Background & Objectives: Genetic background and blood groups are important factors in creating diabetes disease. The aim of the present study was to review the frequency distribution of blood groups in diabetic and non-diabetic patients and the relationship between blood groups and diabetes. Materials & Methods: This cross-sectional study included 379 diabetic patients (325 cases with type II diabetes and 54 cases with type I diabetes) who had clinic files as the case group and 702 cases randomly selected as the control group from those having been proved non-diabetic in the compulsory marriage tests. Information was collected using a checklist, containing variables such sex, age, diabetes type, family history of diabetes, and blood type and Rh. All the study patients underwent blood type tests. Results: The mean age of the case and control groups was 51.74 and 24.68 years, respectively, and the mean diabetes duration in the case group was 8.5 years. The chi-square test demonstrated no significant differences between the case and control groups in terms of gender (p value = 0.49), blood type (p value = 0.25), and Rh (p value = 0.197); however, this test showed a significant difference between the case and control groups regarding the family history of diabetes (p value 0.001). Conclusion: Some previously conducted research has confirmed the effect of blood types on diabetes. Our results, however, showed no significant relationship between diabetes and blood types. Keywords: Diabetes, Blood types, Family History of Diabetes