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Burnout is associated with poor recovery of physical performance and low quality of life in patients after their first episode of acute coronary syndrome: A hospital-based prospective cohort study☆

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ABSTRACT

Objectives: "Burnout" is an affective response that is different to depression or anxiety. Studies on the relationship between burnout and physical recovery after acute coronary syndrome (ACS) in the long-term are lacking, hence the rationale of this study.
Methods: Participants were patients after their first onset of ACS divided into the high burnout group (HBG) and low burnout group (LBG) based on the upper quartile of their burnout score on the day before discharge. At three times (1 month, 6 months, and 1 year) after ACS, participants were scheduled for assessment of physical function and quality of life (QoL). To determine the association between burnout and physical function at different times, as well as for burnout and the QoL scores, generalized estimating equations were conducted.
Results: Of the 208 participants, 68 participants were assigned to HBG, and 140 were assigned to LBG. QoL scores in both groups at three times showed that HBG had lower scores than LBG ($p < 0.01$). HBG had lower physical scores at three times ($z = 7.28$, $p < 0.001$). Even after adjustment for confounding factors (age, sex, marital status, socioeconomic status, cigarette/alcohol consumption, ACS type, Killip class upon hospital admission), the difference was significant ($z = 7.78$, $p < 0.001$).
Conclusions: Patients with high burnout have poor physical recovery and low quality of life after ACS.

1. Introduction

Coronary heart disease (CHD) is caused by multiple factors. In addition to common risk factors such as hypertension, dyslipidemia, diabetes mellitus, or smoking, psychological factors are important in the development and progression of CHD [1]. Anxiety and depression are the most common negative affective responses provoked by diverse stressors. Studies have suggested that anxiety and depression are risk factors for CHD, increased morbidity and re-hospitalization after myocardial infarction (MI) [2]. "Burnout" is another affective response to stressors, and comprises emotional exhaustion, physical fatigue, and cognitive weariness [3,4]. Burnout does not overlap with related affective dysfunction such as depression or anxiety [5].

Initially, the concept of burnout meant "job burnout", an affective response to workplace stressors. However, the response may occur outside the occupational domain as well and in various fields: sports [6], parenthood [7], or marriage [8]. There is evidence for burnout and the related concept of "vital exhaustion" being risk factors for cardiovascular disease (CVD) [9]. Feeling of exhaustion in healthy adults has been shown to be predictive of future MI [10,11]. In patients with CVD, vital exhaustion has also been associated with the recurrence of cardiac events [12–16]. Whether burnout affects physical recovery after a heart attack is not known. Previously, we showed that burnout is associated with low physical activity 1 month after the acute coronary syndrome (ACS) [17]. However, the relationship between burnout and physical recovery after ACS in the long-term has not been reported, hence the rationale of the present study.

2. Material and methods

This was a hospital-based, prospective cohort study. Participants were patients after the first onset of ACS. All participants were interviewed to assess their level of burnout on the day before hospital discharge, then were assigned into high group or low burnout group. Because there is no solid clinical cut-off point so far to define high or low burnout, we classified burnout groups based on the upper quartile of burnout score: patients whose burnout score ≥ P75 were assigned into high burnout group, and those with burnout score < P75 were assigned into low burnout group. One month, six months and one year after this attack, participants were scheduled to be followed up; physical function and quality of life (QoL) were assessed at each follow-up time point. Data were collected to

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analyze the association of physical function and QoL during the follow-up within one year with burnout at baseline of hospital discharge.

Each participant provided written informed consent. The study protocol was approved by the Ethics Committee of Kunming Medical University (Kunming, China), and the Human Investigation Committee of Yale University (New Haven, CT, USA).

2.1. Study cohort

The study cohort was patients admitted to the First Affiliated Hospital of Kunming Medical University because of his/her first attack of ACS during March 2013 to April 2014. ACS refers to a range of acute myocardial ischemic states: ST segment elevation myocardial infarction (STEMI); non-ST segment elevation myocardial infarction (NSTEMI); and unstable angina (UA) [18,19]. Patients with a history of heart attack were excluded from the present study. Demographic/clinical data, such as age, sex, education level, family information, and ACS type, Killip class, medical history, family history, smoking, alcohol, serum biochemicals, etc., were collected from medical records.

