

Letter to the Editor

Stroke and Obstructive Sleep Apnea

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Stroke is a prevalent and destructive condition in terms of morbidity and mortality. Each year, approximately 800,000 people in the United States have a new or a recurrent stroke [1,2]. In 2008, in the US, the number of deaths from stroke was greater than 130,000. Patients after stroke usually suffer with chronic functional and mental disabilities. It is a great load to the patient, families and public health care [2].

Traditional modifiable risk factors include hypertension, diabetes mellitus, dyslipidemia, ischemic cardiac disease, and atrial fibrillation [3]. There has been significant progress in addressing underlying risk factors for stroke, however there is a significant opportunity to address novel previously less well-recognized risk factors. Sleep disorders affect millions of individuals in the world [4].

Sleep is essential for the proper functioning of organs and fundamental for maintenance of life. However, about 30% percent of general populations have difficulty falling asleep, maintaining sleep, early morning awakenings, or non-restorative sleep. It is known that sleep deprivation drives higher cardiovascular risk [4]. There is mounting evidence that poor sleep and chronic sleep deprivation lead to cognitive decline too [5]. This in turn may interfere with recovery in stroke patients [6,7].

Patients with circadian rhythm disorders are at higher risk of stroke and shift work is a major epidemiological example [8]. Sleep loss after stroke can drive excessive daytime sleepiness that interferes with mood and recovery after brain injury. It suggests that the rehabilitation of the patients after stroke has directly circadian influences [8].

Furthermore, sleep disorders is particularly prevalent in patients after stroke [4]. Specialists recognize that OSA is an independent risk factor for stroke. Obstructive sleep apnea syndrome (OSA) is the most common kind of sleep-disordered breathing and is stamped by repetitive apneas and hypopneas during sleep [9]. OSA can be prevalent in 70% of patients after stroke. The early diagnosis and

treatment of OSA is essential for avoid new cardiovascular events in patients after stroke [9].

Overweight patients should be encouraged to lose weight and positional therapy reduced the amount of time spent in the supine position by 36% and reduced AHI by 19.5%. Oral appliances are potentially viable treatment option [10]. However, treatment with continuous positive airway pressure (CPAP) has been most studied to diminish the incidence or secondary occurrence of stroke [11]. Likewise, authors demonstrated in a rehabilitation setting that treatment of apnea with CPAP improved arm functional recovery following stroke. Patients after stroke can have delirium, motor weakness or cognitive decline, all of which can be barriers to adaptation of CPAP [12]. The main negative predictors of acceptance of CPAP in this population were the presence of aphasia and severity of motor disability [13]. Systematic education and special training sessions may help the CPAP treatment. Further research in the OSA treatment after stroke must be done to decrease the cardiovascular risk and improve rehabilitation for this specific population [11].

We can appoint sleep disorders as a significant risk factor both before and after a stroke event. It is important to remind that not only sleep diseases as OSA can directly affect these patients but also a poor sleep quality associated to chronic sleep deprivation [13]. It is necessary to improve the knowledge about bidirectional/ two-way interactions between sleep and stroke. The interface between stroke and OSA must be emphasized [5]. All medical specialties that handle the patients with a stroke event should have double attention to identify possible sleep disturbances. The relationship between stroke and sleep must be known for all health professionals who working with stroke patients. This involves several areas and must be faced under new perspectives.

As discussed before, it is important to routinely investigate sleep disorders in a patient after stroke. In these patients, good sleep significantly improves quality of life and modifies life expectancy [5,14]. Depending on the history and clinical aspects of each patient, strategies can vary widely.

Simple interventions may be helpful in improving sleep e.g. education regarding appropriate sleep hygiene, positional therapy, and strategic napping strategies to help facilitate participate in rehabilitation and secondary stroke prevention [12]. If disrupted night sleep is not a problem, however, napping may actually represent a helpful strategy. Sleeping in a comfortable, dark and quiet environment can improve nocturnal sleep, as well as avoiding caffeine use will be helpful for reducing cardiovascular consequences and disrupted sleep [13].

The higher prevalence of stroke and its relationship with sleep disorders such as OSA motivates this review [2,8,15]. Unfortunately, a great part of healthy professional that works with stroke patients did not investigate routinely the sleep of these patients. It can implicate in higher risk of second stroke as well as less improvement during

rehabilitation. Continuous efforts must be done to highlight the relationship between stroke and sleep.

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