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Target, prescription and infusion of enteral nutritional therapy of critical patients in intensive care unit

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ABSTRACT – Background – Enteral nutritional therapy (ENT) is the best route for the nutrition of critically ill patients with improved impact on the clinical treatment of such patients. **Objective** – To investigate the energy and protein supply of ENT in critically ill in-patients of an Intensive Care Unit (ICU). **Methods** – Prospective longitudinal study conducted with 82 critically ill in-patients of an ICU, receiving ENT. Anthropometric variables, laboratory tests (albumin, CRP, CRP/albumin ratio), NUTRIC-score and Nutritional Risk Screening (NRS-2002), energy and protein goals, and the inadequacies and complications of ENT were assessed. Statistical analysis was performed using the Chi-square or Fischer tests and the Wilcoxon test. **Results** – A total of 48.78% patients were at high nutritional risk based on NUTRIC score. In the CRP/albumin ratio, 85.37% patients presented with a high risk of complications. There was a statistically significant difference (P<0.0001) for all comparisons made between the target, prescription and ENT infusion, and 72% of the quantities prescribed for both calories and proteins was infused. It was observed that the difference between the prescription and the infusion was 14.63% (±10.81) for calories and 14.21% (±10.5) for proteins, with statistically significant difference (P<0.0001). In the relationship between prescription and infusion of calories and proteins, the only significant association was that of patients at high risk of CRP/albumin ratio, of which almost 94% received less than 80% of the energy and protein volume prescribed (P=0.0111). **Conclusion** – The administration of ENT in severely ill patients does not meet their actual energy and protein needs. The high occurrence of infusion inadequacies, compared to prescription and to the goals set can generate a negative nutritional balance.

HEADINGS – Enteral nutrition. Energy intake. Dietary proteins. Critical care. Intensive care units.

INTRODUCTION

Severely ill patients admitted to the intensive care unit (ICU) are in a hypercatabolic state, attempting to survive the acute phase of the disease and stress[1,2]. The patient responds with intense protein catabolism and, consequently, rapidly loses stocks of muscle mass for the production of new proteins for healing, for the immune system and replacement of muscle and hepatic glycogen[1,3,4]. One of the consequences of the response to hypercatabolism during severe disease is malnutrition, with a negative impact on clinical outcomes such as increased mortality risk, time and cost of hospitalization, greater clinical and infectious complications, longer healing time of pressure ulcers and surgical wounds and more fragile quality of life[3-5].

Enteral nutritional therapy (ENT) is the best route for the nutrition of critically ill patients with improved impact on the clinical treatment of such patients, according to the American Society of Parenteral and Enteral Nutrition (ASPEN) and The European Society for Clinical Nutrition and Metabolism (ESPEN)[6]. Proper indication and monitoring can prevent and treat malnutrition and improve immune response, thus preventing clinical and infectious complications in the critically ill[6-8].

A recent study by Bendavid et al.[9], on nutritional practices in ICUs, found that the preferred feeding route is the enteral route and that ENT is initiated in the first days of hospitalization and that nutritional goals are seldom reached; this shows that achieving energy and protein goals in critically ill patients is one of the challenges in ICUs. Another study, conducted by Tsai et al.[4], found an average delivery of 49 to 70% of the study energy and protein goals for the critically ill patient. Two other studies[10,11] have shown that critically ill patients receive 60% and 56% of their energy and protein needs, respectively, and that a protein supply below 80% of the set goals is associated with higher mortality rates[9,10].

Monitoring and identifying complications associated with ENT supply, identifying the most frequent inadequacies, may facilitate management and a better selection of nutritional therapy[10,11]. Complications and intolerances associated with ENT administration may occur frequently[12,13], and some associated factors such as a high residual gastric volume, vomiting and diarrhea may prevent an adequate supply of ENT[12,14], as well as routine ICU interventions such as extubation, imaging and surgical procedures[15].

Considering the relevance of the therapy in critically ill patients, the objective of this study was to investigate the energy and protein supply of ENT in critically ill in-patients in an ICU of a university hospital.

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METHODS

Study design, ethical approval and inclusion and exclusion criteria

A longitudinal prospective study was carried out in a university hospital ICU, after approval by the Research Ethics Committee of the institution (opinion No. 1,754,082) and the signing of the Free and Informed Consent Form (FICF), in the state of São Paulo, Brazil, from 2016 to 2017.

