Lipid Components and Fatty Acid Composition of Human Serum in Diabetic Patients

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The study was designed to estimate the effect of diabetes on the level of some biochemical parameters, percentage and level of fatty acids in serum lipids. The study included (100) diabetic patients (Non-Insulin-Dependent Diabetes Mellitus) (NIDDM) 50 males, 50 females, the age range between (40-70) years, and (100) apparently healthy subjects as a control group of matched age group. Samples of this study were collected in Al-Waffa center for diabetic research and management in Mosul city.

The measured biochemical parameters include glucose, total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, very low-density lipoprotein cholesterol, triglyceride and phospholipids, using Kits obtained from regional and international suppliers. Furthermore, this study includes analysis and measurement of percentage and level of fatty acids in serum lipids were done, lipids extraction from serum was performed using organic solvents and then separation of serum lipids was followed by thin layer chromatography (TLC). The separation of three main lipids parts (CE, TG, PL) was achieved by this technique, this was followed by transmethylation of fatty acids in these three parts of serum lipids using (16%) (BF3/Methanol) under Nitrogen. Then the measurement of percentage of fatty acids in the three parts was performed by Capillary Gas Chromatography (CGC).

The result showed that there was a significant increase in the level of biochemical parameters in diabetic patients in comparison with control groups and a significant decrease in the level of HDL-C in diabetic patients in comparison with the control group, and these effects were found to be age-related and the results showed that there was a large effect of diabetic disease on the percentage of fatty acids comparison with control group.