
**Abstract**
Mucositis is a common toxicity of cancer chemotherapy. Glutamine appears to be the major energy source for intestinal epithelium, and animal studies have suggested that dietary supplementation with glutamine may protect the gut from both radiation and chemotherapy. Patients experiencing stomatitis after a course of chemotherapy were offered the opportunity to enter the current study if no clinical parameters precluded receiving the same chemotherapy doses during the next course of treatment. Patients received the same chemotherapy regimen as during the previous treatment but in addition received a suspension of L-glutamine, 4 gm swish and swallow twice a day, from day 1 of chemotherapy for 28 days or for 4 days past the resolution of any post-chemotherapy mucositis. Twelve patients receiving doxorubicin, 1 receiving etoposide, and 1 receiving ifosfamide, etoposide, and carboplatinum were entered into the study. The maximum grade (CALGB criteria) of mucositis decreased in 12 of 14 patients with glutamine supplementation (median score 2A vs 0.5, p < 0.001). Similarly, after glutamine supplementation, the total number of days of mucositis was decreased in 13 of 14 patients (2.7 +/- 0.8 (mean +/- SEM) vs 9.9 +/- 1.1, p > or = 0.001). Thirteen of the 14 patients felt that the mucositis was less severe with the addition of glutamine. No change in the nadir neutrophil count was noted with glutamine, and no toxicity of glutamine was observed. We conclude that oral supplementation with glutamine can significantly decrease the severity of chemotherapy-induced stomatitis, an important cause of morbidity in the treatment of patients with cancer. Glutamine supplementation in patients receiving therapy for cancer warrants further study.