

## Lymphedema in Head and Neck Cancer Patients

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## Financial Disclosure

- I have no significant relationships to disclose

## Objectives

- To describe the prevalence of secondary lymphedema in patients with head and neck cancer
- To explain the associations between lymphedema type/severity and symptoms, functional status, and quality of life
- To list the possible risk factors contributing to the presence of secondary lymphedema in patients with head and neck cancer

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## Head and Neck Cancer

- Over half a million head and neck cancer survivors in the United States
- Treatment includes
  - Surgery
  - Radiation therapy
  - Chemotherapy
  - Combined treatment modality

## Lymphedema in Head and Neck Cancer Patients

- Cancer/treatment disrupts lymphatic structures
- High risk for developing lymphedema
- Lymphedema – Accumulation of lymphatic fluid and proteins in the interstitial spaces

## Lymphedema in Head and Neck Cancer Patients

- Manifestations
  - Type/Sites: External, internal, or both
  - Stages: From swelling (soft/tender) to fibrotic mass (rough/dense)

## Lymphedema in Head and Neck Cancer Patients

- A limited number of studies available
- Many gaps:
  - Incidence and prevalence
  - Impact
  - Risk factors
  - Measurement
  - Mechanisms
  - Treatment
  - Economic impact

## Methodology

- Design: Descriptive, correlational, cross-sectional
- Setting: Vanderbilt-Ingram Cancer Center, Nashville, TN
- Sample: Convenience sample of 103 head and neck cancer patients
- Statistics: Descriptive, linear regression, and logistic regression

## Inclusion/Exclusion Criteria



### Inclusion Criteria

- ≥ 18 years of age
- > 3 months after completion of head and neck cancer treatment
- No current evidence of cancer

### Exclusion Criteria

- Undergoing chemotherapy or radiation therapy
- Metastatic cancer or any other active cancer
- Inability to understand the informed consent

## Measures (Lymphedema)

Concepts Measured	Measurement Instruments	Severity of Lymphedema	Validity	Reliability	Data Collection Methods
External Lymphedema	Foldi's Scale	Stage: 0 to III	Content	--	External Examination
Internal Lymphedema	Patterson's Scale	Degree: None (0) to Severe (III)	Content	Intra-rater (.84) Inter-rater (.54)	Endoscopic Examination
Combined Lymphedema	Foldi's Scale & Patterson's Scale	--	--	--	--

## Measures (Symptoms)

Concepts Measured	Variables Measured	Scale	alpha (Literature)	alpha (This study)
Symptoms	Physical Symptoms	Vanderbilt Head and Neck Symptom Survey (VHNSS) (27 items)	.94	.94
	Psychological Symptoms	Hospital Anxiety and Depression Scale (HADS) (14 items)	.68 - .93 (Anxiety) .67 - .90 (Depression)	.88 (Anxiety) .83 (Depression)
		Body Image Scale (BIS) (10 items)	.93	.92

## Measures (Function)

- Hearing
  - Whispered Voice Test
  - Tuning Fork Test (Weber and Rinne)
- Mouth Range of Motion
  - Trismus NCI Grading Criteria
- Neck Range of Motion
  - Cervical Range of Motion (CROM) Device

## Measures (Quality of Life)

Concepts Measured	Variables Measured	Measurement Instruments	alpha (Literature)	alpha (This study)
Quality of Life	Quality of Life	Functional Assessment Cancer Therapy – Head & Neck (FACT – HN) (38 Items)	.59 - .79	.61 - .86

## Findings

## Sample Characteristics (N=103)

### Demographic Characteristics

- Mean age 59.8 years
- 69% male
- 89% Caucasian

### Disease

- 44% oropharyngeal carcinoma
- 93% squamous cell carcinoma
- 81% locally advanced disease (Stage III/IV)

## Prevalence (n=81)

Type of Lymphedema	Frequency (%)
No Lymphedema	20 (24.7)
Some Form of Lymphedema	61 (75.3)
<b>Total</b>	<b>81 (100)</b>
External Lymphedema Only	6 (9.8)
Internal Lymphedema Only	24 (39.4)
Combined Lymphedema	31 (50.8)

*Note:* 81 participants completed both endoscopic and skin examination. 22 only completed physical examination and 50% (n=11) had external lymphedema

## External Lymphedema

Physical Examination (N=103)	Frequency (%)
Lymphedema Severity	
Stage 0	55 (53.4)
Stage I	21 (20.4)
Stage II	27 (26.2)
Stage III	0 (0.0)
<b>Total</b>	<b>103 (100.0)</b>

*Note:* (1) In terms of Foldi's scale  
(2) 103 participants completed external examination.

- The associations between lymphedema severity and (a) symptoms; (b) functional status; and (c) quality of life

## Symptoms (VHSS)

### 7 domains in VHSS

- Swallowing \*
- Mucous/Dry mouth \*
- Nutrition\*
- Self-reported pain \*
- Voice \*
- Dentition
- Hearing

\* Statistically significant associations

## Symptoms (BIS/HADS)

- Body image \*
- Anxiety
- Depression

\* Statistically significant associations

## Function

- Hearing test \*
- Neck range of motion (CROM) \*
- Mouth range of motion

\* Statistically significant associations

## Quality of Life

- FACT-H&N\*

\* Statistically significant associations

## Possible Risk Factors

- Demographic factors
- Health behavior factors
- Disease and treatment factors\*

\* Statistically significant associations

## Summary

- Lymphedema in head and neck cancer patients
  - Common late effect (75%)
  - Three types of lymphedema
  - Symptom burden
  - Functional impairment
  - Decreased quality of life

## Strengths and Limitations

### Strengths

- First known study in United States of this depth
- Systematically examined lymphedema

### Limitations

- Cross-sectional design
- Convenience sampling

## Implications – Clinical Practice



- Be aware lymphedema as a frequent late effect of HNC
- Educate patients about risk of lymphedema prior to treatment, during, and post treatment
- Conduct external and internal examination
- Evaluate related signs or symptoms at each clinic visit
- Refer to lymphedema assessment

## Implications – Future Research

- Sample limitations: Size & setting
- Design limitations: Longitudinal studies
- Gaps in this area
  - Measurement tools
  - Risk factors/mechanisms
  - Lymphedema management

## References