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## Coenzyme Q10 Ameliorates Hyperlipidemia Induced Brain Oxidative Stress and Inflammation

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Oxidative stress is a common denominator in many disease processes including hyperlipidemia. Persistent oxidative stress may result in inflammation which eventually leads to other diseases including neurodegeneration. Thus optimum titration of oxidative stress is essential for proper brain function. Coenzyme Q10 is a powerful antioxidant and has been reported as a scavenger of oxidative stress. Hyperlipidemia on the other hand aggravates the outcome in neurodegenerative disorders by enhancing oxidative stress. Therefore, in our current study, we evaluated the effect of coenzyme Q10 in a setting of hyperlipidemia. Hyperlipidemia was induced by a single intraperitoneal injection of Tyloxapol into eight weeks old mice. Twenty four hours after the injection, mice were sacrificed and plasma was collected for the measurement of biochemical parameters. The treatment group received Coenzyme Q10 at a dose of 150 mg/kg BW. We noticed that plasma triglyceride and Cholesterol level was significantly higher in mice with hyperlipidemia compared to the control group. Coenzyme Q10 treatment reduced plasma cholesterol and triglyceride level significantly which was comparable to the standard treatment Rosuvastatin. Lipid peroxidation in plasma was significantly higher in mice with hyperlipidemia which was normalized upon coenzyme Q10 treatment. However the lipid peroxidation in brain was unchanged in mice of different groups. We noticed significantly higher concentration of NO, marker of oxidative stress, in brain and plasma. Coenzyme Q10 treatment reduced the level of NO in brain and plasma significantly. Coenzyme Q10 reduces hyperlipidemia induced oxidative stress and inflammation in brain and plasma most likely by enhancing antioxidative defense mechanism.

### Biography

Md Mahbubur Rahman is a teaching professional with progressive experience in research. He has demonstrated high level of ingenuity in research in the field of Neuropharmacology. In 2013, Dr. Rahman received his doctoral degree from the Heidelberg University, Germany. He is an expert in animal model of stroke. He completed MS in Pharmaceutical Sciences and Bachelor of Pharmacy from Jahangirnagar University, Dhaka in 2008 and 2006 respectively. Currently, he is working as an Assistant Professor and focusing his research on developing an animal model in an attempt to figure out the impact of food habits on neurodegenerative disorders.

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