Recent Advances in Nutritional Support in Mechanically Ventilated Critically Ill Patients

An Essay

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In Intensive care medicine

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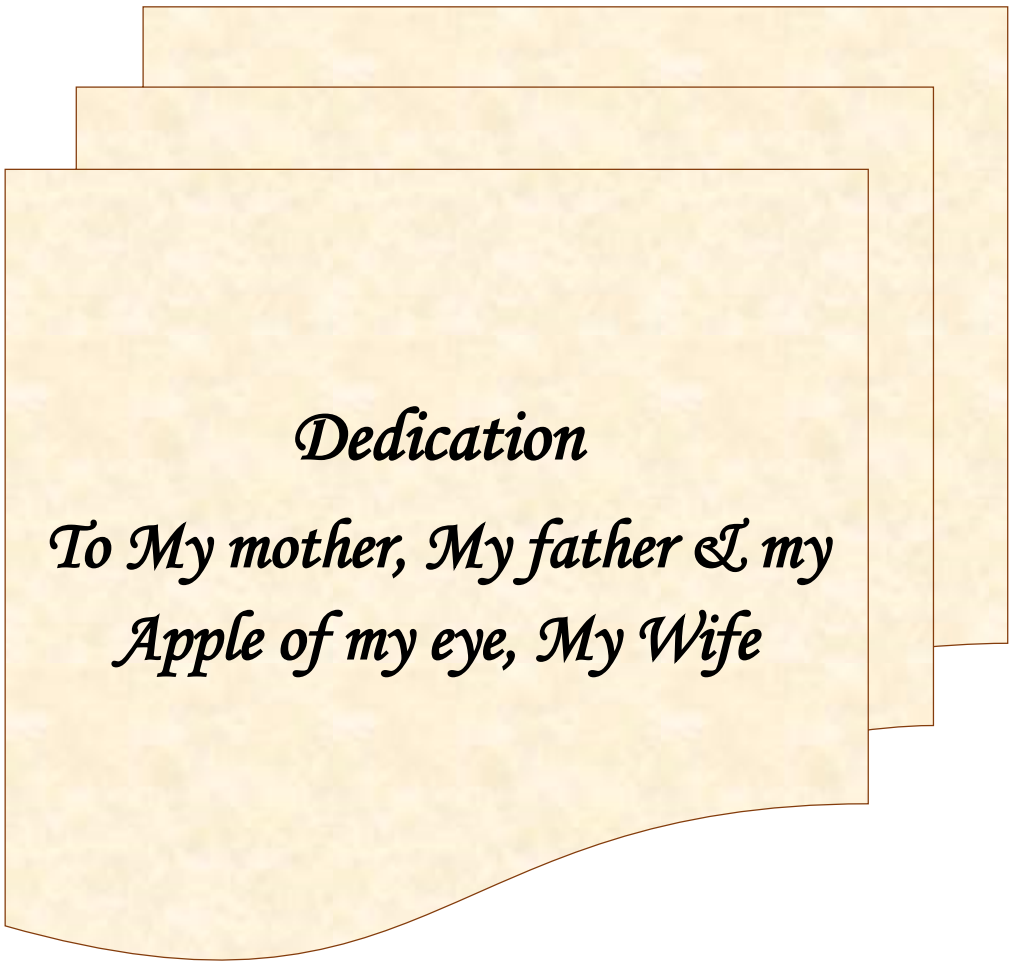
Dedication
To My mother, My father & my
Apple of my eye, My Wife

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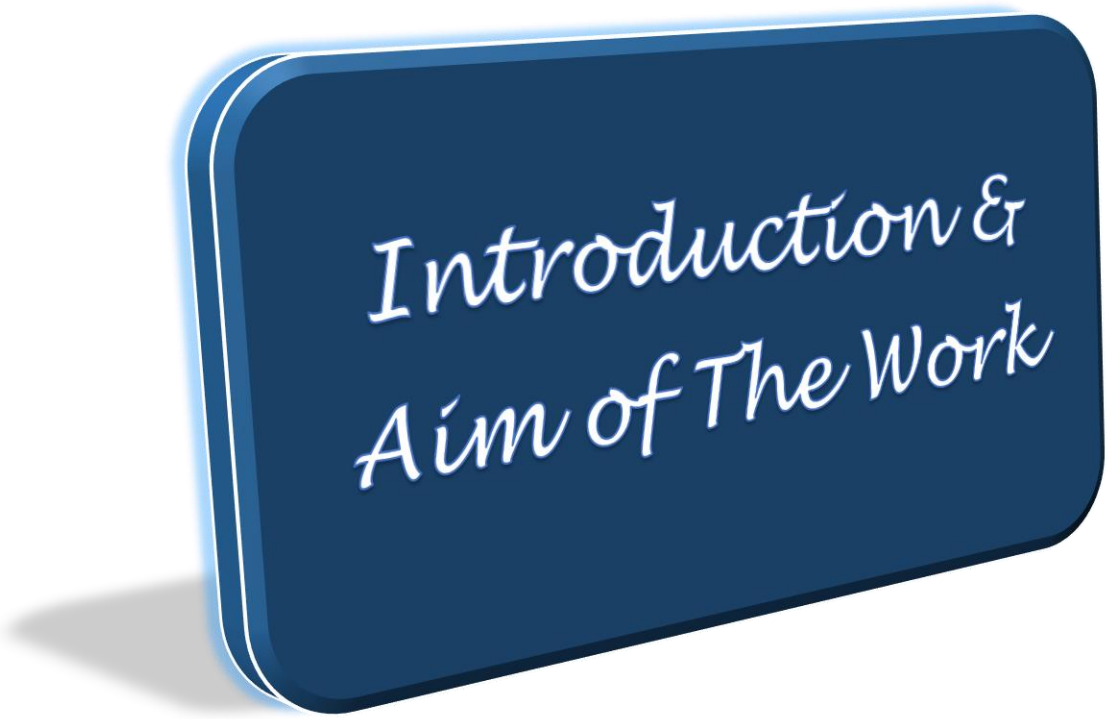
List of Abbreviations

