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Decreased diastolic wall strain is associated with adverse left ventricular remodeling even in patients with normal left ventricular diastolic function

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Aim: The pathophysiology of diastolic dysfunction is complex, but can be simply described as impaired LV myocardial relaxation and/or increased LV stiffness. The objective of this study is to clarify true normal left ventricular (LV) diastolic function and early stage of diastolic dysfunction before relaxation abnormality develops in patients with normal LV diastolic function using simple diastolic wall strain (DWS) in South Korea.

Methods: DWS which is a non-invasive, load-independent and reproducible estimator of LV stiffness using 2-dimensional echocardiography use the difference between posterior wall thickness in systole and diastole to approximate LV stiffness. Consecutive 349 patients with normal LV diastolic function by echocardiography were enrolled. According to DWS, patients were divided to two groups: high DWS (>median: 175) vs. low DWS (≤median: 174).

Results: Patients with low DWS were more obese and showed higher blood pressure and had more prevalent hypertension and hyperlipidemia. In addition, those with low DWS had higher LV end-systolic volume, LV mass index, E/E and lower ejection fraction and E velocity. Among them, higher LVESV and LVMI were independently associated with low DWS.

Conclusion: These data suggests that simple DWS might be helpful in identifying a subgroup of subtle diastolic dysfunction. Our data suggests that early change of diastolic dysfunction might start with abnormal LV geographic changes precede functional changes.

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Omega-3 polyunsaturated fatty acids in cardiovascular disease and cancer: A prospective alternative

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Recently, *in vitro* and *in vivo* research has demonstrated the beneficial role of omega-3 polyunsaturated fatty acids (omega-3 PUFA) as potential adjuvants for prevention and treatment of many disorders, including cardiovascular disease and cancer. Plenty of works have demonstrated the ability of omega-3 PUFA to exert antitumor activity in different kinds of cancer cells through several mechanisms, including the inhibitory effect on inflammation and cancer cell proliferation, as well as apoptosis induction. Moreover, epidemiological research and clinical interventions have demonstrated that achievable daily doses of omega-3 PUFA are able to decrease the risk of unstable angina, myocardial infarction, and sudden cardiac death, as well as death related to coronary artery disease and heart failure. It is extremely important to establish a relationship between cancer and cardiovascular diseases related to cancer treatments, since, nowadays, it is well-known that several anticancer drugs are cardio toxic, and can cause heart failure. The discussion will focus on the need of a better comprehension of the effects of omega-3 PUFA on the cardiovascular system of cancer patients. Moreover, the most recent results on the beneficial effects of omega-3 PUFA will be reviewed, by particularly focusing on cancer and cardiovascular diseases related to cancer treatments. Results obtained recently by us, and demonstrating the protective role exerted by these fatty acids in normal and malignant melanocytes, will be illustrated. Our results supporting the potential role of omega-3 PUFA as powerful adjuvants in combination with cisplatin will be shown. The need for new and well conducted preclinical studies and clinical interventional trials designed to better explore this research field and answer to many unresolved questions will be discussed.

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