Provision of physiotherapy rehabilitation following neck dissection in the UK

Robinson, M; Ward, L; Mehanna, H; Paleri, V; Winter, S C

DOI:
10.1017/S0022215118000671

PROVISION OF PHYSIOTHERAPY REHABILITATION FOLLOWING NECK DISSECTION IN THE UK.

Dr Michael Robinson MBBS[1]
Dr Lesley Ward PhD[2]
Prof. Hisham Mehanna FRCS[3]
Prof. Vinidh Paleri FRCS[4]
Mr Stuart C Winter FRCS[1]

1)Department of Otolaryngology, Oxford University Hospitals NHS Foundation Trust, Headley Way, Headington, Oxford, UK
2) Nuffield Department of Orthopaedics, Rheumatology & Musculoskeletal Sciences, University of Oxford.
3) Institute of Head and Neck Studies and Education, University of Birmingham
4)Department of Head and Neck Surgery, University of Newcastle.

Author for correspondence: Mr Stuart Winter, Department of Head and Neck Surgery, Oxford University Hospitals NHS Foundation Trust, Churchill Hospital, Headington, Oxford, UK
stuart.winter@ouh.nhs.uk Phone number [redacted] (fax machines no longer used in Oxford University Hospitals).

ABSTRACT

Introduction

Neck dissection is associated with post-operative shoulder dysfunction in a substantial number of patients, affecting quality of life and return to work. There is no current UK national practice known regarding physiotherapy post neck dissection.

Methods

Nine regional centres were surveyed to determine their standard physiotherapy practice pre and post-neck dissection, and to determine pre-emptive physiotherapy for any patients.

Results

89% of centres never arranged any pre-emptive physiotherapy for any patients. 33% of centres offered routine inpatient physiotherapy after surgery. No centres offered outpatient physiotherapy for all patients regardless of symptoms. 78% offered physiotherapy for patients with any symptoms, with 11% for those with severe dysfunction only. 11% never offered physiotherapy for any dysfunction.

Discussion

Provision of physiotherapy is most commonly reactive rather than proactive, and usually driven by patient request. There is little evidence of pre-arranged physiotherapy for patients to treat or prevent shoulder dysfunction in the UK.

MeSH keywords: neck dissection, physical therapy modalities, otolaryngology, malignancy

Introduction

Cancers of the head and neck affect 9,000 people per year in the UK and 700,000 worldwide.[1,2] Although geographical variation exists in incidence patterns for the various primary sites, cancers of the oropharynx are the most common in the UK. Oropharyngeal malignancies have become more common over the past 20 years, widely believed to be due to human papillomavirus. Oral cancers have also increased 30% over this time, and five-year survival rates have significantly improved.[1,2] Those affected and treated for these cancers are younger and more active than past generations of survivors. Neck dissections are commonly performed in the management of this pathology.

Post-operative complications are common following neck dissection surgery. Early complications, often presenting during the inpatient stage, include shoulder pain, infection and thrombosis.[3] Additionally, late complications such as shoulder dysfunction may not present until three months post-operatively.

Shoulder dysfunction is the most reported physical complication following neck dissection surgery, affecting 50-100% of patients after neck dissection.[4] It presents with impaired joint mobility, reduced strength, and pain, and is associated with the development of further pathologies including adhesive capsulitis (frozen shoulder), which has been shown to be present in up to 40% of patients.[5]

An estimated 30% of patients continue to experience shoulder dysfunction and pain twelve months after surgery.[3] The sequelae of these complications include reduced ability to work and reduced quality of life. Up to 46% of patients are unable to return to work post-operatively because of shoulder dysfunction alone.[4] Due to the increasing numbers of head and neck

cancers in the younger age group, facilitation of return to work in survivors is increasingly important. Additionally, psychosocial outcomes of fatigue and depressed mood affect up to 100% and 35% of patients respectively post-operatively, substantially impacting their quality of life.[6]

There are no conclusive current national standards or guidelines for best practice management of shoulder dysfunction following head and neck cancers. The National Institute for Health and Care Excellence (NICE) produced guidelines in 2016 for upper aerodigestive tract cancer in those aged 16 and over.[7] Whilst the guideline recommended progressive resistance training be considered for people with impaired shoulder function as soon as possible after neck dissection, national evidence gathering meetings, supported by the relevant stakeholders, have failed to identify a professional consensus for this problem.[8] Additionally, no current national standard exists for best practice in the delivery of physiotherapy for the prevention or rehabilitation of shoulder dysfunction following neck dissection.

The purpose of this survey study is to determine how UK head and neck cancer centres currently manage shoulder dysfunction in patients following neck dissection surgery. Results of the survey will be used to aid development of the content and delivery of a rehabilitation intervention for post-operative patients.

