

CHAPTER I

INTRODUCTION

Type 2 diabetes mellitus (DM) is one of the major chronic diseases causing health problems: weakness of muscle, intolerance to physical exertion and decrease in quality of life. Type 2 DM is the most common type of DM, which may account for at least 90 % of DM (1). In Thailand, the estimated prevalence of DM in Thai adults (≥ 35 yrs.) was 9.6% or 2.4 million people with the prevalence of type 2 DM about 9.4 % (2).

According to the disable model, several studies found that patients with type 2 DM develop impairment of cardiovascular, respiratory, and musculoskeletal systems (3-12). These impairments result in reduction in the patients' functional capacity (13-19). Therefore, the assessment of functional capacity in patients with type 2 DM is importance.

Like other chronic disease, exercise testing and training are incorporated into type 2 DM rehabilitation program (20, 21). Modes of exercise testing including treadmill test, cycle ergometry test, step test, and six minute walk test (6MWT) are previously specified in this chronic disease (20, 21).

The 6MWT is one of the functional capacity tests commonly used in clinical setting due to its practicability, economics, and safety (22, 23). The test is the combined work of pulmonary, cardiovascular, and musculoskeletal systems which can indirectly determine exercise capacity at submaximal exercise level (22). As a result, the 6MWT evaluates the functional limitation in patients with type 2 diabetes mellitus.

However, it is not known the contributions of 6MWT data on the impairment of the cardiovascular, pulmonary, and musculoskeletal systems in patients with type 2 DM. Therefore, it is the major aim of this study to explore the effect of DM on functional capacity via these three systems. The results from this study will provide more insight into the effects of the combined systemic impairments on functional limitation in these populations and hopefully this information will fulfill the gap of the DM rehabilitation.

Research hypotheses

There would be a relationship among the physiological factors including demographic data, heart rate by the end of the 6MWT, pulmonary functions, lower extremity muscle strength and 6MWD in male patients with type 2 DM.

The purposes of this study were

1. To determine the relationship among the physiological factors including demographic data, heart rate by the end of the 6MWT, pulmonary function, lower extremity muscle strength and 6MWD in patients with type 2 DM.
2. To determine how much of physiological factors could explain the variability of the 6MWD in patients with type 2 DM.

Application

Results from this study would be the key step for the clinician to separately quantify the impairment of cardiovascular, pulmonary, and musculoskeletal systems. Thus, treatment priority on each particular physiologic system could be emphasized.

Consequently, successful application of this study would enhance the rehabilitation in DM population.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright © by Chiang Mai University
All rights reserved