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Titel des Beitrags: Prospective Study on Salivary Evening Melatonin and Sleep before and after Pinealectomy in Humans.

Abstract: Melatonin is secreted systemically from the pineal gland maximally at night but is also produced locally in many tissues. Its chronobiological function is mainly exerted by pineal melatonin. It is a feedback regulator of the main circadian pacemaker in the hypothalamic suprachiasmatic nuclei and of many peripheral oscillators. Although exogenous melatonin is approved for circadian rhythm sleep disorders and old-age insomnia, research on endogenous melatonin in humans is hindered by the great interindividual variability of its amount and circadian rhythm. Single case studies on pinealectomized patients report on disrupted but also hypersomnic sleep. This is the first systematic prospective report on sleep with respect to pinealectomy due to pinealocytoma World Health Organization grade I without chemo- or radiotherapy. Before and after pinealectomy, 8 patients completed questionnaires on sleep quality and circadian rhythm (Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale, and Morningness-Eveningness Questionnaire), 2 nights of polysomnography, salivary evening melatonin profiles, and qualitative assessment of 2 weeks of actigraphy and sleep logs. Six patients were assessed retrospectively up to 4 years after pinealectomy. Before pinealectomy, all but 1 patient showed an evening melatonin rise typical for
indifferent chronotypes. After pinealectomy, evening saliva melatonin was markedly diminished, mostly below the detection limit of the assay (0.09 pg/mL). No systematic change in subjective sleep quality or standard measures of polysomnography was found. Mean pre- and postoperative sleep efficiency was 94% and 95%, and mean sleep-onset latency was 21 and 17 min, respectively. Sleep-wake rhythm during normal daily life did not change. Retrospective patients had a reduced sleep efficiency (90%) and more stage changes, although this was not significantly different from prospective patients. In conclusion, melatonin does seem to have a modulatory, not a regulatory, effect on standard measures of sleep. Study output is limited by small sample size and because only evening melatonin profiles were assessed.

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