

Omega-3 polyunsaturated fatty acids on major depressive disorder in patients with cardiovascular diseases

Omega-3 多元不飽合脂肪酸對心血管疾病患者共患憂鬱症療效研究

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Abstract

Objective: Depression and cardiovascular diseases (CVDs) exist frequently as comorbid conditions, suggesting their common etiologies. Omega-3 polyunsaturated fatty acids (n-3 PUFAs) play important roles in inflammation and brain functions, and they appear to be a possible interface between depression and CVDs. Cardiovascular diseases (CVDs) and depression have great impact on human health. World Health Organization has pointed out that these 2 conditions will be the 2 top leading causes of disability and premature death in established market economies by 2020. The review is to assess the effects of omega-3 in patients with CVDs comorbid with depression, and focus on different mechanisms, such as inflammation, hypothalamus-pituitary-adrenal (HPA) axis activation, neurotransmission signaling, and lipid raft as the link in-between.

Methods: We reviewed all recently published papers on n-3 PUFAs, inflammation, HPA axis activation, and lipid rafts to look for their implications in causing CVDs and depression. We also conducted a one year trial of 12 week double-blind placebo controlled study of omega-3 PUFAs in patients with CVD with depression, with lowering of depression symptoms as the primary outcome. The patients received diagnosis of CVD from cardiologist, structured interview for DSM-IV diagnosis of Major depressive episode. Depressive and somatic symptoms were periodically assessed and self-reported during the study, while blood PUFA levels were assessed at

the beginning and the end of the study.

Results: The literature review showed that omega-3 PUFAs has close relations with the etiologies of CVDs and depression individually based on epidemiological studies and neurophysiology and treatment studies. Moreover, lipid raft formations and disruptions are critically important in regulating of neurotransmission signaling and receptor functions, which in turn might be involved in causing depression and CVDs. Besides neurotransmission, n-3 PUFAs have shown to possibly regulate immunity and neuroendocrine function via lipid raft modulations.

← 格式化: 左右對齊

Conclusion: This review has provided evidences for the role of n-3 PUFAs in causing depression and CVD. We also propose a new hypothesis about cellular mechanisms mediated by lipid rafts. The preliminary data of the study gives more insight on effects of n-3 PUFAs in treating patients with CVD comorbid with depression.