	2
Review of Literature	
• Chapter (1): Nutritional Assessment and Screening of Critically Ill Patient	3
• Chapter (2): Basic Principles of Enteral Nutrition of Critically Ill Children	31
Patients and Methods	53
Results	58
Discussion	74
Summary	89
Conclusion	91
Recommendations	92
References	93
Appendices	114
Arabic Summary	--

List of Abbreviations

Abb.	Meaning
A.S.P.E.N	American Society for Parenteral and Enteral Nutrition
BMI	Body mass index
BMR	Basal metabolic rate
ECMO	Extracorporeal membrane oxygenation
ENS	Enteral nutrition support
GERD	Gastroesophageal reflux
GIT	Gastrointestinal tract
GRV	Gastric residual volume
LOS	Length of stay
MAC	Mid arm circumference
MCT	Medium chain triglyceride
NG	Nasogastric
OG	Orogastric
PICU	Pediatric intensive care unit
PN	Parenteral nutrition
REE	Resting energy expenditure
SGNA	Subjective global nutritional assessment

List of Tables

Table	Title	Page
1	Prediction Equations for Resting Energy Expenditure	28
2	Sites and routes of enteral feeding	36
3	Continuous Tube Feeding Progression	41
4	Intermittent Tube Feeding Progression	42
5	Continuous versus Intermittent/Bolus Feedings	43
6	Overview of Pediatric Formulas	46
7	Complication of enteral feeding	49
8	Comparison between the two studied groups as regard Demographic data, sepsis, prism score	58
9	Diagnosis of the patients included in this study	59
10	Comparison between the two studied groups as regard anthropometric measurements at time of admission	60
11	Comparison between two studied groups as regard nutritional screening by subjective global nutritional assessment (SGNA) at time of admission	61

Table	Title	Page
12	Comparison between the two studied groups as regard resting energy expenditure (REE) calculated at time of admission, Days of NPO and days needed to reach 25% and 100% of total caloric intake by enteral feeding	62
13	Comparison between the two studied group as regard feeding tolerance	64
14	Comparison between the two studied groups as regard GIT tolerance symptoms	66
15	Comparison between two groups as regard morbidity and mortality	68
16	Comparison between the studied group as regard difference of Z score (MAC) at admission and at discharge	70
17	Effect of early enteral feeding on days of mechanical ventilation, length of stay and days of sepsis for all patients	70
18	Effect of early enteral feeding on days of mechanical ventilation, length of stay and days of sepsis for patients received standard formula	72
19	Effect of early enteral feeding on days of mechanical ventilation, length of stay and days of sepsis for patients received	73

List of Figures

Figure	Title	Page
1	Nutrition care algorithm	7
2	Enteral nutrition support decision tree	38
3	Comparison between the two studied groups as regard days needed to reach 25% and 100% of total caloric intake by enteral feeding	63
4	Comparison between the two studied group as regard feeding tolerance	65
5	Comparison between the two studied groups as regard GIT bleeding	67
6	Comparison between the two studied groups as regard distention	67
7	Comparison between two groups as regard days of sepsis and weight gain	69
8	Comparison between the studied group as regard difference of Z score (MAC) at admission and at discharge	69
9	Effect of early enteral feeding on days of mechanical ventilation, length of stay and days of sepsis	71

Figure	Title	Page
10	Effect of early enteral feeding on days of mechanical ventilation, length of stay and days of sepsis for patients received standard formula	72
11	Effect of early enteral feeding on days of mechanical ventilation, length of stay and days of sepsis	73



Introduction





Aim of Study





Chapter (1)

Nutritional Assessment and Screening of Critically Ill Patient





Chapter (2)

Basic Principles of Enteral Nutrition of Critically Ill Children





Patients and Methods





Results





Discussion