The inclusion criteria adopted were: admission to the ICU, over 18 years of age and receiving exclusively enteral nutritional therapy (EENT). Patients with another route of nutritional therapy (NT) (oral or parenteral) were excluded; patients whose ENT was discontinued and patients in whom another NT form was introduced, even if concomitant with ENT, or in less than 3 days in EENT were also excluded as well as those with incomplete records of nutritional status, lacking exams or other information essential for the survey in medical records.

Initially, 142 patients were recruited to participate in the study. After the review of the inclusion and exclusion criteria, 82 patients remained. Out of the 60 excluded patients, 20 (24.4%) stayed less than 3 days in the ICU, 16 (19.5%) had undergone less than 3 days EENT, 18 (21.9%) submitted incomplete data entered in their medical records and 6 did not sign the FICF. Thus, the study was developed with 82 (N=82) adults and older patients of both genders who received EENT, through oroenteral tube (OET), nasoenteral tube (NET), jejunostomy (J) or gastrostomy (G), under clinical or surgical treatment. The indication of oroenteral tube (OET) is part of a protocol indicated for patients in mechanical ventilation, such as prevention of hospital pneumonia, standardized in the hospital where the research was carried out.

Data collection

Data such as gender, age, length of stay and diagnosis were collected. All patients were evaluated for nutritional status at the beginning and at the end of the ENT, as well as every 5 days during ENT stay, taking into account the following indicators: anthropometry, laboratory tests, Nutritional Risk Screening-2002 (NRS) and NUTRIC-score. The energy and protein requirements and the inadequacies or complications during enteral diet administration were also evaluated. All patients were evaluated in the first 24 hours of hospitalization and monitored until the time of hospital discharge or death.

A) Anthropometry

To determine the patient's nutritional conditions by anthropometry, data on body weight and height were collected to compute the body mass index (BMI). In the BMI calculation, the criteria established by the WHO, 1995[16] for adults up to 60 years of age and by Lipschitz (1994)[17] for the elderly (>60 years) were considered. When it was not possible to assess the weight in bedridden patients, the body weight was estimated using the formula of Chumlea et al.[18].

B) Laboratory tests

- Albumin

Serum albumin dosage was classified following Blackburn et al.[19], who defined the following cutoff points:- >3.5mg/dL (reference values); between 2.8-3.5 mg/dL (mild depletion); between 2.1-2.7 mg/dL (moderate depletion) and <2.1 mg/dL (severe depletion).

- C Reactive protein (CRP)

For CRP analysis, the dosages performed every 5 days, the same day or the next day (maximum 2 days before or after) of the albumin dosage were used. The CRP dosing result was used to calculate the CRP/Albumin inflammatory-nutritional index, and it was not used alone to evaluate the patient. The patient was fasted for 8 hours before collection and the cut-off point for the inflammatory assay was <0.5 mg/dL[20].

- CRP/ALB relationship

The inflammatory / nutritional index PCR/Albumin was used to assess the risk of severely ill patients according to the following risk factors for complications: CRP/albumin ratio <0.4 (without risk); 0.4-1.2 (low risk); 1.2-2.0 (medium risk) and >2.0 (high risk)[20,21].

C) Nutritional risk screening (NRS-2002)

The NRS-2002 is a tool for the assessment of the nutritional risk of in-patients and was applied on admission or within 24 hours afterwards. Results were interpreted by a numerical score, where the score ≥3 indicates that the patient is at nutritional risk, and score <3, at no nutritional risk[22].

D) Nutrition risk in the critically ill score (NUTRIC-score)

The NUTRIC-score is a tool for assessing the nutritional risk of critically ill patients, and its control variables include: Acute Physiology and Chronic Health Evaluation II (APACHE II), Sequential Organ Failure Assessment (SOFA), age, number of comorbidities and the total number of days of hospitalization before admission to the ICU. The NUTRIC-score was applied to determine the nutritional risk in the first 48 hours of ICU patient admission, and the values ≥5 were considered indicative of a higher nutritional risk[23].

