

Effect of glutamine supplementation in patients with inflammatory bowel diseases

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Glutamine is the most abundant free amino acid in the body and commonly classified as a non-essential or a conditionally essential amino acid in catabolic conditions. The main glutamine functions within the cell include its role in nitrogen balance, maintaining the cellular redox state, regulation of glucose metabolism and acid base homeostasis. In addition, it has an important role in cell-mediated immunity and the integrity of the intestinal mucosa. Glutamine stores are depleted during severe metabolic stress (i.e., trauma, sepsis, major surgery, inflammatory bowel diseases etc). Glutamine supplementation during illness increases gut barrier, lymphocyte function and preserves lean body mass. Furthermore it causes a profound improvement in intestinal barrier function in highly stressed patients. This review will discuss effects of glutamine in patients with inflammatory bowel diseases. *In vitro*, animal and many recent human studies evaluated the role of several ways of glutamine supplementation including oral, enteral and parenteral route in patients with inflammatory bowel disease. There is contradictory evidence regarding whether glutamine can improve IBD. It was reported that glutamine enriched oral diet offer no advantage in the treatment of active Crohn's disease. In addition, enteral and parenteral glutamine administration has no biochemical or clinical benefit in patients with active IBD. In contrast, limited studies concluded that orally glutamine supplementation have favorable effect on treating IBD. Briefly we can conclude that it is inappropriate to recommend glutamine for therapeutic use in active phase of inflammatory bowel diseases. Further understanding and application of glutamine based therapeutics effects can be enhanced by future studies.