Materials and methods

Nine regional centres were selected as part of the survey. These centres were selected due to the high volume of neck dissections they perform.[9] The survey was sent to key members of the MDT and they were asked to comment on unit practice. The survey was completed by seven ENT surgeons and two regional extra scope practitioner inpatient physiotherapists. There is currently no national database for extended scope practitioner physiotherapists involved with head and neck cancer rehabilitation and therefore these centres represent a large volume of collective UK experience.

The 14-item survey included questions on current provision of inpatient and outpatient options for post-operative rehabilitation, types of patients referred for physiotherapy, and the route of referral – see *Table I*. The survey was delivered via SurveyMonkey, and accessed via a link in the invitation email.

Results and analysis

Demographics

All nine centres completed and responded to our survey (100% response rate). Respondents represented seven geographically and socio-economically diverse regions of the UK, including the North East, North West, West Midlands, London, South East, and South West, Yorkshire and the Humber. The estimated number of neck dissections performed annually in each region ranged from 70-400 (mean 152, SD 114).

Pre-emptive physiotherapy

In light of the sequelae known for neck dissection, centres were asked whether they pre-emptively arranged courses of physiotherapy for patients to undergo after their dissection for shoulder dysfunction. Of the nine centres, eight (89%) never arranged pre-emptive physiotherapy for their patients, and one (11%) arranged pre-emptive physiotherapy for select patients only.

Post-operative inpatient physiotherapy

Three of the nine centres (33%) indicated patients were routinely seen for shoulder physiotherapy when an inpatient on the ward, regardless of symptoms. In five centres (56%), only inpatients with symptoms of shoulder dysfunction were seen, and in one centre (11%), patients were never seen by physiotherapy relating to shoulder dysfunction.

Eight of the centres (89%) had ward physiotherapists employed by their trust; the remaining centre (11%) referred patients to their general physiotherapy department. Of the ward physiotherapists, only two centres (22%) had specialist head and neck or cancer physiotherapists.

Six centres (66%) routinely gave written information to all patients as an aid to recovery, one centre (11%) only gave written information to selected patients, and two centres (22%) never dispensed any literature.

Outpatient follow-up

During post-operative outpatient follow-up, six respondents (66%) routinely asked their patients about symptoms of shoulder dysfunction (including both extra scope physiotherapists), two (22%) sometimes asked patients, and one (11%) rarely asked patients.

No centres offered outpatient physiotherapy for all patients regardless of symptoms. Seven centres (78%) offered physiotherapy for patients with any symptom of shoulder dysfunction, one centre (11%) for those with severe dysfunction only, and one centre (11%) never offered physiotherapy for any dysfunction.

Of the eight centres which did refer for physiotherapy, two (25%) detailed they had departmental physiotherapy services which saw patients they referred, and six (75%) referred to general hospital physiotherapy.

All nine respondents, including the extra scope inpatient physiotherapists, were unaware of the type of physiotherapy or course received if they were offered it in the outpatient setting.

An overview of services offered is summarised in *Table II.*

Discussion

Synopsis of new findings

Findings from this national survey suggest that despite national guidelines and the recognition of the potential significant morbidity of shoulder dysfunction following neck dissection, rehabilitation options are limited in the UK. The majority of symptomatic inpatients have services available to them, and both surgeons and physiotherapists recognised the importance of enquiring about dysfunction and referring for therapy at outpatient follow up. However, nationally there appears to be a proportion of patients who do not have access to these services both as inpatients or outpatients, based on respondents indicating only those with severe dysfunction were treated at their centres. Survey responses also indicate that none of the represented centres routinely offered or arranged rehabilitative outpatient physiotherapy, either pre-emptively or at follow up.

Strengths of the study

We believe that our purposive sample of regional centres performing high-volume neck dissections is representative of UK practice, as our clinical experience indicates that provision of physiotherapy services are relatively homogeneous across UK regions. In addition to providing new data on national practice in this area, results from this survey highlight areas for future research and management guidance for this complex pathology.

We recognise this study does not cover all UK centres; however, following the 2004 'Improving Outcomes' NICE guidelines[10], more centralisation of head and neck surgical services has taken

place across the UK due to NICE suggesting that patients should only be treated in centres with at least 100 new cancers per year. Despite this it is recognised that parts of their treatment, such as a neck dissection may be carried out in smaller units. The centres surveyed as major head and neck units in the UK are best placed to provide appropriate allied health care expertise, such as physiotherapists with experience in treating such cases. Indeed the results from this survey may in fact overestimate the services patients receive in smaller units. It is also recognized that within centers there may be some practice variability, however the lack of unit agreed protocols highlights the need for further work in this area.

Comparisons with other studies

There is no widely available data in the UK on the national practice of shoulder rehabilitation post neck dissection. This study represents the first published data of this nature.

