HYPOPROTEINEMIA AS A PREDICTOR OF MORBIDITY AND MORTALITY IN ELDERLY ICU PATIENTS

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Introduction:

Background: Critically ill ageing patients with prolonged and complicated outcome show hypermetabolism and exaggerated protein catabolism. In acute phase, they are exposed to negative energy balance resulting from insufficient nutrition.

Objective: To examine the characteristics and the prognostic value of hypoproteinemia on ICU admission and at discharge in elderly critically ill patients.

Patients and methods:

A retrospective cohort study conducted in elderly patients (Age≥ 65 years), from January 2015 to December 2016, admitted to Sahloul University Hospital medical ICU. Patients were divided into normal, moderate and severe hypoproteinemia groups according to their serum protein levels. The analysis included patients' characteristics (age, sex, comorbidities, autonomy, and first cause of admission, APACHE II and SOFA scores …), the characteristics of pulmonary infections, (the onset of pulmonary infection and pathogens incriminated). The nutritional support, the length of stay, mortality in ICU and after discharge were also analyzed.

Results :

Fourty-six patients aged 75 ± 7 years with a sex ratio F/M= 1,09 were investigated. The main causes of admission were acute respiratory failure (65,2%), septic shock (13%) and coma (10,9%). The mean APACHE II and SOFA scores were respectively 21±8 and 7±4.The most frequent diagnosis were COPD exacerbation (30,4%) , acute heart failure (15,2%) and severe pneumonia (13%).

Twenty patients (43,5%) were mechanically ventilated during 3 days [1-34], four patients had tracheostomy during 27 ± 16 days. Enteral feeding nutrition support was the most frequent method of feeding with 8 ± 10 days. At discharge, most patients still had moderate to severe hyporoteinemia even with enteral nutritional support (p=0,7).).

The highest APACHE II score was recorded in patients with moderate (21±8,6) and severe (25,6±7,2) hypoproteinemia on admission with statistical significant difference (p=0,048). Only 12 patients (26%) with moderate (n=8) to severe (n=4) hypoproteinemia contracted pulmonary infection (p=0,005) within 6 ± 4 days. The type of pathogen had no significant relation with the level of hypoproteinemia (p=0,06). However, a trend to fungal infection was observed in these patients (candida albicans =2/candida tropicalis=2/candida glabrata=1).

The mean ICU LOS was 12 ± 11 days. It was longer among patients with moderate to severe hypoproteinemia (13 days versus 11±6 days) compared to patients without hypoproteidemia (10 days), but without statistical significant difference (p=0,6). The mortality in ICU was 21,7%. Nine patients from 10 who died in ICU had moderate to severe hypoproteinemia but there was no statistical significant difference with survivors who had normal serum protein level (p=0,21). Mortality after ICU discharge was 29,6 % (n=8). The relation between patients who died post-ICU and the hypoproteinemia at discharge was statistically significant (p=0, 02).

Conclusion:

Hypoproteinemia at discharge can be a predictor of mortality in elderly patients admitted in ICU. Serum protein levels on admission can be used as an index to observe the illness severity and determine the prognosis of critically ill ageing patients.