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Green tea extract improves diastolic dysfunction in pediatric cardiomyopathy patients: An observational study

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Hypertrophic Cardiomyopathy (HCM) and Restrictive Cardio-Myopathy (RCM) are the common genetic types of inheritable heart disease and share a common pathophysiologic feature of diastolic dysfunction referring to an impaired cardiac relaxation and a reduced ability in ventricular compliance during diastole. The efficient causative treatments of patients with HCM or RCM are limited. Recent reports indicate the potential effect of Epigallocatechin-3-Gallate (EGCG), the most abundant catechin in green tea, on reducing cardiac myofibril hypersensitivity to Ca²⁺ to improve diastolic dysfunction. In this study, we investigated changes of cardiac function, laboratory tests and clinical characteristic in cardiomyopathy patients with diastolic dysfunction after consumption of Green Tea Extract (GTE). 13 cardiomyopathy patients with diastolic dysfunction underwent clinical examinations, echocardiography, electrography and laboratory tests before and after daily consumption of GTE capsules containing EGCG for at least 6 months. Next generation sequencing was conducted to find out candidate causative gene variants in all patients. A significant decrease of isovolumetric relaxation time, an increase of left ventricle end diastolic volume and stroke volume by echocardiography were observed after a at least 6-month period of GTE consumption. Left ventricular ejection fraction, left ventricular wall thickness, biatrial dimension by echocardiography remained unchanged. No serious adverse effects were reported in any patient. This observational study supports that EGCG, as GTE, have a potential effect on improving the impaired relaxation in pediatric cardiomyopathy patients with diastolic dysfunction.

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