E) Energy and protein targets determination

The daily patients' energy and protein requirements were estimated based on the recommendations of the new ASPEN nutritional therapy guidelines[24] (TABLE 1).

TABLE 1. Energy and protein targets determination.

	BMI (Kg/m²)		
Energy Target (Kcal/Kg of current weight/day)	<25	30–50	>50
	25–30	11–14	22–25
	BMI (Kg/m²)		
Protein Target (g/Kg of current weight/day)	<30	30–40	>40
	1.2–2	2	2.5

F) ENT monitoring

- Comparison between the prescribed energy and protein value and the infused energy and protein value

The infusion of the enteral diet and the inadequacy between the prescription and delivery of ENT were reviewed daily. The analyses of the energy and protein value prescribed, actually delivered within 24 hours after the prescription, as well as the causes of non-infusion of the diet, were carried out by comparing the diet volume prescribed and the volume actually administered, by checking the entries in the medical records. We also analyzed the actual infusion of the prescribed diet, in relation to the goals defined by the calculation of the patients' energy and protein needs.

- Review of ENT inadequacies

The complications associated with ENT and that directly impacted the infusion of the prescribed diet were classified as follows: gastrointestinal (diarrhea, constipation, abdominal distension); mechanical (loss, obstruction or displacement of the probe); (surgery, exams, procedures such as tracheostomy, extubation); others (death, discharge from the ICU, fasting and unexplained delays). The frequency of the occurrence of these complications was evaluated based on the entries in the medical records.

Statistical analysis

Statistical analysis was performed with the aid of the SAS[25] program. For the characterization of the sample, a descriptive analysis was performed using frequency tables for the categorical variables and position and dispersion measurements for the continuous variables. Subsequently, the Wilcoxon test for related samples was used to compare descriptive and infused measurements. To verify association or to compare proportions, the Chi-square test or Fisher's exact test was used when necessary. The significance level adopted for the statistical tests was 5%.

RESULTS

Characteristics of the study population

The mean age of the studied population was 60.23 (±18.51) years, with 60.98% (n=50) males and 39.02% (n=32) females. The patients' mean body weight was 70.74 kg (±15.75) and the mean height was 165.49 cm (±10.3). Patients remained on average 15.88 (±7.78) days in the ICU, of which; 12.84 (±8.24) days on EENT. Among the NT routes, the following routes were most frequently used: oroenteral in 84.15% (n=69), nasoenteral in 13.41% (n=11) and ostomy in 2.44% (n=2) of the patients. Regarding the origin of the patients in the hospital, before being transferred to the ICU, 70.73% came from the emergency room (hospital emergency care services), 26.83% came from inpatient wards, 1.22% from the surgical center and 1.22% came from another hospital. Among the patients studied, 50% had a clinical diagnosis and 50% had a surgical diagnosis.

Nutritional status, nutritional risk and risk of complications

At the beginning of NT 59.76% (n=49) of the patients were eutrophic and 8.54% (n=7) malnourished according to the BMI. All patients (100%) were at high nutritional risk by the NRS-2002. In the assessment with the NUTRIC score, 51.22% of the patients (n=42) presented low risk (NUTRIC <5) and 48.78% (n=40) presented high nutritional risk. For the evaluation of the risk of complications of the CRP/albumin ratio, 85.37% (n=70) of the patients presented, at some point in the evaluation, a high risk.

Outcome of NT

Regarding the final outcome of EENT, 57.32% (n=47) of the patients had a favorable outcome (31 patients were discharged from the ICU, one patient initiated parenteral nutrition concomitant to ENT and 15 patients initiated concomitant oral diet with ENT or had the ENT discontinued and were switched to oral diet). In the present study, 42.68% (n=35) of the patients had a poor outcome and died (n=31) or had their ENT discontinued due to palliative treatment (n=4).

Target, prescription and energy and protein infusion

Regarding the targets, prescription and energy and protein infusion of patients receiving EENT, it was verified that the patients' daily energy goal was 2,132.91±337.88 kcal per day. The mean energy requirement was 1,432.69±407,00 kcal per day and the mean infusion was 1,114.50±437.37 kcal per day. The mean protein target was 113.96±26.35 g per day. The mean protein prescription was 62.35±18.43 g of daily protein and the mean protein infusion was 47.58±19.01 g per day. For the protein, the mean infusion was 0.67 g/kg body weight, and the mean energy infusion was 15.76 Kcal/kg body weight, well below the recommendations of 1.2 to 2.5 g protein per Kg weight and 25-35 Kcal per kg weight[24].

