Nutritional support for head and neck cancer patients receiving radiotherapy: a systematic review

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CRD summary
The review concluded that trials supporting the use of interventions to optimise nutrition in head and neck cancer patients receiving radiotherapy were limited in both quantity and quality. These conclusions fairly reflect the limited evidence available and are likely to be reliable.

Authors' objectives
To investigate which interventions aimed at optimising nutrition were of most benefit to squamous cell head and neck cancer patients receiving radiotherapy or concurrent chemotherapy.

Searching
MEDLINE (1966 to December 2007), EMBASE, and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched; search terms were reported. The American Society of Clinical Oncology and European Society of Medical Oncology abstract databases were also searched. References lists of eligible studies and relevant reviews were examined.

Study selection
Randomised controlled trials (RCTs) of nutritional support interventions for adults with squamous cell head and neck cancer receiving radiotherapy or concurrent chemotherapy as a component of definitive treatment were eligible for inclusion. Systematic reviews and guidelines were also eligible. Studies of interventions aimed at prophylaxis of acute mucositis, perioperative interventions, or nutritional interventions in a palliative setting, were excluded. Relevant outcomes included weight loss, nutritional status, quality of life, and adverse events.

In the included trials, the mean age of patients ranged from 49 to 66 years; most were male (range 58 to 85%, where reported). The interventions studied were dietary counselling and/or nutritional supplements, drugs, or prophylactic tube feeding. Over 95% of patients received radiotherapy without concurrent chemotherapy. The drug trials were placebo-controlled. Regular diets were also commonly used as a comparator. Trial durations ranged from six to 12 weeks.

Two reviewers selected studies, with discrepancies resolved by consensus.

Assessment of study quality
Trial quality was evaluated by assessing methods of randomisation, blinding, completeness of follow-up, and use of intention-to-treat analysis.

It appeared that assessments were made by one reviewer and checked independently by another.

Data extraction
Data were extracted to calculate mean differences and 95% confidence intervals (CI). Trial authors were contacted when clarification of data was necessary.

Data were extracted by one reviewer and checked independently by another.

Methods of synthesis
Trials were either pooled using a random-effects model meta-analysis (with heterogeneity assessed using $I^2$) or combined in a narrative synthesis, grouped by intervention.
Results of the review

Ten RCTs (n=585 patients, 512 of which had head and neck cancer, range 23 to 129 patients) were included in the review. Three RCTs were double-blinded, two described methods used to randomise patients, three reported groups being similar at baseline, and four used an intention-to-treat analysis.

Four of five RCTs of dietary counselling and/or nutritional supplements showed reduced weight loss compared with control treatments.

One RCT suggested prophylactic tube feeding reduced weight loss compared with patients receiving oral nutrition.

Three trials that compared megestrol acetate with placebo were pooled using meta-analysis. Megestrol acetate resulted in a weight loss reduction of 2.68kg (95% CI -1.50 to -3.87, I²=0%).

Authors’ conclusions

Data from RCTs supporting the use of interventions to optimise nutrition in head and neck cancer patients receiving radiotherapy were limited in both quantity and quality.

CRD commentary

The review addressed a clear question, supported by appropriate inclusion criteria. Searches were made for both published and unpublished studies, although it was unclear whether there were any language restrictions. Methods were used to minimise the risk of reviewer error and bias affecting the review processes.

A basic assessment of study quality was made and was used when interpreting the review results. Comprehensive study details were provided and appropriate methods were used to synthesise data.

The authors’ conclusions fairly reflect the limited data available and are likely to be reliable.

Implications of the review for practice and research

Practice: The authors stated that megestrol acetate (of between 120 and 800mg/day) may be a useful adjunct to reduce weight loss and maintain nutritional status in patients receiving radiotherapy, who are not receiving enteral tube feeding.

Research: The authors stated a need for studies investigating the optimal counselling techniques and methods and types of nutritional supplementation, and the use and type of tube used in enteral feeding. The benefits of megestrol acetate should be confirmed in a large RCT. Studies are also needed of patients receiving chemoradiotherapy, and using other types of drug such as anabolic steroids.

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