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Long-term predictive factors of response to complete decompressive treatment in patients with BCRL

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OBJECTIVE

In some previous study reported the benefits of complete decompressive treatment (CDT) in patients with breast cancer related lymphedema (BCRL). However, there were few studies about predictive factors on response to CDT as well as published descriptions of the long-term predictive factor. The aim of this study is to determine the long-term (2 years) predictive factors of response to CDT in patient with BCRL.

METHODS

We retrospectively reviewed patients who had visited the rehabilitation medicine outpatient clinic from September, 2015 to December, 2015 who have undergone CDT. The examined factors include the following: patients age, BMI, marital status, side of diseased limb, type of diagnosis, type of surgery, removed lymph node, metastatic lymph node, type of chemotherapy, agent of chemotherapy, radiotherapy and the length of days from operation to the beginning of CDT. Furthermore, excess circumference ratio [(CL-CH)/CH x 100] were measured prior to treatment, at the end of CDT and 2 years after CDT. The treatment response group was divided into three groups (treatment free, maintain with compression, aggravation) according to the change of excess circumference ratio between 2 years after CDT and prior to treatment, and at the end of CDT. Moreover, we considered whether the follow-up treatment was necessary 2 years after.

RESULTS

A total 81 patients were reported, including patients of 43 treatment free (53.09%), 28 maintain with compression (34.57%), and 10 aggravation (12.34%). There was a significant difference in removed lymph node, type of chemotherapy and agent of chemotherapy between treatment response groups (p<.05) (Table 1). There were excess circumference ratio trends among each group of treatment response. The initial, observed excess circumference ratio was greater in the aggravation group (Fig 1). In the logistic regression analysis between non-aggravation group (treatment free and maintain with compression) and aggravation group, there was an only significant difference in type of chemotherapy (Table 2).

CONCLUSION

Our results suggest that removed lymph nodes, types of chemotherapy and agents of chemotherapy could be long-term (2 years) predictive factors of response to CDT between treatment response groups (treatment free, maintain with compression and

aggravation). Also, the initial excess circumference ratio may be considered as a long-term predictive factor. In the logistic regression analysis between non-aggravation group (treatment free and maintain with compression) and aggravation group, there was an only significant difference in type of chemotherapy. A larger sample size is required to confirm our findings.

Table 1. Clinical characteristics according to each group of treatment response

	Treatment free (n=43)	Maintain with compression (n=28)	Aggravation (n=10)	Total (n=81)	p-value
Mean Age	52.4± 9.4	52.9 ± 10.6	47.4 ± 7.0	52.0 ± 9.7	.28#
BMI on diagnosed BCRL	23.5 ± 2.8	23.4 ± 2.7	23.1± 2.6	23.4 ± 2.7	.89#
Marital status, n (%)					.73†
Married	38 (88.4)	25 (89.3)	8 (80.0)	71 (87.7)	
Unmarried, divorced	5 (11.6)	3 (10.7)	2 (20.0)	10 (12.3)	
Side of diseased limb, n(%)					.79†
Right	18 (41.9)	12 (42.9)	5 (50.0)	35 (43.2)	
Left	25 (58.1)	14 (50.0)	3 (30.0)	42 (51.9)	
Bilateral	0	2 (7.1)	2 (20.0)	4 (4.9)	
Type of diagnosis, n (%)					.53†
Carcinoma in situ (DCIS, LCIS)	4 (9.3)	0	1 (10.0)	5 (6.2)	
Invasive ductal carcinoma	38 (88.4)	27 (96.4)	9 (90.0)	74 (91.4)	
Metastatic cancer	1 (2.3)	1 (3.57)	0	2 (2.5)	
Type of Surgery, n (%)					.30†
Modified radical mastectomy	7 (16.3)	9 (32.1)	5 (50.0)	21 (25.9)	
Quadrantectomy	4 (9.3)	3 (10.7)	1 (10.0)	8 (9.9)	
Skin sparing mastectomy	9 (20.9)	7 (25.0)	2 (20.0)	18 (22.2)	
Lumpectomy	23 (53.5)	9 (32.2)	2 (20.0)	34 (42.0)	
Removed lymph node					.00†
=10	29 (67.4)	11 (39.3)	2 (20.0)	42 (51.9)	
>10	14 (32.6)	7 (60.7)	8 (80.0)	39 (48.1)	
Metastatic lymph node					.36†
=5	36 (83.7)	25 (89.3)	7 (70.0)	68 (84.0)	
>5	7 (16.3)	3 (10.7)	3 (30.0)	13 (16.0)	
Type of Chemotherapy, n(%)					.04†
Neoadjuvant	16 (37.2)	15 (53.6)	8 (80.0)	39 (48.2)	
Adjuvant	27 (62.8)	13 (46.4)	2 (20.0)	42 (51.9)	
Agent of Chemotherapy, n(%)					.00†
Taxene	26 (60.5)	27 (96.4)	10 (100.0)	63 (77.8)	
No taxene	17 (39.5)	1 (3.6)	0	18 (22.2)	
Radiotherapy, n(%)					.60†
Yes	37 (86.1)	22 (78.6)	9 (90.0)	68 (83.9)	
No	6 (13.9)	6 (21.4)	1 (10.0)	13 (16.1)	
Length of day from operation to CDT start, n(%)	224.6 ± 170.7	204.5 ± 189.9	130.2 ± 117.2	206.0 ± 173.0	.30#

