

Abstract

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Membrane level of omega-3 docosahexaenoic acid is associated with severity of obstructive sleep apnea.

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BACKGROUND: Patients with obstructive sleep apnea (OSA) are at increased risk of cardiovascular disease (CVD). The omega-3 fatty acid docosahexaenoic acid (DHA) is a major component of neural tissues, and supplementation with fish oils improves autonomic tone and reduces risk for CVD. A link between low DHA status and less mature sleep patterns was observed in newborns.

METHODS: We investigated the relations between red blood cell (RBC) levels of DHA and OSA severity in 350 sequential patients undergoing sleep studies. Severity categories were defined as none/mild, moderate, and severe, based on apnea hypopnea index (AHI) scores of 0 to 14, 15 to 34, and > 34, respectively.

RESULTS: After controlling for age, sex, race, smoking, BMI, alcohol intake, fish intake, and omega-3 supplementation, RBC DHA was inversely related with OSA severity. For each 1-SD increase in DHA levels, a patient was about 50% less likely to be classified with severe OSA. The odds ratios (95% CI) were 0.47 (0.28 to 0.80) and 0.55 (0.31 to 0.99) for being in the severe group versus the none/mild or moderate groups, respectively.

CONCLUSION: These findings suggest that disordered membrane fatty acid patterns may play a causal role in OSA and that the assessment of RBC DHA levels might help in the diagnosis of OSA. The effects of DHA supplementation on OSA should be explored.

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