Speech Pathology in Radiation Oncology: Evaluation of Increased Intervention for Head and Neck Cancer

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Learning Objectives

An evaluation of increased speech pathology input for patients undergoing chemoradiotherapy for the treatment of head and neck cancer.
Introduction

Patients undergoing chemotherapy, radiation therapy, or a combination of both of these for the treatment of head and neck cancer are at high risk for both short- and long-term adverse swallowing effects. These include odynophagia, mucositis, taste changes, xerostomia, aspiration, and the long-term effects of fibrosis. There is increasing evidence within the literature that patients will have better long-term swallowing outcomes if they are able to maintain oral feeding right throughout their treatment. There is also emerging evidence supporting the use of swallowing exercises to help maintain function and improve quality of life.

Previously, patients at Royal North Shore Hospital were seen by speech pathology once prior to commencing treatment, and then only as problems arose. An increased speech pathology service was commenced in 2011, in light of the above evidence.

Aims of the service

The new speech pathology service aimed to review patients weekly or fortnightly during treatment, based on the following prioritisation.

**High risk patients (seen weekly during treatment):**
- Patients receiving concurrent or induction chemotherapy
- Patients with cancers of the hypopharynx
- Patients with pre-existing dysphagia
- Patients with pre-existing severe malnutrition

**Medium risk patients (seen fortnightly during treatment):**
- Patients with prophylactic PEG
- Patients with pre-morbid moderate malnutrition
- Patients with any changes to voice or speech

**Low risk patients (seen only on request):**
- All other head and neck cancer patients undergoing radiotherapy

Patients were also seen once prior to treatment commencing, when they were given education and swallowing exercises. The service aimed to encourage patients to carry out these exercises and to continue with oral intake. The speech pathologist liaised
closely with medical, nursing and dietetics staff to address the issues which often lead patients to ceasing oral intake (e.g. pain management)

**Evaluation of the service**

The service was evaluated using two distinct end-points.

*Endpoint one:*

20 consecutive patients who had completed radiotherapy for head and neck cancer were given a phone survey, questioning them about satisfaction with the speech pathology service. The survey also determined how well the patients had managed to maintain oral intake during treatment. Half of the patients surveyed completed treatment prior to the new speech pathology service starting (group 1), and the other half received the new service (group 2). Results between the two groups were compared. These patients were categorised thus:

<table>
<thead>
<tr>
<th></th>
<th>High risk</th>
<th>Medium risk</th>
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<tbody>
<tr>
<td><strong>Group 1</strong></td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>9</td>
<td>1</td>
</tr>
</tbody>
</table>

*Endpoint two:*

Hospital admissions for all head and neck cancer patients who underwent radiotherapy at RNSH between September 2010 and December 2011 were also analysed. All admissions which occurred during or up to one week post-treatment were counted. Patients were excluded if they underwent palliative treatment only. Patients who underwent adjuvant surgery or chemotherapy were included. Admission rates and length of stay was compared between those patients who received increased SP input and those that did not.

**Results**

*Endpoint one:*

In group 1, 2 of the 10 patients reported difficulties with eating and drinking before their treatment commenced, compared to 3 of the 10 in group 2. All patients reported difficulty eating and drinking during their treatment, with the reasons for this outlined in Fig. 1 on page 6.
Fig. 2 on page 6 outlines the differences between the two groups in terms of oral intake during treatment. It is of particular note that half of all patients in group 1 stopped eating and drinking altogether during treatment, whilst all patients in group 2 maintained oral intake to some extent during treatment.

60% of patients in group 2 also reported carrying out the prescribed swallowing exercises daily, compared to only 30% of group 1 patients.

Endpoint two:

92 patients received radiation therapy with curative intent for head and neck cancer during the specified time period. 43 of these received their treatment prior to the speech pathology service commencing (group A) and 49 received their treatment after (group B). In group A, 12 patients (28%) were admitted, with a combined length of stay of 118 days. This calculates to be an average of 2.74 days admission per patient across the whole group. 12 patients from group B were also admitted, representing 24% of the group. These patients had a combined length of stay of 84 days, or 1.71 days admission per patient across the group Fig. 3 on page 7.

Discussion

This study is limited by its small sample size; however the results indicate that the new radiation oncology speech pathology service has achieved positive results for patients. Most notably, significantly more patients who received the service continued to eat and drink throughout their treatment, indicating that the speech pathologist is well-placed to help patients overcome barriers to oral intake. Significantly more patients within this group also carried out daily swallowing exercises during their treatment.

Also of note is the reduction in hospital admissions for those patients who received the speech pathology service. This suggests that the speech pathologist, in helping to identify and assist in the management of problems with pain and nutrition before they escalate, can impact a patients' LOS and hence assist in reducing the significant costs related to hospital admission.
Fig. 1: Reasons reported for difficulty with oral intake. Group 1 - patients who did not receive speech pathology input. Group 2 - patients who received speech pathology input.

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Fig. 2: Oral intake during treatment. Group 1 - patients who did not receive speech pathology input. Group 2 - patients who received speech pathology input.

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Fig. 3: Average length of hospital stay (in days) during treatment. Group A - patients who did not receive speech pathology input, group B - patients who did receive speech pathology input.

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References


