J Nephrol Ren Dis 2019, Volume: 3
DOI: 10.4172/2576-3962-C1-012

Serum hepcidin concentrations and atherosclerotic changes in patients with obstructive sleep apnea

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Obstructive sleep apnea syndrome (OSA) is defined as a combination of symptoms as a result of intermittent, recurrent constraint and/or complete airway overhead airway overflow (sleep disturbance). During desaturation episodes, the organism is subjected to chronic stress. This leads to reduced nitric oxide secretion, increased release of interleukin-6, tumor necrosis factor-alpha and other pro-inflammatory cytokines. The described pathological cascades are associated with the development of insulin resistance, arterial hypertension, metabolic syndrome, systemic atherosclerosis and increased cardiovascular risk. 39 patients with OSA were included; age 44.1 ± 7.7. The established results were compared to sex and age-matched healthy control. CBC, serum iron, ferritin, hsCRP, hepcidin, homocysteine and vitamin B12 were measured in the included groups. IMT and FMT were used for atherosclerotic changes evaluation. We found increased serum hepcidin levels in OSA patients with IMT and FMD changes (121.1 ± 17.1 μg/L) compared to healthy controls (19.9 ± 2.3 μg/L); P<0.001. A positive correlation was found in OSA patients with atherosclerotic changes between IMT and FMD to serum hepcidin levels (r=0.811, r=0.884, resp.; P<0.005). Serum hepcidin correlates positively to vitamin B12 in OSA patients with atherosclerotic evidence changes (r=0.871, P<0.005).Brain-vascular disease risk factors are connected to obstructive sleep apnea syndrome. Dysregulation of iron homeostasis is one of the main risk atherogenesis factors. Early hepcidin quantification might predict an atherosclerosis occurrence in OSA patients, which might be very important for better clinical diagnosis and practice. This project is sponsored by MU-Sofia, as part of Grant Д-52/2018.

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