Objective: The aim of this work was the study of fatty acid (FA) composition of plasma lipids in patients with chronic complications of type 1 diabetes mellitus (DM-1). Method: The object of research were 16 teenagers (14.5±1.28 years) suffering from polyneuropathy and microangiopathies developed against DM-1 background. The control group included 10 healthy schoolchildren (16.8±1.1 year). The analysis of FA composition was made by capillary gas-liquid chromatography. Quantitative evaluation of individual FA content was made as a mass percentage of their total. Statistical analysis was performed using the Mann-Whitney U test (p<0.05). Result: In the experimental group the level of saturated stearic acid and the level of polyunsaturated linoleic acid were reduced (10.94±0.68% vs. 13.51±1.60%, p<0.01 and 24.57±0.80 % vs. 27.97±2.59%, p<0.05, respectively). In addition, the relative level of monounsaturated oleic acid and the level of saturated palmitic acid were increased (20.22±0.87% vs. 16.09±1.71%, p<0.001 and 29.39±0.86% vs. 27.02±1.23, p<0.01, respectively). Conclusion: Considering these results the FA composition of blood plasma in complicated DM-1 biased towards ratio of FA characteristic of adipose tissue, which quantitatively predominant oleic FA, and stearic and linoleic acid have a significantly lower concentration. Thus, FA composition with DM-1 reflects the degree of lipolysis activation in fat depots. A dysbalance between monounsaturated and polyunsaturated acids in endothelial cells must emerge in consequence of the release of lipids, containing a large amount of monounsaturated FA, from adipocytes. As a result, changes in eicosanoid metabolism may develop. In turn, aforecited processes may affect microcirculation and cell metabolism.