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Dear Sir,

In a recent publication Wu *et al*. reported the results of a study, conducted in 30 Sprague-Dawley rats, evaluating the impact of edaravone, in alleviating oxidative stress and apoptosis of intestinal epithelium after burns via MPAK pathway.[1] Edaravone is a drug known to be antioxidant and it is used in some Countries (mainly Japan and US) to treat patients with stroke or amyotrophic lateral sclerosis. The authors found that its use after burns increased the activities of superoxide dismutase and catalase and reduced the activities of myeloperoxidase and malondialdehyde. Considering other parameters, down or upregulated in intestine tissue of rats treated with edaravone, the authors concluded that the latter protects from burns-induced intestinal injury.[1] This occurs modulating the complexity of processes regulated by MAPK pathway.

This study recalls the central role of gut permeability and its environment. Formed by an epithelium and a lymphocyte-rich sub-epithelium, and a lumen indwelled by billions of micro-organisms (the so-called microbiome that contains bacteria, viruses, fungi and other single-celled organisms), the gut is classified as a barrier organ. Its integrity depends on the maintenance of the sealing status of the mucosa and the submucosa. The equilibrium of the system is related to the regulation of a subliminal lingering inflammation: infections, drugs, tobacco, psychological stress are but a few of the agents that can alter the sealing status mentioned above maintaining a balance.[2] All perturbations of this machinery makes a continuum of severity gradient ranking from irritable bowel syndrome[3] to the severest inflammatory bowel disease.[4] Furthermore, intestinal microbiome has become a key topic in the investigation of several extra-gastrointestinal diseases.[5]

Hence, today each study on intestinal environment, in both animal model and humans, should consider the key role of intestinal permeability and microbiome.

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