Comparison between target, prescription and calorie and protein infusion

A comparison of the goals, prescription and infusion of calories and proteins of patients receiving EENT are reported in TABLE 2. A statistically significant difference (P<0.0001) was observed for all comparisons made between the target, prescription and infusion of EENT. For calories, prescription was on average 68.07% of the value of the calculated goal, and 53.44% of the energy goal was infused. For protein, the prescription was on average 57.92% of the value of the target, and an average 43.72% of the quantities of the protein goal was infused. Seventy two percent of what was prescribed for both calories and proteins was infused (TABLE 2).

TABLE 2. Comparison between target, prescription and infusion of calories and proteins of patients under EENT (N=82).

Variable	Diff ± dp average	Median	%	Value-*P*
Calories (kcal)				
M x P	700.22 ± 473.01	676.15	68.07	<0.0001*
M x I	1018.42 ± 498.47	1004.59	53.44	<0.0001*
P x I	318.19 ± 185.29	305.79	72.26	<0.0001*
Protein (g)				
M x P	51.61 ± 32.64	53.48	57.92	<0.0001*
M x I	66.39 ± 31.14	66.86	43.72	<0.0001*
P x I	14.77 ± 8.07	13.59	72.26	<0.0001*

M x P: goal versus prescription; M x I: goal versus infused; P x I: prescribed versus infused; Mean Diff: Mean of difference in values between target, prescribed and infused. Values expressed as mean ± standard deviation; significance level P<0.05. *Wilcoxon test for related samples (null hypothesis: median equal to zero).

TABLE 3 shows the percentage of prescription and infusion in relation to the energy and protein target and the difference between what was prescribed and infused. It was observed that the difference between the prescription and the infusion was 14.63% (±10.81) for calories and 14.21% (±10.50) for proteins. In both cases, the difference was statistically significant (P<0.0001) (TABLE 3).

Comparison between goals and energy and protein infusion and variables of nutritional status and risk and outcome of the nutritional therapy

Considering that 80% or more infusion of the defined goals for calories and proteins would be optimal, FIGURES 1 and 2 show the results of energy and protein infusions in relation to the defined goals and the prescription. The results show that 89.09% (n=73) of the patients did not receive an average of 80% or more of the calories infusion and that 97.56% (n=80) of the patients did not receive an infusion average of 80% or more of protein, when compared to the defined goal (FIGURE 2). If we compare the calorie and protein infusion with the prescription, 59.76% (n=49) of the patients received on average below 80% of the prescribed dosage (FIGURES 1 and 2).

TABLE 4 shows the association between those patients who received an infusion greater than or equal to or less than 80% in relation to the energy and protein goals, in the different variables of state and nutritional risk and NT outcome. There was no statistically significant difference between the variables reviewed and the patients who received above or equal to, or below 80% of the energy goal. For the protein target, it was not possible to make the same comparison because, in only two cases, the infusion was equal to or greater than 80% of the defined goal.

Comparison between prescription and energy and protein infusion and the variables of the state and nutritional risk and NT outcome

TABLE 5 shows the association between energy and protein prescriptions and what was infused in the different variables reviewed. The only significant association was that of patients at high risk for the CRP/Albumin ratio. Among these, almost 94% received less than 80% of the energy and protein volume prescribed (P=0.0111).

TABLE 3. Percentage comparison between target, prescription and energy and protein infusion and differences between prescribed and infused (N=82).

Variable	Average (%)	DP (%)	Minimum	Median	Maximum	*P*-value
Calories (%)						
M x P	68.07	19.29	29.40	67.39	109.69	
M x I	53.44	20.79	9.11	50.42	99.19	<0.0001*
Difkcal	14.63	10.81	35.56	13.27	53.89	
Proteins (%)						
M x P	57.92	22.66	21.24	54.83	119.64	
M x I	43.72	19.47	6.59	39.86	97.44	<0.0001*
Difp	14.21	10.50	0.19	11.63	64.99	

M x P: goal versus prescription; M x I: goal versus infused; Difcal: difference between prescribed and infused calories; Difp: difference between prescribed and infused protein. Values expressed as mean ± standard deviation; significance level P <0.05. * Wilcoxon test for related samples (null hypothesis: median equal to zero).

