Sleep Disturbances in Heart Failure Patients

Polly Li*

Department of Nursing, Chinese University of Hong Kong, Hong Kong

Short Communication

Heart failure refers to a condition whereby the heart fails to pump sufficiently to maintain a blood flow which will meet the body’s need, and is the common final pathway for various cardiac diseases. Despite advances in heart failure treatment, the prognosis remains poor with high rates of hospitalisation, morbidity and mortality. Recent data has reported that all-cause mortality is up to 32.1% at 2 years and 54% at 5 years for heart failure patients [1]. These data highlight the importance of identifying all modifiable conditions that may aggravate heart failure in these patients.

Symptomatology has been identified as prognostic in nature among heart failure patients, where the symptom burden has been reported as an independent predictor for cardiacrehospitalisation and cardiac mortality [2]. Within the symptom profile, sleep disturbance has received the least attention despite its high prevalence among the heart failure population. Indeed, self-reported sleep disturbances, such as difficulty in falling asleep, waking up during the night and early morning awakening, affect up to 65%-81% of the heart failure patients, [3] particularly older patients. Sleep disturbance has been reported as the most burdensome symptom by heart failure patients [3]. The patients with sleep disturbance are associated with poorer self-care [4] and their quality of life is heavily jeopardised [5]. A recent study found that the subjective sleep disturbance in heart failure patients resulted in a two-fold increased risk for all-cause as well as cardiovascular hospitalisations after adjusting for potential confounders [6]. Similarly, self-reported insomnia (defined as using hypnotics, or the presence of moderate to severe sleep disturbance symptoms accompanied by the impairment of daytime functioning) was found to be an independent predictor of cardiac events (i.e. cardiac death and/or worsening heart failure) among heart failure patients [7]. All these negative consequences highlight the need for a better understanding of the factors affecting sleep quality in patients with heart failure.

The factors associated with sleep disturbance have been explored extensively among other populations. Surprisingly, previous studies have seldom focused on heart failure patients despite the high prevalence of sleep disturbance in this vulnerable group. Spielman’s 3P Model is regarded as a comprehensive framework for assessing the factors contributing to insomnia/sleep disturbance [8]. Spielman proposed three types of factors which are associated with sleep disturbance. Predisposing factors are the biological and psychological characteristics that increase one’s predisposition to insomnia/sleep disturbance (e.g. age, gender). Precipitating factors refer to medical, environmental, situational or psychological factors that trigger insomnia/sleep disturbance (e.g. illness, medication), while perpetuating factors are elements that maintain or exacerbate sleep disturbance, which are typically beliefs and thoughts (e.g. fear of insomnia, excessive worries about daytime consequences) or behaviours (e.g. extending the time spent in bed to try to sleep more, naps) that people use to cope with sleep disturbance. Such beliefs and behaviours perpetuate insomnia/sleep disturbance.

Riegel et al. examined the modifiable factors associated with sleep disturbance in heart failure patients and identified several precipitating and perpetuating factors, which included the number of drugs known to cause daytime somnolence, depression, worse overall perceived health, and better sleep hygiene [9]. Likewise, other studies included more factors specified in Spielman’s 3P Model appeared to better explain sleep disturbance in heart failure patients. Broström and colleagues found that the sleep of heart failure patients was affected by their daily activities, the disease itself and cardiac symptoms, such as nocturnal dyspnoea and cough [10]. With Spielman’s 3P Model as the conceptual framework, Andrews et al. adopted a mixed methods approach to evaluate the factors associated with insomnia in 11 heart failure patients [11]. The patients identified heart failure as the primary precipitating factor and various comorbid and psychological conditions, which perpetuated their sleep disturbance, including dysrhythmias, discomfort from implanted devices, adverse drug reactions, pain, nocturia, depression, anxiety and fear. Moreover, the participants in this study often strongly endorsed certain dysfunctional beliefs about sleep, such as unrealistic expectations about their sleep requirements and become excessively worried when such requirements were not met.
The metabolic rate, sympathetic nervous system activity and heart rate is reduced during sleep, whereas vagal tone is increased. These physiological changes are beneficial for the heart failure condition. It is important to seek a comprehensive understanding of the factors associated with sleep disturbance among heart failure patients, so as to provide the most relevant evidence to inform the strategies to bring about a prompt improvement in sleep in heart failure patients.

References