

## 심폐재활

발표일시 및 장소 : 10 월 26 일(금) 14:27-14:39 Room E(5F)

### OP- Scientific 2-2

#### The Effect of Early Outpatient Rehabilitation Program Among Heart and Lung Transplant Recipients

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#### Objective

The purpose of this study is to investigate the effect of an early postoperative outpatient rehabilitation program to physical capacity and health-related quality of life among patients with bilateral sequential lung transplantation (BLTx) or orthotopic heart transplantation (OHT).

#### Method

The study included 19 clinically stable BLTx patients (age:  $41.5 \pm 13.3$  years; 8 men, 11 women) and 29 OHT patients (age:  $42.4 \pm 12.1$  years; 19 men, 10 women). The patients started outpatient rehabilitation at  $78 \pm 47$  days after transplantation and participated in a 3-6 months supervised exercise training program. The physical capacity of study subjects was evaluated by the cardiopulmonary exercise testing (CPET) and health-related quality of life by the Medical Outcomes Trust 36-item health survey (SF-36) at baseline and upon the completion of rehabilitation.

#### Results

After outpatient rehabilitation, the BLTx patients exhibited a significant increase of peak oxygen uptake ( $16.9 \pm 3.4$  to  $19.6 \pm 4.9$  mL/kg/min,  $p=.002$ ) as well as OHT patients ( $15.4 \pm 3.4$  to  $20.4 \pm 3.7$  mL/kg/min,  $p<.001$ ). Both groups showed improvement of physical component in health-related quality of life. The OHT group showed a significant improvement of SF-36 scores in physical functioning ( $64.7 \pm 22.4$  to  $80.2 \pm 13.8$ ), bodily pain ( $62.2 \pm 24.3$  to  $76.1 \pm 23.0$ ), vitality ( $56.2 \pm 22.6$  to  $67.2 \pm 17.7$ ), social functioning ( $65.1 \pm 25.1$  to  $76.7 \pm 16.9$ ), mental health ( $66.5 \pm 17.6$  to  $72.6 \pm 16.1$ ), and PCS ( $38.8 \pm 10.8$  to  $44.3 \pm 10.5$ ). The BLTx group showed a significant improvement of SF-36 scores in

physical functioning ( $72.6 \pm 16.4$  to  $85.8 \pm 17.9$ ), physical role ( $42.1 \pm 44.1$  to  $86.8 \pm 32.7$ ), general health ( $62.5 \pm 18.1$  to  $69.9 \pm 17.1$ ), vitality ( $63.9 \pm 21.4$  to  $74.7 \pm 15.1$ ), social functioning ( $69.1 \pm 27.4$  to  $86.8 \pm 15.9$ ), emotional role ( $66.7 \pm 44.4$  to  $91.2 \pm 24.4$ ), mental health ( $69.3 \pm 20.8$  to  $77.7 \pm 12.4$ ), and PCS ( $42.5 \pm 10.1$  to  $51.7 \pm 8.1$ ).

### Conclusions

Early postoperative exercise training significantly improved physical capacity and health-related quality of life among BLTx and OHT patients. Early postoperative outpatient rehabilitation program should be recommended to heart and lung transplantation recipients.

Table 1. Baseline Demographic and Clinical Characteristics

|                          | BLTx (n=19)      | OHT (n=29)       |
|--------------------------|------------------|------------------|
| Age (y)                  | $41.5 \pm 13.3$  | $42.4 \pm 12.1$  |
| Gender (M/F)             | 8/11             | 19/10            |
| Body height (cm)         | $160.0 \pm 6.9$  | $164.8 \pm 7.9$  |
| Body weight (kg)         | $49.2 \pm 8.1$   | $58.0 \pm 9.7$   |
| BMI                      | $19.2 \pm 3.1$   | $21.3 \pm 3.0$   |
| Resting heart rate (bpm) | $97.7 \pm 15.1$  | $101.8 \pm 11.9$ |
| Resting BP (mm Hg)       | $124.1 \pm 13.8$ | $124.8 \pm 16.9$ |
| Time from surgery (days) | $77.4 \pm 12.1$  | $68.2 \pm 33.2$  |

Data are listed as median(lower quartile-upper quartile). BP, blood pressure; BLTx, bilateral sequential lung transplantation; OHT, orthotopic heart transplantation

Table 2. Functional Capacity and Quality of Life Before and After Training

| Variables  | OHT (n=29)  |              |         | BLTx (n=19) |              |         |
|--|-------------|--------------|---------|-------------|--------------|---------|
|  | Pretraining | Posttraining | P Value | Pretraining | Posttraining | P Value |
| VO <sub>2peak</sub> (mL · kg <sup>-1</sup> · min <sup>-1</sup> ) | 15.4 ± 3.4  | 20.4 ± 3.7   | <.001*  | 16.9 ± 3.4  | 19.6 ± 4.9   | 0.002*  |
| Short Form 36  |             |              |         |             |              |         |
| Physical functioning   | 64.7 ± 22.4 | 80.2 ± 13.8  | <.001*  | 72.6 ± 16.4 | 85.8 ± 17.9  | 0.004*  |
| Role-physical  | 33.6 ± 44.4 | 43.1 ± 40.6  | 0.362   | 42.1 ± 44.1 | 86.8 ± 32.7  | <0.001* |
| Bodily pain  | 62.2 ± 24.3 | 76.1 ± 23.0  | 0.006*  | 75.7 ± 21.0 | 81.2 ± 21.1  | 0.165   |
| General health   | 63.0 ± 17.2 | 66.1 ± 19.7  | 0.115   | 62.5 ± 18.1 | 69.9 ± 17.1  | 0.012*  |
| Vitality   | 56.2 ± 22.6 | 67.2 ± 17.7  | 0.017*  | 63.9 ± 21.4 | 74.7 ± 15.1  | 0.003*  |
| Social functioning   | 65.1 ± 25.1 | 76.7 ± 16.9  | 0.005*  | 69.1 ± 27.4 | 86.8 ± 15.9  | 0.003*  |
| Role-emotional   | 70.1 ± 42.1 | 70.1 ± 39.2  | 0.982   | 66.7 ± 44.4 | 91.2 ± 24.4  | 0.031*  |
| Mental health  | 66.5 ± 17.6 | 72.6 ± 16.1  | 0.035*  | 69.3 ± 20.8 | 77.7 ± 12.4  | 0.035*  |
| PCS  | 38.8 ± 10.8 | 44.3 ± 10.5  | 0.003*  | 42.5 ± 10.1 | 51.7 ± 8.1   | <0.001* |
| MCS  | 47.9 ± 10.8 | 49.6 ± 9.1   | 0.505   | 47.8 ± 13.2 | 53.5 ± 7.1   | 0.113   |

Data are listed as mean ± standard deviation. BLTx, bilateral sequential lung transplantation; OHT, orthotopic heart transplantation; VO<sub>2peak</sub>, peak oxygen uptake; PCS, standardized physical component scale; MCS, standardized mental component scale.