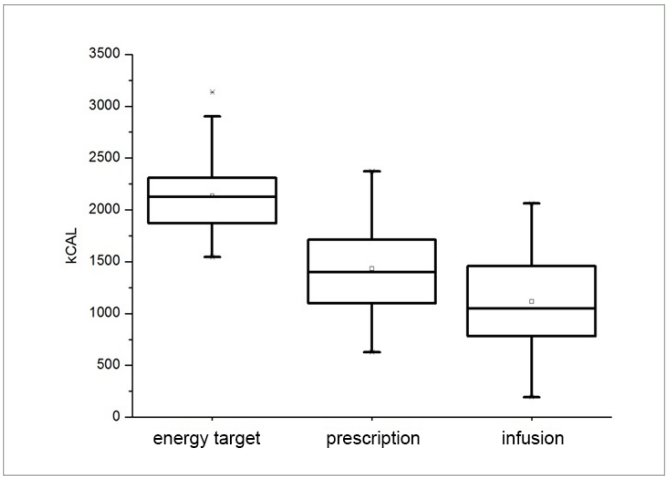

FIGURE 1. Relationship between target, prescription and energy infusion.

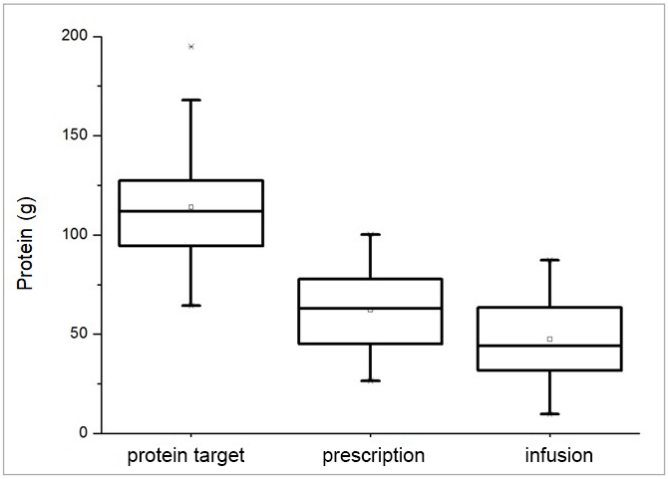

FIGURE 2. Relationship between target, prescription and protein infusion.

TABLE 4. Association between goals and energy and protein infusion, and the variables of the state and nutritional risk and NT outcome (N=82).

Variable		Target X Energy Infusion			*P*-value
		≥ 80% (%)	< 80% (%)	Total N (%)	
IMC	Overweight	4 (44.44)	22 (30.14)	26 (31.71)	0.6489*
	Eutrophic	5 (55.56)	44 (60.27)	49 (59.76)	
	Low weight	-	7 (9.59)	7 (8.54)	
NUTRIC score	No risk	4 (44.44)	38 (52.05)	42 (51.22)	0.7347*
	At risk	5 (55.56)	35 (47.95)	40 (48.78)	
Outcome	Good	5 (55.56)	42 (57.53)	47(57.32)	1.0*
	Bad	4 (44.44)	31 (42.47)	35 (42.68)	
CRP/Alb Relationship	High risk	7 (77.78)	63 (86.30)	70 (85.37)	0.6134*
	Low, medium and no risk	2 (22.22)	10 (13.70)	12 (14.63)	
		Target X Protein Infusion			
IMC	Overweight	2 (100)	24 (30)	26 (31.71)	
	Eutrophic	-	49 (61.25)	49 (59.76)	
	Low weight	-	7 (8.75)	7 (8.54)	
NUTRIC score	No risk	1 (50)	41 (51.25)	42 (51.22)	
	At risk	1 (50)	39 (48.75)	40 (48.78)	
Outcome	Good	1 (50)	46 (57.50)	47 (57.32)	
	Bad	1 (50)	34 (42.50)	35 (42.68)	
CRP/Alb Relationship	High risk	2 (100)	68 (85)	70 (85.37)	
	Low, medium and no risk	-	12 (15)	12 (14.63)	

BMI: body mass index; CRP/Alb ratio: relationship between C-reactive protein and albumin. The values expressed in% compare values of the same goal (<80% or ≥80%). P-value was not calculated for the protein target, since only two cases were ≥80%. * Fisher's exact test.

