

Alteration upon Oral Ingestion of Monosodium Glutamate in Various Lipid and Lipoprotein Fractions in Serum of Adult Male Rat

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KEYWORDS Monosodium Glutamate (MSG). Low Density Lipoproteins (LDL). High Density Lipoproteins (HDL). Very Low Density Lipoproteins (VLDL)

ABSTRACT Monosodium glutamate, a sodium salt of glutamic acid is commonly used as food additive in Chinese, Japanese and ready to serve foods all over the world as a flavor enhancer. Concomitantly, there is a tremendous increase in the incidences of coronary heart disease and atherosclerosis. So, the present study was conducted to elucidate the effect of oral ingestion of monosodium glutamate at dose levels of 4 and 8 mg/g body weight for 7-consecutive days to normal adult male rats by evaluating the changes in serum lipid and lipoprotein fractions, glucose and protein levels. A significant increase was observed in serum total lipids, phospholipids and free fatty acids in monosodium glutamate ingested rats with respect to normal healthy control animals whereas cholesterol levels were remained normal. Monosodium glutamate ingestion produced hyperglycemia by significantly increasing the glucose levels in 4 and 8mg/g. body weight ingested MSG rats and a nominal increase was seen in serum protein levels in MSG ingested rats. The oral ingestion of monosodium glutamate at dose levels of 4 mg g⁻¹ body weight and above significantly increased the levels of low density lipoproteins, very low density lipoproteins whereas a significant decrease was observed in high density lipoproteins. All the above observations suggested that oral ingestion of monosodium glutamate at dose levels of 4mg/g body weight and above for 7 consecutive days produced hyperlipidemia, hyperlipoproteinemia and hyperglycemia and thereby could be responsible for the initiation of atherosclerosis.