



Simposio Internacional / *International Symposium*:

## Patología del Sueño: de la Neurobiología a las manifestaciones sistémicas

*Sleep disorders: from Neurobiology to Systemic Consequences*

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### ABSTRACT

#### **Implicación de los ritmos circadianos y de otros factores en el insomnio**

Involvement of circadian rhythms and other factors in insomnia

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Sleep regulation is known to involve a circadian and a homeostatic component: process C and process S. In spite of the strong and wide support of these factors in the regulation of normal sleep, there is little support for their primary involvement in insomnia - which is both the most prevalent sleep disorder and second-most costly mental disorder.

It will be shown that insomnia is not a single disorder, but rather represents previously unrecognized subtypes that are stable over years. The presentation briefly reviews the disappointing findings on process C and S involvement in insomnia to continue with a new perspective on its etiopathology. From an evolutionary survival perspective one can ask the question: if clock and homeostat say: "sleep!" could there be any reason not to do so and stay in part alert at night? Indeed, from the perspective that sensorimotor integration is the primary function of the brain, there could be reasons, respectively: (1) sensory: environmental and internal monitoring of needs, threats and opportunities: awareness of situation and surroundings; (2) motor: action preparation: being optimally prepared if needs, threats or opportunities occur and (3) integration: making use of cognition: what prior learning about safety and threats has engraved in the brain? These qualities for survival in unsafe environments have the downside of not being compatible with sound sleep.

Examples from HD-EEG, MRI, genetic, developmental and psychometric studies will be provided that provide converging support for the idea that the insomniac brain is radically different from the sleep deprived brain of good sleeper: hyper-alert versus hardly alert. A developmental model will be presented, proposing that genetic predispositions in combination with adverse childhood adversity can promote the development of a brain that is optimally wired for staying alert (in a possibly unsafe environment), at the cost of suffering from insomnia.

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