# Pineal gland, melatonin and the illuminated nights in the XXI century

## *Glândula pineal, melatonina e as noites iluminadas do século XXI*

The secretion of melatonin by the pineal gland undergoes a significant influence of light. In the absence of light, there is a release of melatonin, a hormone that exerts major physiological actions to maintain a healthy life. During the last 100 thousand years, the brain of Homo sapiens was under a natural control of the amount of light that reach the eyes, e.g., near the equator a circadian rhythm of approximately 12 hours of daylight: 12 hours darkness. A drastic change in the light-dark cycle occurred in the last 200 years. The population in the big cities regularly is continuously working at night in bright environments, watching television, playing on the computer; thus, a series of activities are performed with an artificial light source on, actually inhibiting the secretion of melatonin by the pineal gland.

The way that the eyes use to inform the cells of the body that is day or night is done by the decrease or increase, respectively, in the concentration of melatonin in the blood. With present-day technology and varied sources of artificial light, there is an inadequate pattern of signaling to the organism of the external environment. This reduction in the duration of darkness (absence of light), often irregular, perturbs and confounds the brain interpretation of natural phenomena that would regulate physiological functions as in the example of the sleep cycle, hormonal secretion, among other biological cycles.

Some scientists suggest that after 45 years of age melatonin should be supplemented because there is a significant drop in blood concentration of this hormone in the fifth decade of life. Melatonin has been used for several conditions, such as insomnia, in the fight against pain, as an antineoplastic drug and to attenuate the production of free radicals, used thus to prevent aging.

Paulo Faro,[1] in this issue, is commenting two excellent articles[2,3] published by Brazilian colleagues on melatonin and indomethacin. The molecular structure of melatonin is very similar to that of indomethacin, and, curiously, some types of headache can be individually treated by both drugs.

Following the suggestion of Mario Peres, I have used melatonin to treat various forms of headache, including cluster headache and migraine associated or not to overuse of analgesic, recommending oral intake at 7:00 p.m. In addition, since melatonin's biological half-life is approximately 30 to 100 minutes a second dose may be repeated a few hours later.

As the good news recently revealed by AVISA (Agência Nacional de Vigilância Sanitária), we now know that melatonin was authorized in Brazil to be produced by compounding pharmacies.

## REFERENCES

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*Marcelo Valença*
*Neurosurgery and Neurology Unit, Federal University of Pernambuco*
*Recife - Pernambuco, Brazil*
*Editor da Headache Medicine*