Glutamine supplementation in tongue cancer: Alleviating treatment-related side effects through nutritional support – A case study

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ABSTRACT

Introduction: Malnutrition is common among tongue cancer patients who undergoing chemoradiotherapy, with prevalence of about 50% in Malaysia. A significant impaired oral intake due to pain, dysphagia, and mucositis leads to malnutrition and higher mortality. Adequate nutritional support is critical to improving treatment tolerance, clinical outcomes, and quality of life. **Case:** A 72-years-old male patient was diagnosed with squamous cell carcinoma of the tongue (P16+). He was scheduled for 6 weeks of chemoradiotherapy and had already experienced 5% weight loss 3 months prior to the treatment. During this period, he experienced some fatigue and mild dysphagia, which led to his energy and protein intake falling below 60% of the estimated requirement for over a month. Intervention: A glutamine supplement (10 g twice a day) was recommended to assist in mucosal healing and potentially reduce radiation-induced mucositis. Estimated energy needs were 30–35 kcal/kg/day and protein requirement at 1.2–1.5 g/kg/day. A high calorie and protein nutrition plan was implemented, incorporating oral nutrition supplements and a soft texture diet. Frequent small meals and a taste modified diet were emphasized to improve oral intake. **Outcomes:** Over six weeks of chemoradiotherapy, fatigue was reduced, and mucositis remained manageable (grade I) with glutamine. The patient met 80–85% of nutritional needs orally with weekly follow-ups and showed good compliance with oral nutrition supplements, unlike the 64% non-compliance in other studies. Importantly, treatment proceeded without interruption, compared to the ~10% interruption rate reported attributed to treatment-related side effects. **Conclusion:** This case highlights the pivotal role of early nutritional intervention and glutamine supplementation in managing the metabolic stress and side effects of chemoradiotherapy in tongue cancer. Individualized nutritional support with adequate calorie and protein intake, and continuous monitoring improve nutritional status and enhance treatment adherence. These findings also reinforce the essential role of dietitians.

Keywords: Glutamine, Chemoradiotherapy, Energy, Protein, Nutrition Support