Values are expressed as the mean ± standard deviation or as numbers (%).
CDT complete decompressive treatment
p values were calculated using the χ2-test† or the ANOVA#, p< .05 was considered to be statistically significant.
p-value was comparison of age groups treatment response groups

Table 2. Odds ratio for response 2 years after complete decompressive therapy between non-aggravation group and aggravation group

	OR	95% CI	p-value
Removed lymph node	1.95	0.34-11.31	.46
Metastatic lymph node	2.28	0.40-12.89	.35
Type of Chemotherapy	12.30	1.48-102.67	.02*
Agent of Chemotherapy	0.86	0.06-12.53	.90
Radiotherapy	0.36	0.05-2.79	.33

p values were calculated using the logistic regression analysis, p <.05 was considered to be statistically significant. non-aggravation groups was treatment free and maintain with compression
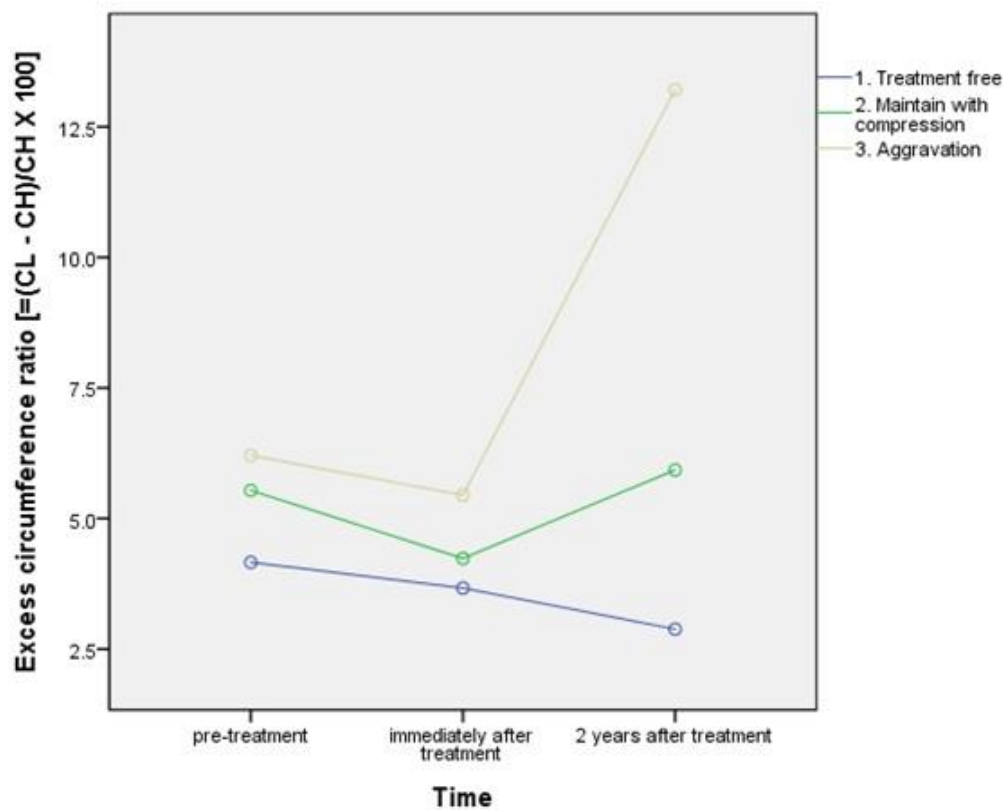

Fig 1. Excess circumference ratio trend among each group of treatment response