

Molecular Changes Associated with Novel Carboxamide Derivatives' Treatment of Triton WR1339 Induced Hyperlipidemic Rats.

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Abstract

Hyperlipidemia is a heterogeneous disorder that refers to raised levels of total triglycerides (TGs), cholesterol, low-density lipoprotein (LDL), very low-density lipoprotein (VLDL), and dropped levels of high-density lipoprotein (HDL) in the blood. Hyperlipidemia is one of the main causes that lead to stroke, obesity, type 2 diabetes, myocardial infarction, and atherosclerosis, which are the primary factors that lead to worldwide mortality and morbidity. The overarching purpose of this study was to explore the effect of carboxamide derivatives (X, Y, and Z), which are synthesised at the University of Jordan, on a hyperlipidemic male rat model induced by Triton WR1339 in comparison to fenofibrate on liver, endothelial, and adipose tissue samples. Gene expression were determined by RT-PCR. The three novel compounds showed a significant effect on the lipid profile by decreasing elevated triglyceride levels. Several genes were reported to be overexpressed by Triton WR1339, including CPT1A in liver samples and APOE in adipose tissue.

Most of the overexpressed genes were downregulated by carboxamide derivatives, with significant decreases in CPT1A and APOE gene expression levels. On the other hand, several genes were reported to be downregulated by Triton WR1339, including SCD in liver tissue, LPL, ACADM and Acaa2 in endothelial tissue, and LPL, SCD, ACADM, and ACAA2 in adipose tissue. Most of the downregulated genes were significantly upregulated by carboxamide derivatives. In summary, carboxamide derivatives can be used to reverse Triton WR1993's effect on inducing acute hyperlipidemia in rats.

Keywords: Carboxamide derivatives, Hyperlipidemia, Lipoprotein lipase, Triton WR1339.