CRITICAL CARE

LETTER

Circulating fatty acid binding protein as a marker of intestinal failure in septic patients

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Intestinal hypoperfusion in sepsis may result in loss of gut barrier and bacterial translocation, further complicating the already severe septic state. Intestinal dysfunction in critically ill patients is underestimated and may be associated with worse prognosis. The absence of a valid marker of intestinal dysfunction in sepsis makes it difficult to include this parameter in a patient's clinical evaluation. We describe intestinal fatty acid-binding protein as a marker of intestinal failure in septic shock.

Plasma citrulline has been used as a marker of intestinal dysfunction because critically ill patients have an acute reduction of enterocyte mass with a reduction in citrulline synthesis. However, the influence of renal failure on plasma citrulline levels must be re-evaluated [1]. Circulating intestinal fatty acid binding protein (I-FABP or FABP6) has been found to be an early marker of intestinal necrosis after aortic surgery [2], after Pringle maneuver in liver surgery [3] and in acute pancreatitis [4]. The aim of this study was to evaluate the value of circulating fatty acid binding protein in the evaluation of intestinal failure in critically ill patients.

Plasma I-FABP concentrations were measured in blood samples from 72 critically ill patients admitted to the University of São Paulo Department of Emergency Medicine and from 10 healthy controls. Patients comprised 28 critically ill non-infected patients, 13 patients with severe sepsis, 24 patients with septic shock and five patients recovering from septic shock (48 hours without vasopressors). The prevalent sources of infection were pulmonary, urinary tract and catheter-related. The project was approved by the hospital ethic committee and the patients signed informed consent.

We observed a significant elevation of serum levels of I-FABP in patients with septic shock when compared with healthy controls (Figure 1).

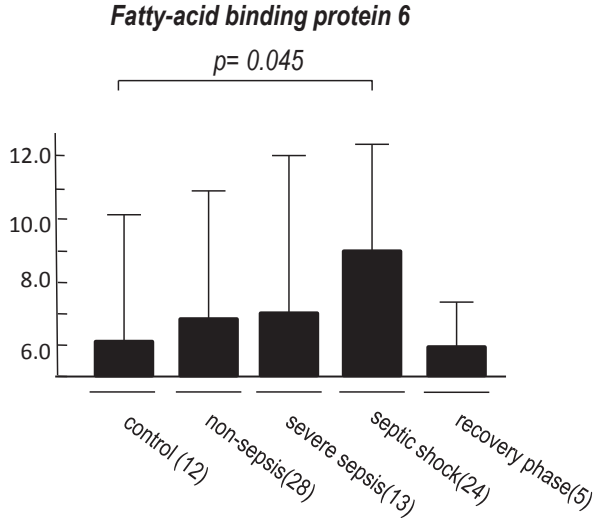

Figure 1. Intestinal fatty acid binding protein plasma levels in critically ill patients and healthy controls.

The intestinal functions are complex and comprise not only nutrient digestion and absorption but also a defensive action as an immunological and physical barrier to the external environment. Damage in this complex architecture may lead to increased intestinal permeability and bacterial translocation. Intestinal dysfunction in critically ill patients is difficult to evaluate and is probably common, despite underestimation. I-FABP is a 15 kDa protein located at the tips of intestinal mucosal villi and is usually undetected in the plasma circulation [5]. Intestinal ischemia even for a short period of time is followed by changes in plasma levels of I-FABP due to intestinal villi damage [4]. We assume that I-FABP may constitute a useful marker for acute intestinal failure in critically ill patients. Future studies in larger cohorts of critically ill patients may confirm these results and validate I-FABP as a marker of intestinal failure, integrating this system into the evaluation and treatment of critically ill septic patients.

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Abbreviations
I-FABP, intestinal fatty acid binding protein.

Competing interests
The authors declare that they have no competing interests.

Published: 5 November 2012

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doi:10.1186/cc11653
Cite this article as: Machado MCC, *et al.*: Circulating fatty acid binding protein as a marker of intestinal failure in septic patients. *Critical Care* 2012, **16:**455.