Role of Liver in Progression of Insulin Resistance in Relation to IGF-I and Insulin Levels in Rats with Acute Hepatotoxicity

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SUMMARY. The aim of the present study was to investigate the role of liver in progression of insulin resistance in relation to IGF-I levels in rats with acute hepatotoxicity, induced by carbon tetrachloride (CCl4) and acetaminophen. Wistar rats were divided into four equal groups of six rats each. Group-I (served as Control1) received olive oil, group-II received CCl4, group-III (served as control 2) received gum acacia and group-IV received acetaminophen. After 48 h of treatment, fasting blood samples were collected to determine biochemical parameters, and liver and pancreas in all groups were collected for histological evaluations. The levels of serum fasting glucose, AST, ALT, ALP, total bilirubin and insulin resistance were Significantly more in group II & IV when compared with their respective control groups. Fasting insulin and IGF-I levels in toxicant treated groups were shown significantly lower than in control groups. The liver sections of toxicant treated rats showed hydropic degeneration (ballooning) in centrilobular hepatocytes with single cell necrosis surrounded by neutrophils. The serum IGF-I level could be a useful marker for identifying subjects at risk of developing type-II diabetes mellitus and possible cardiovascular complications.

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