

Value of prealbumin in assessment of nutrition for critically ill patients

Mehmet AĞILLI^{1*}, Şafak EKİNCİ²

¹Department of Biochemistry, Ağrı Military Hospital, Ağrı, Turkey

²Department of Orthopedics, Ağrı Military Hospital, Ağrı, Turkey

Received: 08.03.2015

Accepted/Published Online: 21.04.2015

Printed: 30.07.2015

To the Editor,

We read with great interest the article published in a recent issue of the *Turkish Journal of Medical Sciences* by Dumlu et al. entitled "A general consideration of the importance of nutrition for critically ill patients" (1). We thank Dr Dumlu and colleagues for their valuable investigation evaluating the nutritional status of intensive care unit patients retrospectively. They claimed that prealbumin levels of the patients had a tendency to increase after the provision of nutritional additives. We think that some important issues should be discussed while assessing serum prealbumin.

Prealbumin is a serum carrier protein for thyroxine and retinol. Previous studies suggested that several disorders such as type 2 diabetes mellitus, anorexia nervosa, bulimia nervosa, pneumonia, tuberculosis, acute phase response (inflammation, infection, malignancy, trauma), ankylosing spondylitis, rheumatoid arthritis, protein losing enteropathy, Kawasaki disease, *Helicobacter pylori* infection, major depression, thyroid diseases, and liver diseases could affect serum prealbumin levels (2,3). In their paper, Dumlu et al. did not mention these contributing diseases. It is not obvious whether altered

prealbumin levels were due nutrition or the course of the diseases.

Secondly, several drugs such as nonsteroidal anti-inflammatory drugs, anabolic steroids, corticosteroids, progestational agents, estrogens, and antithyroid drugs could alter serum prealbumin levels (2,4). Dietary food supplements such as omega-3 fatty acids, vitamin A, vitamin C, and zinc could also change these levels (5,6). In this respect, the authors should define whether the participants used these kinds of drugs and dietary supplements in their recent history. In addition, alcohol use is another confounder that should be described (7).

Lastly, Bruguerolle et al. showed that a circadian rhythm was detected for serum prealbumin (8). We think that it is essential to express sampling time for measurement of serum prealbumin to provide reliable data. Therefore, interpretation of results in their current form seems problematic.

In conclusion, we think that the study by Dumlu et al. contributes valuable data to the medical literature. However, clarifying these concerns would provide a clearer picture to readers.

References

1. Dumlu EG, Özdedeöglu M, Bozkurt B, Tokaç M, Yalçın A, Öztürk L, Kılıç M. A general consideration of the importance of nutrition for critically ill patients. *Turk J Med Sci* 2014; 44: 1055–1059.
2. Myron Johnson A, Merlini G, Sheldon J, Ichihara K. Clinical indications for plasma protein assays: transthyretin (prealbumin) in inflammation and malnutrition. *Clin Chem Lab Med* 2007; 45: 419–426.
3. Ni M, Wei W, Feng Q, Sun XG, Wang YC, Gu YJ, Zheng F. Transthyretin as a potential serological marker for the diagnosis of patients with early rheumatoid arthritis. *Clin Exp Rheumatol* 2013; 31: 394–399.
4. Oppenheimer JH, Wener SC, Martinez M. Effect of prednisone on thyroxine-binding proteins. *J Clin Endocr Metab* 1966; 26: 715–721.
5. Le Moullac B, Gouache P, Bleiberg-Daniel F. Regulation of hepatic transthyretin messenger RNA levels during moderate protein and food restriction in rats. *J Nutr* 1992; 122: 864–870.
6. Gharekhani A, Khatami MR, Dashti-Khavidaki S, Razeghi E, Abdollahi A, Hashemi-Nazari SS, Mansournia MA. Effects of oral supplementation with omega-3 fatty acids on nutritional state and inflammatory markers in maintenance hemodialysis patients. *J Ren Nutr* 2014; 24: 177–185.
7. Beck FK, Rosenthal TC. Prealbumin: a marker for nutritional evaluation. *Am Fam Physician* 2002; 65: 1575–1578.
8. Bruguerolle B, Bouvenot G, Arnaud C, Levy F, Mechkouri M, Bartolin R, Peronne R. Circadian rhythms of the so-called inflammation proteins in healthy subjects. *Rev Rhum Mal Osteoartic* 1986; 53: 313–316 (article in French with an abstract in English).

* Correspondence: mehmetagilli@yahoo.com

Reply to Letter to the Editor:

Ersin Gürkan DUMLU¹, Mesut ÖZDEDEOĞLU¹, Birkan BOZKURT¹, Mehmet TOKAÇ¹,
Abdussamed YALÇIN², Levent ÖZTÜRK³, Mehmet KILIÇ²

¹Department of General Surgery, Atatürk Research and Training Hospital, Ankara, Turkey

²Department of General Surgery, Faculty of Medicine, Yıldırım Beyazıt University Ankara, Turkey

³Department of Anesthesiology, Faculty of Medicine, Yıldırım Beyazıt University Ankara, Turkey

To the Editor:

We received a well prepared advice letter from Dr Ağilli and his colleagues about our study entitled "A general consideration of the importance of nutrition for critically ill patients".

First of all, we are grateful for their support and criticisms. It is a fact that these kinds of criticisms would improve our study and provide more reliable data.

We need to mention that our study was retrospective and data about patients were received from their medical records. While we were searching for nutritional assessment in the literature, we encountered many biochemical and clinical factors that contribute exact values of prealbumin. We see that Dr Ağilli mentioned most of them, like collagen tissue diseases, thyroid diseases, diabetes mellitus, and vasculitis. However, our past medical records did not meet our needs unfortunately. Although getting this kind of medical information from records should be easy, many patients' information was not clear enough to guide us during our study.

We all agree with Dr Ağilli and his colleagues regarding their evaluation about factors that affect prealbumin levels in critically ill patients. Better medical records and a more sensitive approach for medical data collection would remove these kinds of conflicts. Moreover, these kinds of support would allow us to minimize those problems in our further studies.

Furthermore, each prealbumin level was interpreted individually and was not affected by chronic diseases. Therefore, a rise in prealbumin levels after nutritional support could still be a practical way to point out the importance of proper nutrients.

Finally, we want to clarify the time of blood sampling. At our hospital, all blood samples, except urgent ones, are collected in the early morning. According to the literature, that time is suitable for blood sampling to measure prealbumin.

In conclusion, we are all grateful for this support that will make us more careful during our efforts to prepare a paper as a guide and a contribution to the medical literature.

* Correspondence: gurkandumlu@gmail.com