CHAPTER 8

Sleep and Cardiovascular Health

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INTRODUCTION

Sleep is a major constituent of physiological and psychological well-being. It is a complex physiological process that involves various biological pathways, and unquestionably a fundamental need as well as food, air and water required for the maintenance of life. It is the resting status of the body defined as deficiency of motor interaction with the external milieu. Therefore, sleep may be considered as a passive resting process simply (1). However, it is associated with a high degree of brain activation and required for appropriate brain functioning. Sleep also plays role in restoration and homeostasis of the body and is indispensable for thermoregulation and energy conservation (2). About one-third of mammals' lifetime is spent for sleeping, and sleep, in addition to feeding and locomotion, is considered one of the three cornerstones of healthy lifestyle. Studies indicate that long-term deprivation of sleep causes severe physical and cognitive disability and subsequently death (1-3).

Sleep is divided into two stages which cycle continuously four to five times during the night: non-rapid-eye movement (NREM) sleep and rapid-eye-movement (REM) sleep. Generally, NREM and REM phases consist of 70 to 80% (6 hours) and 20 to 25% (1.5 hours) of total sleep duration, respectively. NREM sleep is further divided into four sections. Both sleep activity exhibits distinct physiological features. Brain functioning, pulse rate, blood pressure, cerebral

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that involves multiple sleep parameters, sleep duration is the most studied and relevant parameter in the scientific as well as clinical era. On the other hand, the relationship between sleep health and CVH and its underlying mechanisms are multiple and complex. Increasing line of evidence suggests that mental health is one of the most significant associate and modulator among them. Alterations in ANS functioning, specifically a shift to increased sympathetic activity and decreased parasympathetic activity, is the most plausible mechanism linking pathological changes observed in sleep health, CVH and mental health. However, it is evident that more work should be done to reveal the interaction among these factors and their clinical significance. Future studies should also aim to discover therapeutic interventions that improve both sleep health and cardiovascular outcomes.

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