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Conference Report

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MDPI

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literature, we found no effect of biological potency, likely due to an insufficient contrast between conditions.

Keywords: post-illumination pupil response; pupillary light reflex; metameric light; melanopic equivalent daylight illuminance; interstimulus interval

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2.55. Circadian Disruption and Persistent Sleep Disorders in Osteoarthritis: Implications for Comprehensive Management

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Abstract: **Background**: Osteoarthritis is a disorder of interest in the circadian medicine field. It was proven in numerous studies that this disease is characterized by symptoms with a marked daily variation: maximal intensity of pain at evening and night hours. That is a reason for subsequent sleeping disorders and possible social jet lag. Pharmacological treatment of osteoarthritis is a complicated task for rheumatologists. Strategies includes using painkillers and anti-inflammatory drugs for a quick relief, topical therapy, or chondroprotectors. Minimal attention is given to the estimation of circadian misbalance and its correction in a mentioned population. **Methods**: In total, 120 patients with primary osteoarthritis of lower extremities joints (knees, hips, ankles) (female–male ratio 3:1, average age 57.3 $\pm$ 9.2, 2nd–3rd grade by Kellgren–Lawrence) were investigated after obtaining informed consent on their first days in clinic after hospitalization due to exacerbation of their joint pathology, and before discharge. A full clinical examination with an estimation of the daily variability of symptoms was performed. Patients were asked to fill in the WOMAC scale for Osteoarthritis estimation, visual analog pain scale (VAS) 6 times per day, sleep diaries, and the Epworth Sleepiness Scale (ESS). Assessment of Insomnia and Sleep was carried out using the Insomnia Severity Index. **Obtained Results**: A total of 81.4% patients suffered from pain of moderate-to-severe intensity during the daytime (average VAS score—6.4 $\pm$ 1.3), but marked significant pain increase predominantly during evening and night hours (average VAS score—8.1 $\pm$ 0.8), especially after physical loading. Of the investigated patients, 92.3% reported chronic insomnia due to pain. They marked a necessity to wake up, switch on the light to find rescue medication, make efforts to distract themselves watching late-night TV shows, etc. That was confirmed by data from the questionnaires. AT the end of the 10-day course of treatment that included NSAIDS, physiotherapy, and symptomatic treatment, 78.7% patients reported significant improvement during the daytime, and 63.7% patients mentioned the relief in the evening time. Despite that, almost all patients who had sleep disorders on admission reported difficulties of falling asleep and frequent awakening, not related to pain, even after treatment. **Conclusions**: This study highlights the significant impact of circadian disruption on the symptomatology and management of osteoarthritis. Despite effective daytime symptom management with NSAIDs, physiotherapy, and other symptomatic treatments, evening and nighttime pain remain a significant issue, leading to chronic insomnia and potentially contributing to social jet lag in this population. The findings suggest that current osteoarthritis management strategies may be insufficient without considering the circadian aspect of the disorder. Incorporating circadian medicine principles, such as tailored timing of medication and therapeutic interventions, could enhance overall treatment effectiveness and improve quality of life for patients.