

Resveratrol: A natural antioxidant from grapes regulates IL-1 and IL-6 in patients with myocardial infarction

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It has been established that in cardiac disorders, there exists a synergistic correlation between reactive oxygen species (ROS) and TNF-alpha. We probed a systematic approach to the molecular basis of cardio protective effect of natural antioxidants like resveratrol in myocardial ischemia-reperfusion injury, which could offer a novel therapeutic opportunity against oxidative tissue damage. Peripheral blood mononuclear cells (PBMC's) were isolated from blood of cardiac patients (n=20-30 having prior consent) by density gradient method and its monocytes (MN's) were employed in culture studies (with and without resveratrol). The 24 hour cultures were subjected to evaluation of interleukins IL-1 and IL-6 as well as oxidative stress marker like MDA and Glutathione. The results were that the patient's samples exhibited a remarkably suppressed glutathione levels (18.83 pg/ml; n=20; p<0.001) when compared to samples of healthy subjects (67.11 pg/ml; n=6; p<0.001); augmented levels of MDA were recorded in patient's sample (34.23 nmol/ml; n=20; p<0.001) in comparison to healthy controls (5.12 nmol/ml; n=6; p<0.001). These observations are indicative that the defense system for antioxidants was compromised markedly in patients with myocardial infarction. A remarkable degree of amelioration in glutathione levels (59.35 pg/ml; n=20; p<0.001) coupled with an appreciable suppression in MDA levels (9.33 nmol/ml; n=20; p<0.001) were recorded in cultures treated with 20 ug/ml resveratrol. Furthermore, untreated patients cells exhibited augmented expressions of IL-1 (49.16 pg/ml; n=20; p<0.001) and IL-6 (53.11 pg/ml; n=20; p<0.001). Co-culturing with resveratrol exhibited suppression in IL-1 (12.32 pg/ml; n=20; p<0.001) and IL-6 (9.12 pg/ml; n=20; p<0.001). The IL-1 and IL-6 levels in healthy control cells (n=6) were recorded as 3.22 pg/ml and 4.09 pg/ml, respectively (p<0.001). It can be concluded that resveratrol, a potent polyphenol from grape sand also a natural antioxidant, ameliorated glutathione levels simultaneously and in turn, appreciably regulated IL-1 and IL-6 expressions in cell culture studies. Thus, in-depth studies are required to probe at the molecular level that whether resveratrol is having such potential or not.

Biography

Shireen Lamay is currently pursuing her Doctorate degree as a Research Scholar from Department of Biochemistry, Faculty of Medicine, Aligarh Muslim University, India. She has completed her Masters and graduation in Biochemistry. She has her expertise in utilizing natural antioxidants/polyphenols in combating cardiac disorders. Her work is specifically focused on employing wide spectrum of such antioxidants like resveratrol from grapes, etc. which will be beneficial for elucidating the working action of safe and economical natural compounds that may be used as an adjunct in the management of MI.

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