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ORIGINAL ARTICLE

The palatability of milk-based and non-milk-based nutritional supplements in gastrointestinal cancer and the effect of chemotherapy

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Summary
Introduction: Oral nutritional supplements may have a role in the management of weight loss in patients with cancer. Information on preference for different types of nutritional supplements and the influence of taste changes and chemotherapy is limited.
Aims and methods: This study aimed, in patients with gastrointestinal (GI) cancer, to determine the short-term preference for commonly used nutritional supplements compared with controls, to examine whether preference is altered by chemotherapy and to assess the reproducibility of taste assessments conducted using a Visual Analogue Scale (VAS). Patients with GI cancer and controls were asked to rate the acceptability of three oral nutritional supplements on a VAS before starting chemotherapy and after 6 weeks of chemotherapy. Supplements were presented in a random order in sealed containers and subjects were blinded to the type of product. One supplement was repeated at random within each set (four cups) to assess the reproducibility of responses.
Results: Sixty patients and 63 controls were included in the study, 47 patients and 47 controls were available for follow-up. Before the start of chemotherapy, patients had a higher mean preference for Calshake (5.9 cm) than Ensure plus (5.1 cm) and Fortijuce (3.2 cm) ($P = 0.025$ and $P < 0.001$). Calshake was the most preferred supplement in the control group (mean 6.6 cm), with no significant differences in preferences between patients and controls. There were no changes in preference for patients after 6 weeks of chemotherapy. The results for the control group similarly showed no change after 6 weeks. No significant differences were found between scores assigned to the supplement repeated in the random order for any product at either timepoint.

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Discussion: Patients with GI cancers prefer the taste of fresh milk-based supplements and short-term preferences are not changed by chemotherapy. Preferences are similar between patients with GI cancers and people without cancer. A VAS is a reliable tool to assess taste preference. Further studies are needed to assess the patient compliance over longer periods and the reasons for non-compliance with prescriptions for nutritional supplements.

Introduction

It has been estimated that cancer and its treatment cause clinical malnutrition in over 40% of all cancer patients.[1,2] For many years, it has been known that the deterioration in the nutritional status of oncology patients has been associated with a decrease in immune response, poorer wound healing, a reduction in the ability to respond to treatment, reduced quality of life, and increased morbidity and mortality.[3–7]

However, adequate studies to determine whether the prevention or reversal of weight loss by nutritional support in oncology patients is beneficial are not available particularly when important clinical endpoints such as the quality of life and/or survival are considered.[3,8–10] Nevertheless Shils [11] claims that malnutrition is not 'an obligatory response' of the patient to the presence of a malignant tumour.

Bozzetti et al.[12] has suggested that reduced intake rather than significant hypermetabolism maybe responsible for weight loss in many patients. There is evidence, to suggest that nutritional status can be maintained or improved in patients with cancer using oral nutritional supplementation even in quite small amounts.[4,6,13,14]

However, the success of oral nutritional supplementation may depend upon the ability of the individual to consume sufficient quantities over an extended period of time. Since hunger is frequently not a motivating aspect for these patients[15,16] the palatability of oral calorie supplements may be important factors in ensuring successful use and long-term compliance.[15,17–19]

One factor, which may contribute to anorexia in malignancy, is the presence of unpleasant taste sensation experienced by oncology patients.[20] The tumour may be an independent cause of taste changes.[21–25] In addition reduced taste (ageusia) or altered taste (dysgeusia) are the most common side effects of chemotherapy.[21,26–30] The duration, timing and nature of ageusia and dysgeusia induced by chemotherapy is unknown.[31]

So, if nutritional intervention with sip feeds in these patients is to be undertaken, it would be helpful to understand more about taste preferences in these patients.

This study therefore had three aims. First we wished to examine the short-term preferences of patients with gastrointestinal (GI) malignancies for milk-based and non-milk-based nutritional supplements compared to controls; secondly, whether a change in supplement taste preferences occurs following a 6-week course of chemotherapy and thirdly, whether the Visual Analogue Scale (VAS) is a reliable tool to use to assess taste preferences for nutritional supplements.

Method

Subjects

Adults referred with GI cancer, who were being considered for chemotherapy, were invited to participate in this randomised double blind study. Control subjects were recruited from friends or relatives of the patients. When a patient was unaccompanied, members of staff from the hospital were asked to take part as controls. Subjects were excluded if they were unwilling or unable to give informed consent to participate in the trial, had a clinical condition precluding oral nutrition, if they were unable to tolerate milk or if they had received chemotherapy within the past 5 years. This study was approved by the research and ethics committees of the Royal Marsden Hospital.

Assessments

Prescribable sip feeds can be categorised into three main varieties: UHT milk-based, fruit juice-based and fresh milk-based. Within each of these categories a large variety of sip feeds are available. This study requested subjects to score the palatability of one sip feed from each category. These included, strawberry flavoured Ensure Plus—a UHT milk-based supplement (Abbot Laboratories Ltd, Maidenhead, Berks, UK), forest fruit flavoured Fortijuice—a fruit juice-based supplement (Nutricia Clinical Care, Trowbridge, Wiltshire, UK) and strawberry flavoured Calshake—a fresh milk-based supplement (Fresenius Kabi Ltd, Runcorn, Cheshire, UK).