

Arterial, venous or total mesenteric ischemia/reperfusion causes different types of injury?

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It is known that I/R induces an inflammatory response deleterious to the organ involved but also to the system as a whole. Mesenteric ischemia occurs when the veins or arteries that supply blood to the intestine are obstructed. In transplants, the organ undergoes total (arterial and venous) I/R. Few available treatments exist. Greater knowledge of these conditions would aid in the search for new therapies. However, the precise nature of the response arises after venous, arterial or total ischemia is not fully understood.

A research article to be published on August 21, 2009 in the *World Journal of Gastroenterology* addresses this question. The research team led by Professor Guzman-de la Garza of the Autonomous University of Nuevo Leon, Mexico, used a rodent model of intestinal I/R to study the different inflammatory mediators that are associated with venous, arterial or total vascular occlusion. Most studies have so far concentrated on arterial ischemia, implicating molecules such as tumor necrosis factor-alpha (TNF-alpha) and adhesion molecules in the pathophysiology of the response to injury.

When these molecules, along with others, such as antithrombin III and endothelin-1, were measured after the different forms of intestinal I/R, it was clear that the patterns were different. Interestingly, venous ischemia caused greater injury than arterial ischemia, and total ischemia was associated with the most severe form of injury. Some molecules, such as

TNF-alpha and antithrombin, were nicely correlated to injury severity, while others, such as endothelin-1, were not elevated at all after total ischemia.

Given the current tendency to use drugs that selectively block some of these molecules in the treatment of [inflammatory diseases](#), this knowledge could be useful in designing specific therapies for each of the conditions associated to ischemia (venous occlusion, arterial ischemia, transplant procedures). Future studies will be needed to evaluate the clinical significance of these findings.

More information: Guzmán-de la Garza FJ, Cámara-Lemarroy CR, Alarcón-Galván G, Cordero-Pérez P, Muñoz-Espinosa LE, Fernández-Garza NE. Different patterns of intestinal response to injury fter arterial, venous or arteriovenous occlusion in rats. *World J astroenterol* 2009; 15(31): 3901-3907; www.wjgnet.com/1007-9327/15/3901.asp

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