TABLE 5. Association between prescription and energy and protein infusion and the variables of the state and nutritional risk and NT outcome (N=82).

Variable		Prescription X Energy and Protein Infusion			*P*-value
		≥ 80% (%)	< 80% (%)	Total N (%)	
IMC	Overweight	13 (39.39)	13 (26.53)	26 (31.71)	0.0507*
	Eutrophic	20 (60.61)	29 59.18)	49 (59.76)	
	Low weight	-	7 (14.29)	7 (8.54)	
NUTRIC score	No risk	18 (54.55)	24 (48.98)	42 (51.22)	0.6210**
	At risk	15 (45.45)	25 (51.02)	40 (48.78)	
Outcome	Good	21 (63.64)	26 (53.06)	47(57.32)	0.3424**
	Bad	12 (36.36)	23 (46.94)	35 (42.68)	
CRP/Alb Relationship	High risk	24 (72.73)	46 (93.88)	70 (85.37)	0.0111*
	Low, medium and no risk	9 (27.27)	3 (6.12)	12 (14.63)	

BMI: body mass index; CRP/Alb ratio: relationship between C-reactive protein and albumin. The values expressed in% compare values of the same goal (<80% or ≥80%). * Fisher exact test. ** Qui-square test.

DISCUSSION

The hypothesis that the nutritional goals of severely ill patients receiving EENT are seldom met, was verified in this study, that confirmed that complications and inadequacies during the ENT supply negatively affect the energy and protein balance of critically ill patients. Differences between goals and energy and protein infusion were significant in this study. Only 53.44% of the energy value (15.76 Kcal/kg of weight) was infused; when compared to the target, and 43.72% of the protein (0.67 g/kg body weight) was infused; with respect to the goal, amounts extremely lower than those recommended by McClave et al.[24], in the ASPEN guidelines were infused. Teixeira et al.[26], observed that TNEE patients received 74.4% of the energy target and 74.1% of the protein target. In another study, Campanella et al.[27], found infusion of 72.2% of the energy goal and 71.4% of the protein goal.

Insufficient infusion of energy and protein was also reported by Heyland et al.[28], who observed that ICU patients received 61.2% of the energy targets and 57.6% of the protein targets, and 74% of them received less than 80% of the targets set.

In this study, 72.26% difference between energy and protein prescription and infusion was similar to the results found in the literature, such as in the secondary analysis of an international database of 2270 patients, where the infusion was 61% and 57% of energy and protein prescriptions, respectively[9]. The study by Santana et al.[12] found that patients admitted to the ICU on EENT received 76% of the energy prescription and 69% of the protein prescription. Another study on the shortage of the nutritional supply of critically ill patients[14] showed that they received 63% of the total energy and protein prescribed.

In this study we observed that, on average, 68.07% of the energy requirements and 57.92% of the protein requirements had been prescribed. Similar results were found by McClave et al.[29], reporting that only 65% of the patients received adequate prescription compared to the calculated goals, and that only 51% was actually infused, and Weijs et al.[30], who found 75% energy goals and 72% protein targets infusion in severely ill patients.

Discrepancies with regard to energy and protein goals and infusions may be justified if the dietary volume changes after the onset of ENT, in severely ill and clinically unstable patients[14]. NT related complications and intolerances, such as diarrhea, vomiting, high gastric residue, among others, that were observed in 30.5% of ICU patients, hinder delivery of the programmed diet, generating an energy and protein deficit[31]. The use of enteral formulas with a caloric and protein content lower than the recommendations, contributes to the difficulty of reaching the needs defined[13]. The challenge is to attain the goals set using standard enteral formulas, which would be sufficient for only 25% of the patients[30].

