



Comparison of Demographics and Outcomes Using Clinical Informatics: A Retrospective Study of Patients with a Diagnosis of Upper Quadrant Lymphedema

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BACKGROUND & PURPOSE

Patients with the diagnosis of secondary upper quadrant lymphedema (SUQL) are frequently seen in outpatient physical therapy clinics to address upper extremity pain, dysfunction, and/or lymphedema. The unpredictability of prognostic factors for this patient population can be challenging for physical therapist's secondary to the variability in clinical research methods and the frequent presence of multiple underlying medical conditions. Clinical informatics is a subset of health informatics that focuses on the application of informatics and has the potential to guide clinical decision making and improve quality of life.

The purposes of this study were to 1) investigate if the clinical informatics on SUQL from a large national outpatient orthopedic organization are consistent with those reported in the literature, and 2) explore the relationship, if any, between SUQL and gender, age, body mass index (BMI), pain, psychological risk factors, function, and comorbidities.

METHODS

1. Through collaboration with a national outpatient physical therapy clinic administration, identify patients with SUQL were who received PT treatment at an orthopedic clinic.
2. Extract data using inclusion and exclusion criteria (ICD-9/10 codes and > 18 years of age)
3. Analyze demographic and outcome data: gender, age, BMI, comorbidities; pain: Numeric Pain Rating Scale (NPRS); upper extremity function: QuickDASH (qDASH); University of Pennsylvania Shoulder Score (PENN); and quality of life (QOL): Veterans Rand-12 Physical Component Score (PCS) and Mental Component Score (MCS)..

RESULTS

Table 1. Patient Demographics

Variable	n	Female	Male
No. participants	449	442 (96.4%)	7 (1.6%)
Age (Mean ± SD)	61.32 ± 12.78	60.93 ± 13.08	66.67 ± 13.8
BMI (Mean ± SD)	29.39 ± 6.06	29.42 ± 6.07	27.93 ± 5.36
Total Comorbidities (Mean ± SD)	4.23 ± 3.04	4.23 ± 2.93	5.43 ± 5.68
HTN	206 (45.9%)	202 (45.7%)	4 (57.1%)
Smoker	32 (7.1%)	32 (7.1%)	0 (0%)
Cancer	377 (84%)	370 (83.7%)	7 (100%)

Table 2. Comparison of Variables of Interest

	Comorbid Count	Age	PCS 12 Init	MCS 12 Init	qDASH Init	PENN Init	1st at rest pain	1st activity pain
Comorbid Count	1.0	0.25 (<.001)	-0.29 (<.001)	-0.12 (0.017)	0.32 (<.001)	-0.34 (<.001)	0.18 (<.001)	0.13 (0.008)
Age		1.0	-0.02 (0.737)	0.07 (0.197)	0.07 (0.304)	-0.14 (0.173)	-0.11 (0.034)	-0.19 (<.001)
PCS 12 Init			1.0	0.16 (0.002)	-0.57 (<.001)	0.60 (<.001)	-0.29 (<.001)	-0.34 (<.001)
MCS 12 Init				1.0	-0.30 (<.001)	0.36 (<.001)	-0.17 (0.001)	-0.23 (<.001)
qDASH Init					1.0	-0.60 (0.049)	0.53 (<.001)	0.59 (<.001)
PENN Init						1.0	-0.48 (<.001)	-0.62 (<.001)
1st at rest pain							1.0	0.63 (<.001)
1st activity pain								1.0

Statistically significant (p<0.001) and potentially meaningful clinical correlations were found between the following variables of interest: initial scores of PCS and qDASH (r=-0.57); initial PCS and PENN(r=0.60); initial qDASH and at rest NPRS (r=0.53); initial qDASH and activity NPRS (r=0.59), initial PENN and at rest NPRS (r=-0.48); initial PENN and activity NPRS (r=-0.62) demonstrating a relationship between pain, function and QOL.

DISCUSSION

- Results from this study are consistent with the existing literature that identify overweight/obesity and hypertension as risk factors for the development of lymphedema.
- Upper extremity lymphedema is associated with decreased upper extremity function and decreased QOL.
- Research often describes lymphedema as uncomfortable versus painful. The presence of upper extremity dysfunction with SUQL may explain the increased frequency of pain in this population.
- Results of this study appear to suggest a medium to strong correlation between pain, upper extremity function, and quality of life in patients SUQL which reinforces the importance of pain evaluation and management with these patients.

CONCLUSION

This retrospective study identified relationships between pain, upper extremity function, and quality of life as demonstrated clinically on a large dataset consistent with the existing literature on SUQL. Future research is needed to explore and understand the impact of clinical informatics on the healthcare delivery and outcomes for patient with SUQL. Additionally, given the complex nature of this patient population research should focus on the management of pain and its relationship to function and QOL.

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