

Relationship between Psychoneuroimmuno Endocrinology and Sleep Quality Disorders

Emmanuel Zayas Fundora *

Department of National Institute of Neurology and Neurosurgery, University of Medical Sciences of Havana, Havana, Cuba

DESCRIPTION

Sleep is considered a biological and circadian phenomenon consisting of several phases or states. Its existence has been demonstrated in all kinds of animals from the elephant to the fruit fly; There are multiple theories that address the reason for their evolution and permanence in the species throughout the evolution process [1]. These theories, according to Benavides-Endara, et al. [2] may be in line with the active participation of sleep in memory consolidation, the elimination of waste substances, and its ability to counteract the excitotoxicity caused by long hours of sleep deprivation.

As a process, it must present a group of particular characteristics such as: The decrease in consciousness while it is taking place and the reactivity to external stimuli; its easy reversibility which differentiates it from pathological states such as stupor and coma; and its association with immobility and muscle relaxation. Any individual goes through phases of two types of sleep that alternate with each other: Rapid Eye Movement (REM) sleep, which occupies 25% of the total time in young people, and Slow Wave Sleep (SWP), where most of this process consists of the modality of slow waves, corresponding to the deep and restful sleep that is experienced during the first hour of sleep [2,3].

An optimal quality of sleep can lead to a good state of health, but the deficit of this can affect a person's daily life activities, such as the academic performance of children and adolescents, as well as the performance cognition of older adults.

A Sleep Quality Disorder (SQD) is a disease that is accompanied by psychological symptoms such as anxiety, depression, anguish and stress as the protagonist [3]. In relation to these effects on the sleep-wake rhythm, there is a branch of medicine that allows us to encompass and explain the symptoms, signs and repercussions on the body that cause acute or chronic sleep deprivation, a consequence of organic diseases and mental wear and tear emotional; This science is currently known as Psycho Neuro Immun Endocrinology (PNIE). The PNIE, as referred by Solomon [4], is in charge of the study and investigation of the interaction mechanisms between the brain and the systems responsible for maintaining the homeostasis of the organism:

Nervous, immunological and neuroendocrine, as well as their clinical implications; all regulated through hormones, cytokines and neurotransmitters.

In order to explain the complex relationship that exists between TCS and PNIE, it would be necessary to begin by knowing in great detail the physiological mechanisms that regulate the hypothalamic-pituitary-adrenal gland axis with respect to cortisol production. There is a marked association between sleep quality and neuroendocrine dysregulation. Kolbel, et al. [5] Ocha, et al. [6] confer an essential role on this hormone, which is at a significant peak of its generation during the day, being secreted through the axis in stressful situations [7,8]. It influences CS through the control of the sleep-wake cycle itself with a clear circadian rhythm that exhibits the lowest cortisol levels during the night. For this reason, after a night of sleep deprivation, dysregulation of the axis has been demonstrated, with a flattened morning cortisol profile in healthy young adults [9]. The hypothesis of emotional homeostasis of REM sleep proposed by Goldstein and Walker similarly corroborates the interaction between CS and cortisol for the development and maintenance of psychic pathologies such as Major Depressive Syndrome and Burnout Syndrome [10].

CONCLUSION

It is important to emphasize that, regardless of the hormonal correlates; Reduced sleep quality increases depressive or exhaustion symptoms directly due to increased fatigue and decreased work or interaction capacity. Therefore, this stress-associated hormone can be understood as a moderator of this relationship. Despite the evidence and ideas raised, there are still undetermined mechanisms that manage to provide accurate evidence to multiple phenomena that relate sleep to PNIE, so it is necessary to increase research on the subject at the international and national level.

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Correspondence to: Emmanuel Zayas Fundora, Department of National Institute of Neurology and Neurosurgery, University of Medical Sciences of Havana, Havana, Cuba, E-mail: emmanuelzayascuba@gmail.com

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