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Effects of berberine on high fat/high sucrose induced non alcoholic steatohepatitis (NASH) in experimental rats

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Non-alcoholic steatohepatitis (NASH) is the most common chronic liver disease in the world, characterized by the hepatic steatosis, inflammation, hepatocyte injury with or without fibrogenesis, which might lead to cirrhosis. Berberine (BBR) is a natural isoquinoline alkaloid with very impressive health benefits.

The aim of this study: To evaluate the protective effect of BBR in experimental NASH induced by high fat/high-sucrose diet in male albino rats.

Methods: 60 male albino rats divided randomly into four equal groups: group I (normal control group), group II (BBR treated control group), group III (NASH group) and group IV (BBR treated NASH group). Levels of PGC-1α in hepatic nuclear extract were measured by ELISA, while the activity of cytosolic glycerol 3 phosphate dehydrogenase (GPDH1) in liver tissue homogenate, liver enzymes, lipid profile and plasma FRAP were measured spectrophotometrically.

Results: There was a statistically significant decrease of hepatic PGC-1α, plasma FRAP, serum HDL-C along with significant increase in the activity of GPDH1, liver enzymes as well as hyperlipidemia in NASH group compared to both normal control and BBR treated control groups. These pathological disturbances were significantly ameliorated by BBR supplementation.

Conclusion: The present study provided unequivocal evidence that disturbed hepatic PGC-1α and altered redox status acted as major contributing factors for the pathogenesis of high-fat/high-sucrose induced NASH in rats. It also shed some light on the potential therapeutic value of BBR in NASH; partly accredited to its hypolipidemic and antioxidant effects, in addition to upregulating the levels of PGC-1α in hepatic nuclear extracts.

Biography

Eman Elrefaei has completed her bachelor degree in medicine and general surgery at age of 25years from Tanta University, school of medicine Egypt. Then got her MD in medical biochemistry and molecular biology at age of 28years.

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