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To determine whether age, body mass index and percentage of predicted maximum heart rate can predict the exercise capacity of healthy Chinese

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Introduction

6-minute walk test (6MWT) is a clinical tool commonly used to reflect individual's exercise capacity. Previous studies found out various contributing factors on 6-minute walk distance (6MWD).

Objectives

This study aims to determine whether age, body mass index (BMI) and percentage of predicted maximum heart rate (%HRmax) can predict 6MWD in healthy Chinese.

Methodology

The outcome measures were 6MWD, age, BMI and %HRmax. Healthy Chinese subjects were recruited. 6MWT was carried out on each subject using a standardized protocol. Data of age, body weight, body height, resting heart rate, maximum heart rate and the distance completed in the 6MWT was collected. During data analysis, Pearson's coefficient was used to find out the correlation between 6MWD and each contributing factor. Regression equations were then generated. The data was also applied on predicted 6-minute walk equations from similar studies for comparison.

Result

65 subjects (17 male, 48 female), aged 57.4 ± 11.4 in male and 58.9 ± 14.2 in female, were recruited. The 6MWD of male was 511.2 ± 60.9 m, while that of female was 459.8 ± 64.5 m. There was a significant difference ($p=0.006$) in 6MWD between both gender. For female, there was a strong negative correlation ($r=-0.542$, $p<0.001$) between BMI and 6MWD, while a moderate positive correlation ($r=0.381$, $p=0.007$) between %HRmax and 6MWD. For male, 6MWD was strongly and positively correlated ($r=0.544$, $p=0.024$) to %HRmax. Gender specific regression equations were established from our data as following: Female's 6MWD in meters = $3.01 \times (\%HRmax) - 11.9 \times (BMI) + 577.3$ Male's 6MWD in meters = $4.54 \times (\%HRmax) + 304.3$ <5 % of difference in 6MWD was found when compared with a similar study. Conclusion In healthy Chinese female, 6MWD is directly proportional to %HRmax, but inversely proportional to BMI. On the other hand, in healthy Chinese male, 6MWD is directly proportional to %HRmax only. Clinically, by comparing the targeted exercise heart rate and the %HRmax from the equations above, primary health care for

coronary heart disease prevention should be reinforced on healthy Chinese population with substandard %HRmax.