



ORIGINAL

Analysis of the nutritional management practices in intensive care: Identification of needs for improvement[☆]



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Received 15 January 2015; accepted 27 April 2015

Available online 26 November 2015

KEYWORDS

Critically ill patient;
Enteral nutrition;
Parenteral nutrition;
Quality indicators

Abstract

Objectives: To analyze the nutritional management practices in Intensive Care (ICU) to detect the need for improvement actions. Re-evaluate the process after implementation of improvement actions.

Design: Prospective observational study in 3 phases: (1) observation; (2) analysis, proposal development and dissemination; (3) analysis of the implementation.

Setting: ICU of a hospital of high complexity.

Participants: Adult ICU forecast more than 48 h of artificial nutrition.

Primary endpoints: Parenteral nutrition (PN), enteral nutrition (EN) (type, average effective volume, complications) and average nutritional ratio.

Results: A total of 229 patients (phase 1: 110, phase 3: 119), after analyzing the initial results, were proposed: increased use and precocity of EN, increased protein intake, nutritional monitoring effectiveness and increased supplementary indication NP. The measures were broadcast at specific meetings. During phase 3 more patients received EN (55.5 vs. 78.2%, $P = .001$), with no significant difference in the start time (1.66 vs. 2.33 days), duration (6.82 vs. 10.12 days) or complications (37.7 vs. 47.3%). Use of hyperproteic diets was higher in phase 3 (0 vs. 13.01%, $P < .05$). The use of NP was similar (48.2 vs. 48.7%) with a tendency to a later onset in phase 3 (1.25 ± 1.25 vs. 2.45 ± 3.22 days). There were no significant differences in the average nutritional ratio (0.56 ± 0.28 vs. 0.61 ± 0.27 , $P = .56$).

Conclusions: The use of EN and the protein intake increased, without appreciating effects on other improvement measures. Other methods appear to be necessary for the proper implementation of improvement measures.

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[☆] Please cite this article as: Lázaro-Martín NI, Catalán-González M, García-Fuentes C, Terceros-Almanza L, Montejo-González JC. Análisis de los cambios en las prácticas de nutrición en UCI tras una intervención en el proceso. Med Intensiva. 2015;39:530–536.

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PALABRAS CLAVE

Paciente crítico;
Nutrición enteral;
Nutrición parenteral;
Indicadores
de calidad

Análisis de los cambios en las prácticas de nutrición en UCI tras una intervención en el proceso

Resumen

Objetivos: Analizar las prácticas de tratamiento nutricional en un Servicio de Medicina Intensiva (SMI) para detectar la necesidad de acciones de mejora. Reevaluar el proceso tras la implementación de las acciones de mejora.

Diseño: Estudio observacional prospectivo en 3 fases: 1) observación; 2) análisis, elaboración de propuestas y su difusión; 3) análisis de la implantación.

Ámbito: SMI de un hospital de alta complejidad.

Participantes: Adultos en UCI con previsión de nutrición artificial de más de 48 h.

Variables de interés principales: Nutrición parenteral (NP), nutrición enteral (NE) (tipo, volumen eficaz medio, complicaciones) y ratio nutricional media.

Resultados: Participaron 229 pacientes (fase 1: 110; fase 3: 119). Tras el análisis de los resultados, se propusieron: incremento en uso y precocidad de NE, incremento en aporte proteico, monitorización de la eficacia nutricional y mayor indicación de NP complementaria. Las medidas fueron difundidas en reuniones específicas. Durante la fase 3 hubo más pacientes con NE (55,5 vs. 78,2%; $p=0,001$), sin diferencia significativa en el tiempo de inicio de NE (1,66 vs. 2,33 días), duración (6,82 vs. 10,12 días) o complicaciones (37,7 vs. 47,3%).

La utilización de dietas hiperproteicas fue mayor en la fase 3 (0 vs. 13,01%; $p<0,05$). El empleo de NP fue similar (48,2 vs. 48,7%) con tendencia al inicio más tardío en la fase 3 ($1,25 \pm 1,25$ vs. $2,45 \pm 3,22$ días; $p=NS$). No hubo diferencias significativas en la ratio nutricional media ($0,56 \pm 0,28$ vs. $0,61 \pm 0,27$; $p=0,56$).

Conclusiones: Se incrementó la utilización de la NE y el aporte proteico sin apreciarse efectos sobre el resto de las medidas propuestas. Otros métodos parecen ser necesarios para la adecuada implantación de medidas de mejora.

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Introduction

Artificial nutrition forms part of the management of critically ill patients that cannot receive an oral diet. The benefits of artificial nutrition go beyond the provision of nutrients and can modify host response to aggression and patient outcome.¹ Many studies have shown denutrition in critical patients to be associated to an increase in infectious complications and a longer stay in the Intensive Care Unit (ICU).^{2,3} Consequently, one of the quality indicators in the management of critical patients is the early start of nutritional support.

Different recommendations and clinical practice guides on the metabolic and nutritional management of critical patients have been published both in Spain¹ and in other countries.⁴⁻⁶ Although the methodology followed by the different recommendations is similar, the conclusions drawn sometimes differ depending on how the same available scientific evidence is interpreted. In this regard, one of the issues subject to debate refers to the early start of nutritional treatment or the use of pharmaconutrients.⁷ This requires the physician in charge of prescribing nutritional support in critical patients to decide which recommendation is best suited to each individual patient.

In the context of routine clinical practice, a number of studies have shown that it is difficult to reach the caloric targets in the first few days of admission to the ICU. Indeed, in most cases it is not possible to exceed 60%

of the prescribed daily energy intake.^{6,8} The concomitant administration of parenteral nutrition (PN) is therefore recommended as a complement to enteral nutrition (EN) when the caloric target is not reached by day four of admission or during two consecutive days.¹ Nevertheless, the early introduction of PN is also subject to debate, with contradictory recommendations being found in the different guides.^{4,5}

The present study analyzes the nutritional treatment practices in the Department of Intensive Care Medicine (DICM) of a high-complexity hospital center with the purpose of identifying weak points and adopting measures for improvement based on the existing recommendations.

Patients and methods

A three-phase prospective observational study was carried out. The first phase involved monitoring of compliance with nutrition practices according to the nutritional support protocol used in the DICM. This protocol is based on the recommendations of the SEMICYUC-SENPE,¹ and is periodically revised in order to adapt it to the existing scientific evidence and the type of patient involved. The nutrition protocol was not modified during this phase of the study.

The second phase involved an analysis of the data obtained, with the definition of proposals for improvement and their distribution within the ICUs.

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