The effect of early oral feeding compared to standard oral feeding following total laryngectomy: a systematic review

Stephanie Martin B.App.Sc (Speech Path) - Dr Zoe Jordan (BSc, MSc, PhD) - Professor A. Simon Carney (BSc(Hons), MBChB, FRCS, FRACS, MD)

1 Masters of Clinical Science Candidate, The Joanna Briggs Institute, Faculty of Health Sciences, Adelaide University, SA 5005 Adelaide
2 Director, Communication Science, The Joanna Briggs Institute, Faculty of Health Sciences, Adelaide University, SA 5005 Adelaide
3 Professor of Otolaryngology - Head & Neck Surgery, Flinders University, SA 5042 Adelaide

Review Question

The objective of this review is to identify and synthesise the best available evidence on effects of early feeding compared to standard oral feeding following total laryngectomy on the incidence of pharyngocutaneous fistula and hospital length of stay.

More specifically, the review questions are:
- What is the effect of early oral feeding following total laryngectomy on the incidence of post-operative pharyngocutaneous fistula? What is the effect of early oral feeding following total laryngectomy on hospital length of stay?

Background

Total laryngectomy is a surgical procedure which involves removal of the larynx, along with the epiglottis, thyroid cartilage, a number of tracheal rings and the hyoid bone. There is no longer any connection between the upper airway and the trachea. 1 The person permanently breathes through a stoma at the base of the neck.

Figure 1: pre and post total laryngectomy

Total laryngectomy is performed predominantly for oncological reasons 2 and results in major anatomical and physiological changes. 3

Pharyngocutaneous fistula, a pathway between the pharynx and cutaneous skin, 4,5 is reported to be the most common early complication after total laryngectomy with significantly increased morbidity and mortality rates as well as increased resource utilisation and patient anxiety. 6,7

Post-operatively, the development of a pharyngocutaneous fistula can double the length of an average patient hospital stay. 8,9

There is a historical assumption that delaying oral feeding following total laryngectomy is helpful in reducing the formation of pharyngocutaneous fistula. 10 Leading clinical practice guidelines 4 recommend commencing oral intake on day 7 post-operatively for non-irradiated patients and day 14 for those that have had radiotherapy pre-operatively.

There are challenges to this recommended practice, with early oral feeding being considered within the literature and within clinical practice. 10,11

This systematic review is necessary to rigorously examine the relationship between early oral feeding and pharyngocutaneous fistula following total laryngectomy. The outcomes will contribute to and expand on the knowledge of post-operative care for this patient group as well as direct possible future primary research gaps.

Inclusion Criteria

Types of participants
This review will consider studies that include adults (18 years old or older) regardless of gender and comorbidities who have commenced early oral feeding following total laryngectomy surgery. Studies focussing on enteral feeding will be excluded from this review.

Types of interventions
This review will consider studies that evaluate oral feeding following total laryngectomy. The intervention of interest is early oral feeding defined as oral intake in the first 6 days post-operatively. The comparator is standard care and is defined as oral intake from day 7 onwards. For the purpose of this review, oral feeding will include either food or liquid taken by mouth regardless of quantity or consistency. Oral feeding may be taken in conjunction with non oral nutrition.

Types of outcomes
This review will consider studies that include the following outcome measure: incidence of pharyngocutaneous fistula. In the context of this review, the term incidence refers to the number of new cases of pharyngocutaneous fistula within 6 months following total laryngectomy surgery. A further outcome may include but will not be limited to hospital length of stay measured as days of hospital inpatient admission.

Types of studies
This review will consider both experimental and epidemiological study designs including randomised controlled trials, non-randomised controlled trials, quasi-experimental, before and after studies, prospective and retrospective cohort studies, and analytical cross sectional studies for inclusion.

In the absence of these types of studies, this review will also consider descriptive epidemiological study designs including case series, individual case reports and descriptive cross sectional studies for inclusion in an effort to inform the effectiveness of this intervention.

Methodological quality

Papers selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardised critical appraisal instruments from the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument. Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

Data collection

Data will be extracted from papers included in the review using the standardised data extraction tool from JBI-MASTARI. The data extracted will include specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives.

Data synthesis

Quantitative data will, where possible be pooled in statistical meta-analysis using JBI-MASTARI. All results will be subject to double data entry. Effect sizes expressed as odds ratio (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence intervals will be calculated for analysis.

Heterogeneity will be assessed statistically using the standard Chi-square and also explored using subgroup analyses based on the different study designs included in this review. Where statistical pooling is not possible the findings will be presented in narrative form including tables and figures to aid in data presentation where appropriate.

Acknowledgments

The author would like to acknowledge the following individuals for contributing their ideas and support for conducting this project: Dr Zoe Jordan and Professor Simon Carney.

References

1. [References text]

Figure 1: pre and post total laryngectomy

Figure 2: Total laryngectomy surgery

Figure 3: Pharyngocutaneous fistula

Figure 4: Oral feeding

Reviewers

Dr Zoe Jordan (BSc, MSc, PhD) - Head & Neck Surgery, Flinders University, SA 5042 Adelaide

Professor A. Simon Carney. (BSc(Hons), MBChB, FRCS, FRACS, MD) - Department of Head and Neck Surgery, The University of Adelaide, SA 5005 Adelaide

The author would like to acknowledge the following individuals for contributing their ideas and support for conducting this study: Dr Zoe Jordan and Professor Simon Carney.