2.2. Assessment of burnout

Burnout of each participant was assessed by the "Personal Burnout" subscale of the Copenhagen Burnout Inventory (CBI) [20]. Most studies on burnout have employed the Maslach Burnout Inventory (MBI) with special focus on work-related burnout [21]. However, the participants in this study were often retired-elderly people (87%); therefore, the MBI was not applicable to them. In this regard, CBI was applied to assess their personal burnout. The Chinese version of the CBI has been developed with satisfactory reliability and validity [22]. The score of CBI ranges from 0 points to 100 points, with high scores indicating high levels of burnout.

2.3. Evaluation of the QoL

To evaluate QoL, a disease-specific instrument, the Seattle Angina Questionnaire (SAQ), was used. The SAQ is a 19-item self-administered questionnaire resulting in five scales that measure five dimensions of CHD: physical limitation (PL), anginal stability

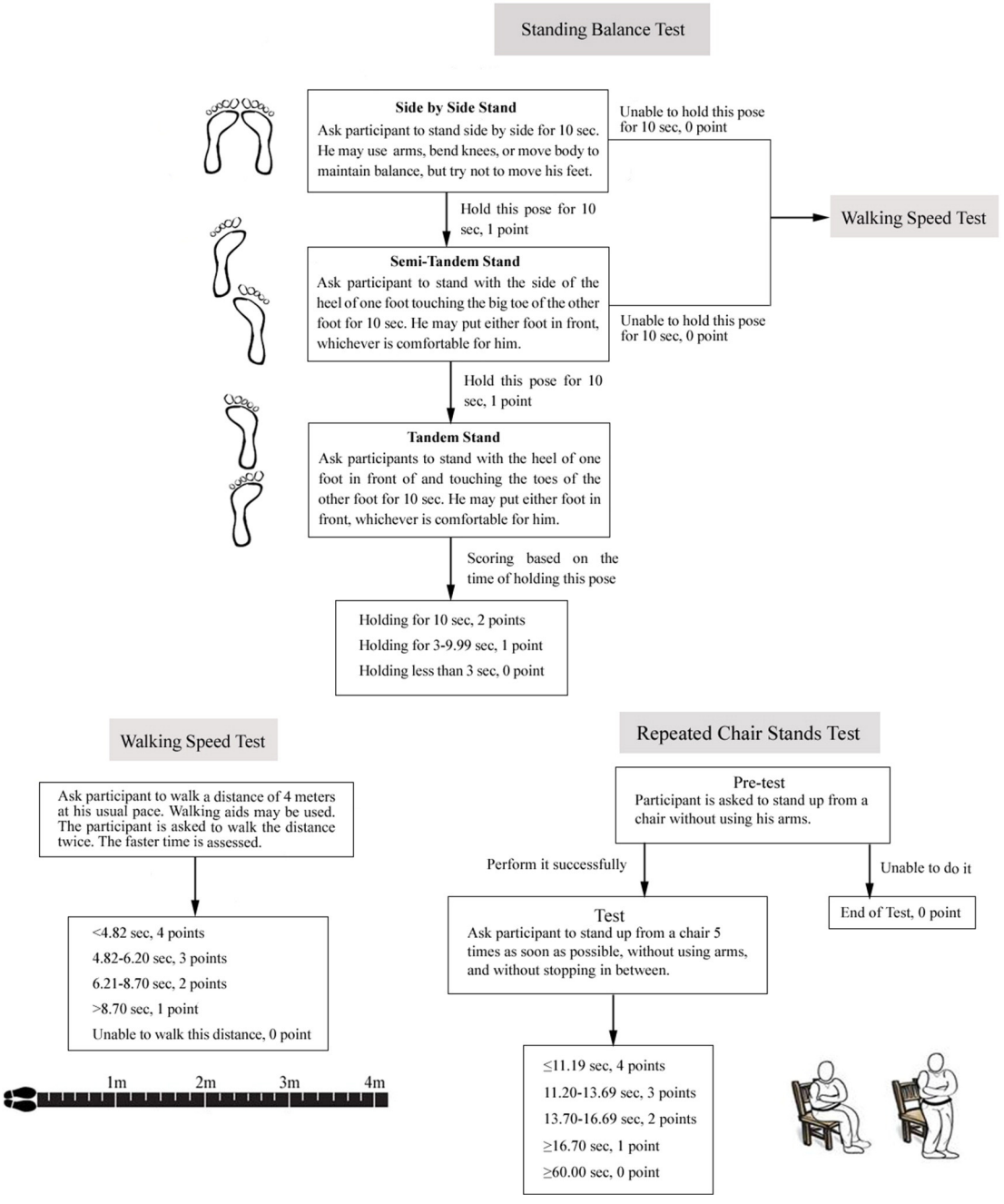

Fig. 1. Short physical performance battery.

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