

A Prospective Evaluation of Health-Related Quality of Life in Lymphedema Treatment

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Background

Vascularized lymph node flap transfer was the flap of choice for lower extremity lymphedema. Although physical rehabilitation is important for lymphedema treatment, there is no standardized procedure for different stage lymphedema. This study was conducted to investigate the vascularized lymph node transfer (VLNT) and Complete Decongestive Therapy (CDT) long term result in lymphedema.

Methods

An IRB-approved prospective study was performed of patients who underwent vascularized lymph node transfer for symptomatic upper (ULL) or lower limb (LLL) lymphedema. Patients who had either submental or groin VLN transfer for upper or lower limb lymphedema were isolated. Outcomes were assessed using improvement of circumference reduction, decreased number of episodes of cellulitis and health-related quality of life (HRQOL) metric.

Results

A total 138 patients were identified and met inclusion criteria. More identified patients underwent VLN (50.7%) as compared to CDT (49.3%) for lymphedema. Patient age, BMI, tobacco use, diabetes, hypertension, lymphedema grading and lymphedema reason were similar between groups ($p=0.4$; $p=0.2$; $p=0.6$, $p=0.5$, $p=0.5$, $p=0.7$, $p=0.7$, respectively). Circumference reduction was higher in the VLN group (35.3%) as compared to the CDT group (23.4%) and post-operative episodes of cellulitis was higher in the CDT group (4 ± 1.5 times per years) as compared to the VLN group (1.4 ± 1.3 times per years) during the 12-month follow-up evaluation, have statistical significance ($p=0.03$ and $p=0.04$, respectively). In HRQoL part, overall quality of life and function, body appearance, symptom, and mood domains were all significantly improved in the VNL group ($p<0.01$ within each domain).

Results

Type of treatment	No. of patients n (%)	Age Mean ± SD (years)	BMI Mean ± SD (kg/m ²)	Symptom duration Mean ± SD (Months)	Smoking n (%)	Diabetes n (%)	Hypertension n (%)	Lymphedema Grading Grade	Follow-up Months
CDT	68 (49)	48.4 ± 30.8	23.1 ± 9.8	12.4 ± 14.3	3 (4.4)	5 (7.4)	22 (32.3)	I: 39 II: 25 III: 4 IV: 0	15.4 ± 3.5
VLN	70 (51)	50.4 ± 32.9	26.4 ± 7.4	32.3 ± 13.2	5 (7.1)	8 (11.4)	30 (42.9)	I: 2 II: 18 III: 32 IV: 18	24.4 ± 10.4
Total	138 (100)	49.4 ± 31.9	24.8 ± 8.6	33.4 ± 13.8	8 (5.8)	13 (9.4)	52 (37.7)	I: 41 II: 43 III: 36 IV: 18	19.9 ± 6.9
p-value		0.4	0.2	0.01*	0.6	0.5	0.5	0.7	0.01*

Results- QoL

Type of treatment	No. of patients n (%)	Function		Appearance	
		Pre-treatment	Post-treatment 12 months	Pre-treatment	Post-treatment 12 months
		Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
CDT	68 (49)	27.6 ± 4.9	35.8 ± 20.1	20.9 ± 3.9	18.7 ± 12.2
VLN	70 (51)	22.1 ± 12.3	14.4 ± 3.9	20.4 ± 8.9	14.2 ± 2.9
Total	138 (100)	24.9 ± 8.6	25.1 ± 12	20.7 ± 6.4	16.5 ± 9.5
p-value		0.01*	<0.01*	0.6	0.04*
Pre-op vs. Post-op		CDT Group, $p<0.01^*$ VLN Group, $p<0.01^*$		CDT Group, $p=0.06$ VLN Group, $p<0.01^*$	

Results- QoL

Type of treatment	No. of patients n (%)	Symptoms		Mood	
		Pre-treatment	Post-treatment 12 months	Pre-treatment	Post-treatment 12 months
		Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
CDT	68 (49)	18.8 ± 3.1	17.1 ± 10.5	19.4 ± 3.1	22.2 ± 14.3
VLN	70 (51)	33.4 ± 12.1	16.4 ± 12.4	25.3 ± 3.3	17.1 ± 10.5
Total	138 (100)	26.1 ± 7.6	16.8 ± 11.5	22.4 ± 3.2	30.8 ± 12.4
p-value		0.01*	0.04*	0.01*	0.01*
Pre-op vs. Post-op		CDT Group, $p<0.01^*$ VLN Group, $p<0.01^*$		CDT Group, $p=0.06$ VLN Group, $p<0.01^*$	

Results- QoL

Type of treatment	No. of patients n (%)	Overall QoL		Circumferential reduction rate Mean ± SD
		Pre-treatment	Post-treatment 12 months	
		Mean ± SD	Mean ± SD	
CDT	68 (49)	4.7 ± 0.9	5.1 ± 1.7	23.4 ± 11.2
VLN	70 (51)	3.8 ± 0.3	7.4 ± 1.4	35.3 ± 10.4
Total	138 (100)	4.3 ± 0.6	3.6 ± 1.6	22.6 ± 10.8
p-value		0.6	0.6	0.03*
Pre-op vs. Post-op		CDT Group, $p<0.01^*$ VLN Group, $p<0.01^*$		

Conclusion

VLN and CDT are both valuable treatment options in treating lymphedema especially VLN transferred in severe lymphedema (Grade III to IV) was more effective. These improvements are mirrored by improvements in patient-reported outcomes and quality of life measures. These changes can be seen 12 month post-operatively and continued steady improvement can be expected.