ORIGINAL RESEARCH

15. Evaluation of HMBG1 serum levels and its involvement in depressive symptoms in Obstructive Sleep Apnea Patients (OSA)

Julia Jaromirska[1], Agata Gabryelska[1], Marcin Sochal[1], Szymon Turkiewicz [1],

[1] Medical University of Lodz, Lodz, Poland

https://www.youtube.com/watch?v=hJIcIJ1w8oM&list=PLhqNq3xJClbafO0Y5bvBcgMmXpgzJxd44&index=5&t=3752s

Obstructive sleep apnea (OSA) is a chronic disorder marked by recurrent airway obstruction, leading to sleep fragmentation and intermittent hypoxia. It is associated with neuropsychiatric comorbidities, particularly depression. Both OSA and depression involve systemic inflammation. High-mobility group box 1 (HMGB1), a ligand of TLR4, promotes proinflammatory cytokine secretion and has been linked to depression. Its secretion can be induced by reactive oxygen species. This study aimed to assess HMGB1 concentrations in OSA patients and examine their relationships with polysomnography (PSG) parameters, hypoxia-inducible factor 1α (HIF-1α), and depressive symptoms. The study included 152 participants undergoing PSG. Based on apnea-hypopnea index (AHI), they were divided into OSA (AHI≥5; n=102) and non-OSA (n=50) groups. Depression was assessed with the Montgomery–Åsberg Depression Rating Scale (MADRS), and insomnia with the Insomnia Severity Index (ISI). Serum HMGB1 and HIF-1α levels were measured using ELISA. Participants were further categorized into control (n=21), depression only (n=29), OSA only (n=57), and OSA with depression (n=45) subgroups. HMGB1 levels differed between groups (p=0.014). Controls had lower concentrations (40.0 pg/ml) compared to depression (45.6 pg/ml, p=0.013) and OSA+depression (44.9 pg/ml, p=0.049). Across all participants, HMGB1 correlated with MADRS scores (R=0.178, p=0.028), but not within subgroups. HMGB1 and HIF-1α were correlated in the whole sample (R=0.278, p=0.011) and particularly in depression and OSA subgroups. No association was observed between OSA severity and HMGB1 levels. In conclusion, elevated HMGB1 is linked to depression, independent of OSA presence, and relates to depressive symptom severity. HMGB1 dysregulation may contribute to depression development, warranting further investigation.

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