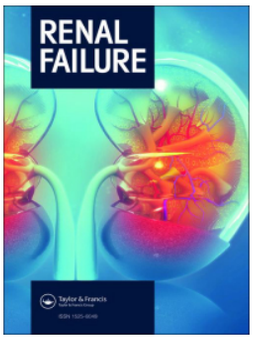

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Mariana Dias Pais & Sílvia Coelho

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LETTER TO THE EDITOR

Letter to the editor: "Association of Geriatric Nutritional Risk Index with short-term mortality in patients with severe acute kidney injury: retrospective cohort study"

Dear Editor,

We read with interest the article "Association of Geriatric Nutritional Risk Index (GNRI) with short-term mortality in patients with severe acute kidney injury (AKI)" by Xue Zhao et al. [1], recently published in this journal. This is a retrospective study that included 1,096 AKI patients undergoing continuous renal replacement therapy (CRRT) that were divided into three groups according to GNRI terciles. The authors observed that GNRI was an independent prognostic factor for 28- and 90-days all-cause mortality and concluded that it should be considered as a prognostic factor in patients with severe AKI initiating CRRT. GNRI relies on serum albumin and patients 'present body weight and ideal weight, making it easy to implement. However, there are some issues that can impact data interpretation and deserve our attention.

Malnutrition in AKI and critically ill patients has an important prognostic value, mainly if they need RRT, since it is associated with increased complications, longer hospitalization and higher mortality. It exacerbates infections, delays wound healing and contributes to ICU-associated muscle weakness [2]. The nutritional impact of RRT, including the extent of micronutrient and amino acid losses, as well as the risk of malnutrition, varies significantly depending on the RRT duration, modality, dose and nutrition supplementation performed [3]. CRRT has been identified as the RRT modality associated with the greatest nutrient losses due to its extended duration and the ability to process a higher total effluent volume typically employing membranes with greater permeability to middle molecules [3,4].

In the study of Xue Zhao et al. all patients underwent CRRT, which was an inclusion criteria. However, the authors do not provide a detailed description of CRRT, namely the modality used or the technique duration. Convection-based RRT is associated with more nutrient losses than diffusion-based RRT, primarily due to enhanced clearance of middle molecules [3]. Although CRRT is by definition a continuous technique, the total treatment time for each patient varies because of differences in the timing of periods of downtime, RRT discontinuation, or transition to intermittent RRT. Nutritional outcomes and GNRI analysis should be adjusted for these factors.

It is also noteworthy that the CRRT dose utilized (35–40 mL/kg/h) exceeded the recommended range of 20–25 mL/kg/h and the rationale behind this is not explicitly stated [4]. Although the difference in CRRT dose between groups was small in absolute value (mean 37.10 vs. 36.72 vs. 35.99 mL/kg/h), it was statistically significant ($p = 0.010$), and can still hinder data interpretation. There are not adequate studies addressing the impact of CRRT dose on nutrient losses; however, a higher CRRT dose is directly linked to a higher clearance of small and middle weight molecules and, logically, small and middle weight nutrients.

Furthermore, the authors don't discriminate whether the patients underwent individual energy and protein requirement assessments, whether nutritional supplementation was provided and whether patients received individualized diets based on the recommended practices. Supplementation of essential nutrients, such as amino acids, water-soluble vitamins and trace elements, is often recommended for patients undergoing CRRT. Patients on CRRT should receive a daily intake of 25 and 35 kcal/kg with carbohydrates and lipids accounting for 60–70% and 30–40% of calorie intake, respectively. Additionally, it is advised a protein intake ranging from 1.5 to 1.8 g/kg body weight per day [5]. The nutritional requirements and supplementation given before and during CRRT may influence malnutrition and therefore GNRI score and mortality.

In conclusion, nutritional screening of patients undergoing CRRT remains important for identifying at-risk individuals and implementing optimization strategies to improve outcomes, including mortality and the functional status of survivors. GNRI offers a potentially simple and effective screening tool. However, to fully validate its utility in patients with AKI and CRRT need, further comprehensive studies are necessary. These studies should incorporate detailed assessments of CRRT modality, treatment duration, CRRT dose, nutrition assessments and dietary interventions.

Compliance with ethical standards

This paper does not include research involving human participants and/or animals.

Informed consent

Informed consent is not applicable.

Disclosure statement

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ORCID

Mariana Dias Pais http://orcid.org/0009-0002-6774-4816
Sílvia Coelho http://orcid.org/0000-0002-8404-9172

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Mariana Dias Pais
Nephrology Department, Hospital Garcia de Orta EPE, Almada, Portugal
mariana.dias.pais@hgo.min-saude.pt

Sílvia Coelho
Intensive Care Department, Hospital Professor Doutor Fernando da Fonseca EPE, Amadora, Portugal;
Catholic Medical School, Faculdade de Medicina, Universidade Católica Portuguesa, Amadora, Portugal
silvia.coelho.nephro@gmail.com

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