1-C-01 Effect of pre-hospital physical activity onbalance function in patients with chronic heart failure

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Purpose: The balance function in the patient with heart failure declines at chronic stage. To our knowledge,there are no studies that comprehensively investigated the relationship between balance function and other factor in the patient with chronic heart failure(CHF).We therefore examined the factor that influences the balance function in the patient with CHF.

Methods: We studied older patient with CHF who were able to perform 6 minute-walk test(6MWT). It was examined that Berg balance scale(BBS) as the index of the balance function,exercise tolerance,muscle strength in the leg extension,pre-hospital physical activity,and the severity of CHF. The factors correlate with BBS score were identified.

Results: The BBS score in CHF patients was lower than that in healthy subjects of the same age.The BBS score was positively correlated with the pre-hospital physical activity and the walking distance on 6MWT.The lower the pre-hospital physical activity and the exercise tolerance were the lower the balance function. There were no correlation among the severity of CHF,age,and muscle strength in the leg extension.

Discussion: These results suggested that if the pre-hospital physical activity and the exercise tolerance are decreased, balance function might decline even if the severity of CHF was mild. Additionally the present study indicated that the evaluation for the balance function is needed in the patient with CHF.

Key Words:chronic heart failure, balance function pre-hospital physical activity,exercise tolerance

1-C-02 The relationship between exercise capacity and muscle oxygenation in patients after heart open surgery.

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Purpose: The aim of this study was to investigate whether recovery of muscle oxygenation from constant work exercise is correlated with exercise capacity in patients after open heart surgery.

Methods: Six patients underwent incremental cycle ergometer exercise test with gas exchange analysis to determine anaerobic threshold(AT). After 1 or 2week, 6-min constant work exercise at 90% of AT was performed. Oxygenation of the vastus lateralis muscle was monitored during exercise and recovery by near infrared spectroscopy.

Results and Discussion: No significant correlation was observed between AT and recovery of muscle oxygenation. Left ventricular ejection fraction was significantly correlated with recovery of muscle oxygenation($r=-0.93$, $P<0.05$). The patient with most delayed recovery of muscle oxygenation was obesity and had low left ventricular function. This suggests that thick subcutaneous fat layers and decrease of oxygen delivery tend to be slower recovery of muscle oxygenation.

Key Words: heart surgery,
near infrared spectroscopy,
anaerobic threshold,
left ventricular ejection fraction