Low levels of glutathione in endoscopic biopsies of patients with Crohn's colitis: the role of malnutrition

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Abstract

Background and aims:
During active Crohn's disease, generation of free radicals is increased, and nutritional depletion is frequent. We investigated the glutathione concentration of the colonic mucosa in biopsies from patients with active Crohn's colitis depending on nutritional status.

Methods:

Endoscopic biopsies were taken in 10 well-nourished control patients, and 18 patients with active Crohn's disease (11 well-nourished, seven malnourished with a recent weight loss > 10%). Colonic biopsies were taken from healthy and inflamed mucosa and analysed for total glutathione concentration.

Results:

Mucosal glutathione concentration (nmol/mg wet tissue) was lower in patients with active colitis both in diseased and healthy mucosa as compared with controls (1.89 ± 0.39, 2.08 ± 0.4 and 6.69 ± 4.94, respectively, \( P < 0.05 \)). Mucosal glutathione was lower in healthy mucosa from malnourished versus well-nourished patients: 1.8 ± 0.2 vs 2.3 ± 0.37 (\( P = 0.02 \)).

Conclusion:

Mucosal glutathione is markedly lower in active Crohn's colitis, even in healthy mucosa; glutathione depletion tends to be more severe in malnourished patients. Glutathione depletion may be related in part to malnutrition and contribute to a prolonged evolution of disease and could be a target for pharmacological and nutritional support.

Keys words

- glutathione;
- intestines;
- Crohn's disease;
- malnutrition