
Abstract

OBJECTIVE: The objective of this study was to determine whether oral glutamine supplements can protect lymphocyte and gut barrier function in patients with advanced esophageal cancer undergoing radiochemotherapy.

SUMMARY BACKGROUND DATA: Glutamine supplements improved protein metabolism in tumor bearing rats who underwent chemotherapy and reduced the toxicity of chemotherapy through an enhancement of glutathione production in rats.

METHODS: Thirteen patients with esophageal cancer were randomly placed in either a control or a glutamine group. Glutamine was administered orally (30 g/day) at the start of radiochemotherapy and for the subsequent 28 days. All patients underwent mediastinal irradiation and chemotherapy consisting of 5-fluorouracil and cisplatin. The lymphocyte count was determined, and blast formation was assessed after stimulation with phytohemagglutinin and concanavalin A. Gut barrier function was assessed by measuring the total amount of phenolsulfonphthalein excreted in the urine after the oral administration of phenolsulfonphthalein.

RESULTS: Glutamine supplements prevented a reduction in the lymphocyte count (control: 567 +/- 96/mm3 vs. glutamine: 1007 +/- 151, p < 0.05), and blast formation of lymphocyte (phytohemagglutinin, control: 19478 +/- 2121 dpm vs. glutamine: 33860 +/- 1433, p < 0.01, concanavalin A, control: 19177 +/- 1897 dpm vs. glutamine: 29473 +/- 2302, p < 0.01), and amount of phenolsulfonphthalein excretion in the urine was greater with control than with glutamine group (control: 15.4 +/- 2.4% vs. glutamine: 7.4 +/- 1.2, p < 0.05) 7 days after the initiation of radiochemotherapy.

CONCLUSIONS: Oral glutamine supplementation protects lymphocytes and attenuates gut permeability in patients with esophageal cancer during radiochemotherapy.