암재활

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:00-10:45 Room G(3F)

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Correlation with cognitive function, cardiorespiratory fitness, and chemotherapy in breast cancer

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Objective

To investigate the effect of chemotherapy on cognitive function, cardiorespiratory fitness and physical activity in breast cancer patient.

Method

This study was designed as a retrospective study. A total of 25 participants who experienced breast cancer were recruited from June 2017. Patients treated with chemotherapy are chemotherapy group (n=16), and patients who did not receive chemotherapy are non-chemotherapy group (n=10). All outcomes were measured after surgery (T0, baseline) and immediately after the anti-cancer therapy (T1). Age, types of breast cancer surgery, history of chemotherapy and radiotherapy, Korean version of the Mini-Mental State Exam (K-MMSE), the Korean version of Montreal cognitive assessment (MOCA-K), Computerized Neuro-cognitive Function Test (CNT), International Physical Activity Questionnaire (IPAQ), cardiopulmonary exercise test using modified Bruce protocol, Beck depression inventory (BDI) were collected as demographic data.

Result

Among the chemotherapy group, the mean age was 57.6 ± 10.5, and 51.0 ± 4.9 in the non- chemotherapy group. K-MMSE, BDI scores did not showed significant differences between two groups (Table 1). No significant differences were found between two groups in the cognitive function outcomes at T0. There was also no significant change in cognitive function outcomes between T0 and T1 in both groups when compared within each group. In IPAQ, there was no significant difference between the two groups, but the ratio of Category 2 at T1 was increased in both groups (Table 2). Similarly, there was no significant difference between the two groups in the cardiorespiratory fitness parameters at T0 (Table 3).

Conclusion

Chemotherapy did not significantly affect cognitive function, cardiorespiratory fitness, and physical activity at the time immediately after chemotherapy in breast cancer

patients. However, further evaluation of the effect of chemotherapy on these parameters over time will be needed in future through a long-term follow up evaluation.

table 1. Baseline characteristics of subjects

Parameter	Chemotheraphy Group (n=15)	Non-chemotheraphy Group (n=10)	p-value
Age (year)	57.60±10.51	51.00±4.98	0.067
Surgery type			
Breast-conserving surgery +radiotheraphy	5	4	0.739
Mastectomy	10	6	
Neoadjuvant chemotherapy only	0	0	
Chemotheraphy			
TC	3 (20)		
AC	0 (0)	NA	NA
TC+AC	12 (80)		
Radiotheraphy	12 (60)	10 (100)	0.444
K-MMSE	26.80±2.88	28.33±1.03	0.225
BDI	14.27±6.25	12.67±7.50	0.622

Values are presented as mean ± standard deviation or number (%)

TC, Doxitaxel, cyclophosphamide; AC, Doxorubicin, cyclophosphamide; K-MMSE, Korean version of the Mini-Mental State Exam; BDI, Beck Depression Inventory.

*p<0.05

Table 2. Comparison of cognitive function, physical activity between two groups at baseline, post anti-cancer therapy

Variables	Group	T0	T1	p-value
K-MMSE	Chemotheraphy	27.40±2.59	27.40±3.36	0.186
	Non-chemotheraphy	28.50±0.97	28.80±0.63	
MOCA-K	Chemotheraphy	24.00±4.69	24.71±4.36	0.248
	Non-chemotheraphy	25.10±2.28	27.10±0.88	
CNT-D	Chemotheraphy	40.75±13.65	42.46±14.12	0.892
	Non-chemotheraphy	42.00±6.66	42.55±10.01	
CNT-V	Chemotheraphy	40.14±6.87	41.86±7.10	0.593
	Non-chemotheraphy	40.20±5.85	38.90±6.72	
CNT-T	Chemotheraphy	35.27±8.13	40.12±9.54	0.773
	Non-chemotheraphy	35.85±6.39	37.70±7.33	
CNT-W	Chemotheraphy	37.16±7.43	36.87±8.38	0.651
	Non-chemotheraphy	34.32±5.49	37.22±4.93	
BDI	Chemotheraphy	11.29±6.28	10.71±6.57	0.100
	Non-chemotheraphy	15.80±9.23	13.80±5.73	
IPAQ (Continuous score)	Chemotheraphy	938.31± 1527.76	1576.75±1674.33	0.374
	Non-chemotheraphy	94.29± 118.11	4961.43±7386.91	
IPAQ (Categorical score)	Chemotheraphy	C1 (6)	C1 (6)	0.587
		C2 (3)	C2 (5)	
		C3 (1)	C3 (1)	
	Non-chemotheraphy		C1 (4)	
		C1 (6)	C2 (2)	
			C3 (3)	

Values are presented as mean ± standard deviation or number (%).

K-MMSE, Korean version of the Mini-Mental State Exam; MOCA-K, Korean version of Montreal cognitive assessment; CNT-D, Computerized Neuro-cognitive Function Test-Digit span; CNT-V Computerized Neuro-cognitive Function Test-Visual span; CNT-T, Computerized Neuro-cognitive Function Test-Trail making; CNT-W, Computerized Neuro-cognitive Function Test-Word color test; BDI, Beck Depression Inventory; IPAQ, International Physical Activity Questionnaire; C1, Category 1; C2, Category 2.

*$p<0.05$

Table 3. Comparison of cardiorespiratory fitness between the two groups at baseline, post anti-cancer therapy

Variables	Group	T0	T1	p-value
VO2max (ml/kg/min)	Chemotheraphy	21.77±4.62	22.69±4.94	0.133
	Non-chemotheraphy	26.52±2.74	24.50±3.19	
METs	Chemotheraphy	6.23±1.33	6.48±1.41	0.132
	Non-chemotheraphy	7.58±0.80	6.99±0.91	
RER	Chemotheraphy	1.03±0.10	1.06±0.11	0.088
	Non-chemotheraphy	1.09±0.13	1.04±0.06	
Vemax (L/min)	Chemotheraphy	1.28±0.20	1.34±0.25	0.071
	Non-chemotheraphy	1.50±0.16	1.40±0.19	

V02max, maximal oxygen consumption; METs, Metabolic equivalent tasks; RER, Respiratory exchange ratio ; VEmax, Maximal pulmonary Ventilation

*p<0.05