심폐재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

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Cardiac Rehabilitation in a Patient with Isolated Cardiac Sarcoidosis: A Case Report

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Objective

Sarcoidosis is a multisystem, granulomatous disease of unknown etiology. Lungs are affected in more than 90% of patients with sarcoidosis, but isolated cardiac sarcoidosis (CS) occurs in about 2% of sarcoidosis patients. CS is treated by administering corticosteroid to control inflammation, prevent fibrosis and protect from any deterioration of the cardiac function. Previous observational studies have shown that patients with pulmonary sarcoidosis benefit from physical training by improving their exercise capacity. As far as we know, there is no study about effectiveness of cardiac rehabilitation (CR) in patients with isolated CS. We report our therapeutic experience of CR in a patient with isolated CS manifesting heart failure and cardiomyopathy.

Case Description

A 74-year-old woman visited our CR center for the improvement of cardiac function. She was already diagnosed as isolated CS 1 month ago. At that time, echocardiography demonstrated unclassified cardiomyopathy with 35% ejection fraction. For further evaluation, Torso PET-CT was checked and it showed active inflammation involving interventricular septum and adjacent right ventricle, which is consistent with CS (Fig. 1). On previous history, she experienced right hemiplegia associated with multifocal cerebral infarction. However, at the time of hospitalization for CR, muscle strength was measured fair+ on right upper extremity and good on right lower extremity, which means nearly complete recovery regarding activities of daily life. She underwent exercise tolerance test (ETT) and exercise was prescribed with 40~50% intensity of the peak oxygen consumption (VO2) on the basis of ETT data. She finished exercise training 5 times a week for 6 weeks using treadmill with ECG monitoring, except 4 days for OPD follow-up at other hospital. There was no adverse event during CR. ETT was conducted before CR and 3 times 2 weeks apart. The 6-minute walk test (6MWT) was performed on a 60 m course. After 6 weeks of CR, there was no significant change in mental and physical status such as consciousness, muscle strength and muscle stretch reflex. There was some improvement in maximal METs,

peak VO2, peak respiratory exchange ratio and the minute ventilation/carbon dioxide production (VE/VCO2) slope. The Korean Activity Scale/Index was also slightly increased (Table 1). However, there was no marked change in total exercise time and distance in 6MWT (Table 2). She did not report any palpitation or dyspnea on daily life and she is planning to continue hospital-based CR.

Conclusion

Exercise capacity was improved in our isolated CS patient after CR for 6 weeks.

Key Words: Cardiac sarcoidosis, Cardiac rehabilitation, Exercise tolerance test

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Table 1. Results of Exercise Tolerance Test

	2019.05.23.	2019.06.03.	2019.06.17.	2019.07.01
Maximal METs	3.8	4.5	4.8	4.8
TET	11 min 8 sec	10 min 13 sec	12 min 1 sec	10 min 26 sec
Peak VO_2 (L/min)	0.73	0.88	0.93	0.94
Peak RER	0.94	1.07	1.00	0.97
VE/VCO_2 slope	43.0	28.2	28.7	33.8
Basal HR (bpm)	98	90	73	88
Peak HR (bpm)	141	136	127	121
Resting BP (mmHg)	80/61	73/54	86/51	78/51
Maximal BP (mmHg)	118/96	112/70	125/81	141/72
KASI	37.8	38.3	38.3	38.3

METs : Metabolic equivalents ; TET : Total exercise time ; VO_2 : Oxygen consumption ; RER : Respiratory exchange ratio ; VE : Minute ventilation ; VCO_2 : Carbon dioxide production ; HR : Heart rate ; bpm : beats per minute ; BP : Blood pressure ; KASI : Korean Activity Scale/Index

Table 2. Results of 6-minute Walk Test

	2019.05.14.	2019.06.03.	2019.06.17.	2019.07.01
Distance in 6MWT (m)	458	444	435	425
Initial heart rate (bpm)	94	91	69	71
Final heart rate (bpm)	118	105	108	78
Initial Borg score	0	0	0	0
Final Borg score	3	3	3	3
Initial SpO_2 (%)	98	97	98	99
Final SpO_2 (%)	97	98	98	98

6MWT : 6-minute walk test ; SpO_2 : Oxygen saturation by pulse oximetry ; bpm : beats per minute

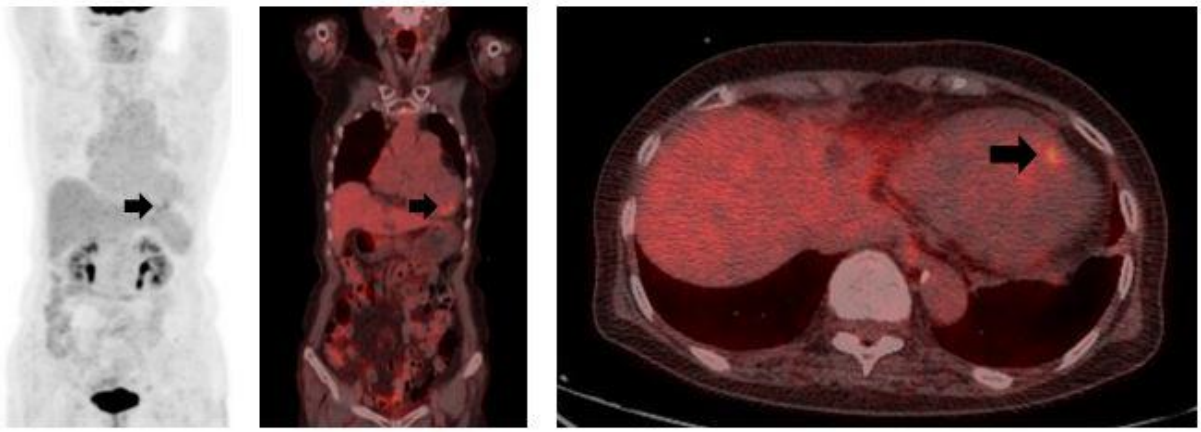

Figure. 1 Torso PET-CT displays active inflammation involving interventricular septum (apical portion, black arrow) and adjacent right ventricle, which is consistent with cardiac sarcoidosis.