A Comparative Study on the Effect of Leptin Hormone and Gemfibrozil in an Experimental Model of Hyperlipidemia Induced by Chronic Ethanol Treatment

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Abstract

The aim of the present study was to evaluate the effect of leptin hormone and gemfibrozil on the body weight, hepatic and serum lipids and lipoproteins profile in ethanol-induced hyperlipidemia in rats. The study was carried on 53 male albino rats weighing 130-160 g classified into six groups (from A-F). Three of these groups were fed a normal diet (A,C and D), while the other groups (B,E and F) were fed a normal diet combined with ethanol (6.32 g/Kg body weight per oral) for the first 30 days. Subsequently, the first three groups a normal diet for group (A), in addition to gemfibrozil (100 mg/Kg per oral daily) for group (C) or exogenous leptin (230 μ/Kg body weight, i.p.) every alternate day for group (D), while groups (E) and (F) were administered gemfibrozil and leptin for the next 15 days. At the end of the total experiment period of 45 days, liver, total lipids, serum concentrations of total cholesterol, HDL-C, LDL-C, VLDL-C, triglycerides, total proteins, albumin and glucose were measured. Ethanol-induced hyperlipidemia in rats resulted in marked increase of liver total lipids and significant increase of serum total cholesterol, LDL-C, VLDL-C and triglycerides levels. This was associated with concomitant decrease in serum HDL—C and glucose levels as well as serum total proteins and albumin levels. However, no changes were observed in the body weight gain. Administration of leptin or gemfibrozil separately or after ethanol-induced to rats was able to antagonize the ethanol-induced biochemical changes in the tissues studied. The results of the current study showed that leptin administered alone to rats resulted in marked decrease of their body weight and fasting serum glucose levels while serum HDL-C was elevated. These findings indicated that the
chronic administration of exogenous leptin was more effective as compared to gemfibrozil in preventing the rise in lipids and lipoproteins concentration in an animal model of alcohol-induced hyperlipidemia.

**Keywords:** Alcohol, Leptin, Gemfibrozil, Hyperlipidemia, lipoproteins, Protein

**Published In:**

**References:**

Heba Taha, El-Sharkawi F and Samy A. Abd El-Azim “Bulletin Of Egyptian Society For Physiological Sciences” 27(2) 2007, 115-134.

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- **Publication:**
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- **Research interests:**
  
  Biochemistry.

  Molecular biology.