In this study, the difficulty of severely ill patients to receive the nutritional goals was made clear; 89.09% did not reach a minimum of 80% of their energy target and only 2% reached a minimum of 80% of their protein target, but there was no difference between the low energy and protein supply and the severity condition of the patients, measured by the nutritional risk scores and CRP/Alb ratio. No significant difference was observed between the outcome of the patient and the infusion of the nutritional goals, evidencing that the difficulty of NT infusion in critically ill patients occurs independently of the severity of the patient's condition. Choi et al.[32] also found no significant difference in mortality nor in length of stay in the ICU among groups of patients receiving energy input lower than or equal to the defined goals.

However, several studies on the successful outcome of severely ill NT patients correlated low energy and protein supply with the worse clinical outcomes, evidencing an increase in infectious complications, days of mechanical ventilation, longer ICU stay and a higher frequency of pressure injuries[14,31,33].

According to Weijs et al.[30], defining and achieving individual energy and protein goals, reduces 50% mortality of critically ill patients; however, ensuring only the energy supply is not sufficient to obtain better clinical and nutritional outcomes, highlighting the importance of protein supply in patients receiving ENT for several days.

CONCLUSION

The administration of ENT in critically ill patients does not fulfill their actual energy and protein needs, and the high occurrence of infusion inadequacies, regarding prescription and the delivery goals established, can generate a negative nutritional balance.

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Study limitations

Some difficulties in obtaining information in the medical records and from the patients' own family members posed difficulties in carrying out this study. Because it is a prospective study, the daily loss of patients and the difficulty in obtaining information from the other teams involved in patient care made it difficult to evaluate some of the outcomes.

Authors' contribution

IBJ conceived and designed the study, collected and analyzed data, and wrote the manuscript. VALM helped to conceive the study, supervised the research, helped to write the manuscript and reviewed the manuscript. JLBA contributed to the interpretation of the data. All authors critically revised the manuscript, agree to be fully accountable for ensuring the integrity and accuracy of the work, and read and approved the final manuscript.

José IB, Leandro Merhi VA, Aquino JLB. Meta, prescrição e infusão da terapia nutricional enteral de pacientes críticos em unidade de terapia intensiva. Arq Gastroenterol. 2018,55(3):283-9.

RESUMO – Contexto – A terapia nutricional enteral (TNE) é a melhor via para a nutrição de pacientes críticos e com melhores impactos no tratamento clínico desses pacientes. **Objetivo** – Investigar a oferta energética e proteica da TNE em pacientes críticos, internados em uma unidade de terapia intensiva (UTI) de um hospital universitário. **Métodos** – Um estudo prospectivo longitudinal foi conduzido com 82 pacientes críticos internados em uma UTI, recebendo TNE. Foram estudadas variáveis antropométricas, exames laboratoriais (albumina, PCR, relação PCR/albumina), NUTRIC-score e o Nutritional Risk Screening (NRS-2002), metas energéticas e proteicas e as inadequações e complicações da TNE. A análise estatística foi realizada utilizando-se os testes Qui-quadrado ou Fischer e o teste de Wilcoxon, com nível de significancia de $P<0,05$. **Resultados** – Na avaliação pelo NUTRIC score, 48,78% apresentaram alto risco nutricional. Na relação PCR/albumina, 85,37% apresentaram alto risco de complicações. Verificou-se diferença estatisticamente significante ($P<0,0001$) para todas as comparações efetuadas entre a meta, prescrição e infusão da TNE, sendo infundido 72% do que foi prescrito tanto para caloria como para proteína. Observou-se que a diferença entre a prescrição e a infusão foi de 14,63% (±10,81) para caloria e de 14,21% (±10,5) para proteína, com diferença estatisticamente significante ($P<0,0001$). Na relação entre prescrição e infusão de calorias e proteínas, a única associação significativa foi a dos pacientes com alto risco para a relação PCR/albumina, destes; quase 94% receberam menos que 80% do volume energético e proteico prescrito ($P=0,0111$). **Conclusão** – A administração da TNE em pacientes graves, não supre suas reais necessidades energéticas e proteicas. A alta ocorrência de inadequações da infusão, comparadas à prescrição e às metas definidas podem gerar balanço nutricional negativo.

DESCRITORES – Nutrição enteral. Ingestão de energia. Proteínas na dieta. Cuidados críticos. Unidades de terapia intensiva.

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