

World Summit on OCCUPATIONAL HEALTH AND PUBLIC SAFETY

August 09, 2021 | Webinar

Prevention of atherosclerotic cardiovascular disease with omega-3 polyunsaturated fatty acids (Fish oil)**Qiyuan Keith Liu***MedStar Health, USA*

Historically there were appreciable amounts of omega-3 polyunsaturated fatty acids (PUFAs) in the diet provided by wild plants and wild game, and humans are thought to have evolved eating a ratio of omega-6 to omega-3 PUFA of close to 1:1. Many natural sources of omega-3 PUFAs have now been depleted from the diet, which has resulted in omega-6/omega-3 ratio to the range of 12-16:1. Given the nutritional importance of both omega-3 and omega-6 PUFAs and their often-opposing biological effects, this imbalance may partially contribute to the current prevalent atherosclerotic cardiovascular disease (ASCVD), which is the leading cause of death globally. Omega-3 PUFAs including eicosapentaenoic acid and docosahexaenoic acid have been extensively studied as both dietary supplement and pharmaceutical agent for the prevention of ASCVD. Epidemiological and retrospective studies have long shown the inverse relationship of omega-3 PUFA consumption and ASCVD event but results of previous large randomized controlled trials have not consistently shown the same effect. Meta-analysis and a recent clinical trial using a high dose of eicosapentaenoic acid showed convincing protective effects of omega-3 PUFAs on ASCVD. Emerging evidence shows that both chronic inflammation and hypertriglyceridemia increase the risk of atherosclerosis. Amelioration of the inflammatory process and reduction of hypertriglyceridemia provide two mechanisms on the prevention and management of ASCVD, and agents with both of these effects are more potent and desirable. Omega-3 PUFAs exert anti-hypertriglyceridemia effect, ameliorate inflammation, and maintain the resolution of inflammation homeostasis pleiotropically through multiple molecular and cellular mechanisms. This review presents the pathophysiology of atherosclerosis, the mechanisms of omega-3 PUFAs on the reduction of the atherosclerotic risk, and the current clinical utilities of omega-3 PUFAs on the prevention of ASCVD.

Biography

Keith Liu is both a clinician and a scientist with special interest in disease prevention. In his PhD research at the National University of Singapore, he found the protective effects of polyunsaturated fatty acids on cancer chemotherapeutic agent Doxorubicin-associated cardiotoxicity and hepatotoxicity by using both cellular and animal models. He received his medical training at the University of South Florida in Tampa, Florida. He is a board-certified internist and clinical lipidologist and a fellow of the American College of Physician. He has the passion and expertise in managing chronic diseases including dyslipidemia, hypertension, and diabetes mellitus in the complicating medical settings and in geriatric population.

qiyuan.liu@medstar.net