ADL	**:**	Activities of daily living
AGA	**:**	American Gastroenterological Association.
AIDS	**:**	Acquired Immunodeficiency Syndrome.
ALAT	**:**	Alanine Aminotransferase.
APACHE	**:**	Acute Physiology and Chronic Health Evaluation.
ARDS	**:**	Acute Respiratory Distress Syndrome.
ASAT	**:**	Aspartate Aminotransferase.
BUN	**:**	Blood Urea Nitrogen.
CHI	**:**	Creatinine height index.
CRP	**:**	C-reactive protien.
CRS	**:**	Catheter-related sepsis.
CVVHD	**:**	Continuous Veno-Venous Haemodialysis.
DM	**:**	Diabetes Mellitus.
DNA	**:**	Deoxyribonucleic acid
EE	**:**	Energy Expenditure.
EN	**:**	Enteral Nutrition.
GALT	**:**	Gut-associated Lymphoid Tissue.
GGT	**:**	Gamma glutamyle transferase.
GI	**:**	Gastrointestinal.
GIT	**:**	Gastrointestinal tract.
GRV	**:**	Gastric residual volume.
HIV	**:**	Human Immunodeficiency Virus.
ICU	**:**	Intensive Care Unit.
INR	**:**	International normalized ratio.
IV	**:**	Intravenous.

List of Abbreviations (Cont.)

JPE	:	Jejunal percutaneous endoscopy.
LDL	:	Low density lipoprotein
LOS	:	Length Of Stay.
MAC	:	Mid-arm circumference.
MALT	:	Mucosa-associated Lymphoid Tissue.
MCT	:	Medium-chain triglycerides
MPM	:	Mortality Predicting Model.
NG	:	Nasogastric.
NO	:	Nitric oxide.
NOS	:	Nitric oxide synthase.
PCM	:	Protien-caloric malnutrition.
PEG	:	Percutaneous endoscopic gastrostomy.
PEM	:	Protien energy malnutrition.
PINI	:	Prognostic Inflammatory and Nutritional Index.
PN	:	Parenteral Nutrition.
POI	:	Postoperative ileus.
PT	:	Prothrombin time.
QOL	:	Quality of life.
SAPS	:	Simplified Acute Physiological Score.
TPN	:	Total parenteral nutrition.
UMAC	:	Upper mid-arm circumference.


Introduction &
Aim of The Work

Introduction

Adequate nutrition plays an important role in the outcome of critically ill patients ***(Heyland et al., 2003).***

Nutrition elements include important categories; carbohydrates, lipids, proteins, vitamins, minerals and water that must be supplied daily to meet caloric requirements of human beings ***(Lean, 2015).***

Malnutrition, including the depletion of essential micronutrients and erosion of lean body mass, is very common in patients who are critically ill, with 20 to 40 % of such patients showing evidence of protein energy malnutrition ***(McClave et al., 2009).***

The fundamental goal of nutritional support is to provide individual patients with their daily nutritional requirements. So, we have to know how to determine the nutrient and energy needs of each patient in the ICU ***(Bistrian, 2006).***

Feeding of critically ill patients should be started early. Early nutrition is defined as the initiation of nutritional therapy within 48 hours of either hospital admission or surgery ***(De Aguilar-Nascimento and Kudsk, 2008).***

Enteral nutrition (EN) started within 48 hours of admission resulted in a significant reduction in multiorgan failure, pancreatic infectious complications, and mortality ***(Spanier et al., 2011).***

Guidelines suggest that when enteral feeding is not possible, parenteral nutrition (PN) should be initiated within 7 days ***(McClave et al., 2009)*** or within 3 days ***(Singer et al., 2009).*** Among such patients who have protein-energy malnutrition at the time of admission to the ICU, the American clinical practice guidelines suggest that parenteral nutrition (PN) should be initiated without delay ***(McClave et al., 2009).***

There are reviews suggesting that enteral nutrition (EN) is associated with lower septic morbidity rates and parenteral nutrition may be associated with increased rates of complications and death ***(Novak et al., 2001).***

Several studies have shown that the protein-energy deficit frequently observed with the use of enteral nutrition (EN) alone is associated with increased morbidity and mortality. Thus, avoiding nutritional deficiencies is a key objective of nutritional therapy in intensive care. As enteral nutrition (EN) is often difficult to fully optimize in the first three days following ICU admission, supplementing enteral with parenteral nutrition could allow a better coverage to help achieve the energy target and limit the protein-energy deficit ***(Thibault et al., 2010).***

Aim of the work

The aim of the essay is to review feeding in ICU patients, benefits and the role of feeding in improving outcomes in critically ill patients on mechanical ventilation.

Chapter I: