

심폐재활

발표일시 및 장소 : 10 월 26 일(금) 13:55-14:05 Room D(5F)

OP3-1-5

Initial Ejection Fraction and Home-based Cardiac Rehabilitation in Acute Myocardial Infarction

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Objective

To evaluate the effects of home-based cardiac rehabilitation (CR) on functional capacity according to ejection fraction (EF) after acute myocardial infarction (AMI).

Method

We retrospectively reviewed the medical records of the AMI patients who had done home-based CR from 2015 to 2017. 62 patients were recruited. All patients underwent an exercise tolerance test (ETT) at about 2 weeks, 3 months and 6 months after AMI. The patients were divided into two groups according to EF. EF 50% and over were allocated to normal EF group and EF under 50% were to low EF group. According to the result of initial ETT and functional ability, patients started home-based CR. Detailed exercise regimen was prescribed and how to manage and modify the risk factor was also educated. Cardiopulmonary capacities were analyzed after every ETT which was done about 3-month interval. Evaluated cardiopulmonary capacities were heart rate and blood pressure (BP) at rest and maximum, peak oxygen consumption, anaerobic threshold, metabolic equivalent (MET) and exercise time.

Results

38 patients were allocated to normal EF group and 24 patients were allocated to low EF group. There were no significant differences in the baseline characteristics between two groups except for AMI type (Table 1). After home-based CR, both groups showed improvement in most of the measurements when compared to initial ETT except for maximal systolic BP of 3 and 6 month in normal EF group and maximal diastolic BP of 6 month in low EF group (Table 2). But the changes in all measurements after 3 and 6 month between groups have no significant differences (Table 3).

Conclusion

There was no relationship between the effects of home-based CR and the initial ejection fraction after AMI. And any adverse events related to home-based CR did not occur during this study. In the patients with low initial EF after AMI, home-based CR could be as effective as in the patients with normal EF. Because most patients' EFs in low EF group

were between 35 and 45, it is limitation that this result cannot apply to the severely low EF.

Table 1. Baseline characteristics

	Normal EF (n=38)	Low EF < 50 (n=24)	p-value
Age (year)	56.50±8.89	57.58±10.89	0.670
Sex (Man:Woman)	35:3	21:3	0.550
Type (STEMI:NSTEMI)	26:12	17:7	0.003*
BMI (kg/m ²)	25.46±2.29	24.85±2.77	0.350
Ejection fraction (%)	56.21±5.58	41.87±5.86	<0.001
Height (cm)	168.95±7.44	168.03±10.32	0.687
Weight (Kg)	72.84±9.97	70.56±13.67	0.451
DM	12 (31.6)	4 (16.7)	0.191
HTN	13 (34.2)	8 (33.3)	0.943
Dyslipidemia	12 (31.6)	8 (33.3)	0.941
Smoking	22 (57.9)	19 (79.2)	0.085
Alcohol drinking	20 (52.6)	12 (50)	0.840

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

STEMI, ST-elevation myocardial infarction; NSTEMI, non-ST-elevation myocardial

infarction; BMI, body mass index; DM, diabetes mellitus; HTN, hypertension

*p<0.05 for comparison between groups by the Chi-square test

Table 2. Comparison of exercise capacity

	Normal EF (n=38)			Low EF (n=24)		
	Initial	3 month	6 month	Initial	3 month	6 month
HRrest	73.92±11.74	69.84±10.53*	71.73±12.10*	71.33±12.21	67.58±9.86*	66.33±10.20*
SBPrest	118.74±13.74	116.15±16.51*	118.58±17.60*	121.04±15.96	113.71±15.05*	114.21±18.13*
DBPrest	71.79±10.90	74.63±11.77*	76.24±11.45	70.16±9.16	69.25±9.40*	69.00±14.26*
HRmax	150.47±12.18	153.71±16.6*	155.57±19.50*	144.50±17.06	143.25±20.36*	142.96±19.90*
SBPmax	182.84±55.95	176.16±27.19	182.73±54.25	158.88±32.93	163.33±26.63*	164.25±29.56*
DBPmax	85.05±10.45	87.23±12.69*	86.45±13.21*	81.67±13.31	79.88±12.35*	79.67±13.88
VO2peak	29.98±7.67	32.76±7.20*	31.98±8.49*	28.20±7.30	30.07±7.29*	29.32±9.76*
Anaerobic threshold	23.61±7.20	24.51±5.80*	25.39±6.57*	21.75±6.26	23.30±7.17*	23.87±8.32*
METs	8.33±1.78	9.03±1.85*	9.19±1.92*	8.06±2.50	8.64±2.04*	8.93±2.07*
Exercise time (min)	14.52±1.67	15.11±1.61*	15.29±2.01*	14.38±2.34	14.79±1.84*	15.08±2.22*

Values are presented as mean±standard deviation.

HRrest, resting heart rate; SBPrest, resting systolic blood pressure; DBPrest, resting diastolic blood pressure; HRmax, maximal heart rate; SBPmax, maximal systolic blood pressure; DBPmax, maximal diastolic blood pressure; VO2peak, peak oxygen consumption; METs, metabolic equivalent tasks

*p<0.05 for comparison with initial results in each group by the Wilcoxon signed-rank test

Table 3. Comparison of % changes in exercise capacity after 3 and 6 months in both groups

	3 month			6 month		
	Normal EF	Low EF	p-value	Normal EF	Low EF	p-value
% change in HRrest	-7.92±18.88	-5.97±13.35	0.675	-4.68±17.68	-8.7±16.61	0.366
% change in SBPrest	-3.5±14.87	-7.3±14.51	0.340	-1.50±14.40	-7.6±17.22	0.174
% change in DBPrest	2.30±16.75	-2.44±15.88	0.254	4.45±16.64	-4.77±20.66	0.099
% change in HRmax	1.44±9.24	-1.69±9.48	0.242	2.28±10.31	-2.04±12.44	0.172
% change in SBPmax	-5.56±36.01	2.79±11.60	0.348	-3.32±26.89	2.27±16.90	0.578
% change in DBPmax	1.23±14.47	-3.04±13.80	0.170	0.51±12.33	-4.44±20.46	0.355
% change in VO2peak	7.82±15.56	6.11±10.02	0.394	3.54±21.52	-1.13±23.87	0.435
% change in Anaerobic threshold	3.65±17.93	5.18±22.74	0.553	5.31±24.00	5.69±24.97	0.988
% change in METs	5.01±23.83	6.40±18.76	0.872	6.36±24.35	8.21±23.91	0.766
% change in exercise time	3.53±8.66	2.73±11.08	0.968	4.18±10.69	3.98±13.36	0.914

Values are presented as mean±standard deviation.

HRrest, resting heart rate; SBPrest, resting systolic blood pressure; DBPrest, resting diastolic blood pressure;

HRmax, maximal heart rate; SBPmax, maximal systolic blood pressure; DBPmax, maximal diastolic blood pressure; VO2peak, peak oxygen consumption; METs, metabolic equivalent tasks

*p<0.05 for by the Mann–Whitney U test