Clinical applicability of the study

There is no current national standard practice or widely accepted guidelines for management of shoulder dysfunction in the UK. Furthermore, there is little evidence regarding the effectiveness of pre-emptive or reactive physiotherapy for this pathology. This study adds to the literature regarding the national practice for rehabilitation of shoulder dysfunction, by demonstrating the absence of standardised practice. These findings highlight the requirement for further research in this area on this matter, to determine effective treatment pathways, and facilitate the development of best practice guidelines for this common and debilitating post-operative condition

Conclusion

There remains no national standard practice or sufficient evidence regarding rehabilitation of shoulder dysfunction as a result of neck dissection for head and neck cancer. Nationally, no patients have rehabilitation organised before surgery, and rehabilitation for all patients is lacking post-operatively. Research into best practice for rehabilitation of this common post-operative condition is required to improve patient outcomes following neck dissection for this increasingly common form of cancer.

Ethical Standards

No ethical approval was required for the conduct of this survey, as it involved no patient contact, no patient, case, or cohort data, and no implementation of change to management.

Financial Support

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

References

1. National Cancer Inteligence Unit. Profile of Head and Neck Cancers in England: Incidence, Mortality and Survival 2010
2. Schache AG, Powell NG, Cuschieri KS, Robinson M, Leary S, Mehanna H, et al. HPV-Related Oropharynx Cancer in the United Kingdom: An Evolution in the Understanding of Disease Etiology. *Cancer Res* 2016;**76**:6598-606
3. Guru K, Manoor UK, Supe SS. A comprehensive review of head and neck cancer rehabilitation: physical therapy perspectives. *Indian J Palliat Care* 2012;**18**:87-97
4. Shone GR, Yardley MP. An audit into the incidence of handicap after unilateral radical neck dissection. *J Laryngol Otol* 1991;**105**:760-2
5. Rogers SN, Ferlito A, Pellitteri PK, Shaha AR, Rinaldo A. Quality of life following neck dissections. *Acta Otolaryngol* 2004;**124**:231-6
6. Rieke K, Boilesen E, Lydiatt W, Schmid KK, Houfek J, Watanabe-Galloway S. Population-based retrospective study to investigate preexisting and new depression diagnosis among head and neck cancer patients. *Cancer Epidemiology* 2016;**43**:42-8
7. National Institute for Health and Care Excellence (NICE). Cancer of the upper aerodigestive tract: assessment and management in people aged 16 and over. [NG36] 2016
8. Robson AK, Paleri V. Role of dietetics, psychology, dentistry and physiotherapy in head and neck cancer treatment: the evidence. *Clin Otolaryngol* 2013;**38**:66-8
9. The Health and Social Care Information Centre. *National Head and Neck Cancer Audit: Tenth Annual Report (DAHNO)* 2010
10. National Institute for Health and Care Excellence. Improving outcomes in head and neck cancers - Cancer service guideline [CSG6]. 2004 Reviewed 2015

Summary

- Neck dissection is associated with post-operative shoulder dysfunction in a substantial number of patients, affecting quality of life and return to work.
- NICE guidelines suggest early intervention to prevent shoulder dysfunction but are unclear on how and when this should occur.
- Findings from this national survey indicate that rehabilitation in the form of physiotherapy is not routinely available to all patients, either in an inpatient or outpatient setting.
- Provision of physiotherapy is most commonly reactive rather than proactive, and usually driven by patient request.
- There is little evidence of pre-arranged physiotherapy for patients to treat or prevent shoulder dysfunction in the UK.

Table I - Questions included in questionnaire

Number	Question
1	Are you part of a head and neck multidisciplinary team?
2	What is your role within the head and neck / otolaryngology department?
3	Approximately how many neck dissections would you estimate are performed in your unit each year?
4	What region does your department operate in?
5	Pre-operative: Does your department pre-emptively arrange post-surgery physiotherapy for patients before they have their surgery?
6	If "yes" above please detail
7	Inpatient practice post-surgery: Do you have a physiotherapist who can see inpatients after neck dissection surgery?
8	Inpatient practice post-surgery: After patients have had a neck dissection are they seen by a physiotherapist for their shoulder during their inpatient stay?
9	Inpatient practice post-surgery: Are patients given written information after a neck dissection to aid recovery?
10	Inpatient practice post-surgery: if you refer or arrange physiotherapy for a patient do you know what course of therapy they receive?
11	Outpatient care: As part of patient follow up do you ask about shoulder function?
12	Outpatient care: Do you offer physiotherapy services or refer patients with shoulder dysfunction following surgery?
13	Outpatient care: If you offer or refer patients for physiotherapy, how is this done?
14	Outpatient care: if you refer or arrange physiotherapy for a patient do you know what course of therapy they receive?

Table II - Services offered to patients

Pre-emptive planning	
Patients offered services	%
All	0
Some	11
None	89

Inpatient physiotherapy	
Patients offered services	%
All	33
Symptomatic	56
None	11

Outpatient physiotherapy	
Patients offered services	%
All	0
Any symptoms	78
Severe dysfunction	11
None	11