

Comparison of TCD findings in diabetic patients with duration less and more than 5 years referred to the diabetes clinic of Imam Khomeini Hospital in Ardabil

Abstract

Introduction

Diabetes mellitus is the sixth leading cause of death by disease in individual older than 25 years, and is included 18% of all death. It is a major independent risk factor for cerebrovascular disease. This study carried out with the aim of determining the involvement level of brain artery occlusion in diabetic persons, to determine the effect of duration of diabetes on stroke in these patients by comparing the rate of cerebrovascular involvement in diabetic patients with duration more and less than 5 years.

Material and Method

Current study is a descriptive analytical cross-sectional study. In this study patients who their diabetes have been approved was selected by the diabetes clinic of Imam Khomeini Hospital and divided into two groups with disease duration since diagnosis less and more than 5 years. Then patients were referred for TCD to Alavi Hospital. Questions which were prepared in check list asked as an oral interview and at the end, TCD was performed on patients. In TCD, max and mean velocities, pulse and resistance indexes in the arteries of the right and left MCA and basilar was measured. After completing them by patients' information, all data were analyzed by SPSS v16 statistical software.

Results

In this study in patients with duration less than 5 years, 64 percent (with the average age 55.16 years) and in patients with duration more than 5 years, 36 percent (with the average age 59.37 years) were men. In this study there was no significant relationship between disease duration and BMI ($p=0.107$) but was also observed that with increasing duration of disease was increasing HbA1C of patients ($p=0.009$). In right MCA artery the average systolic velocity was 77.92, diastolic 27.02 and the mean 43.24; in left MCA the average systolic velocity was 83.86, diastolic 28.22 and the mean 45.72 and in basilar artery the average systolic velocity was 72.94, diastolic 23.24 and the mean 38.14 was obtained. There was no significant relationship between velocity of right, left and basilar arteries and diabetes duration. Also there was observed a significant relation between diabetes duration and pulse index of right MCA ($p<0.001$) and basilar ($p=0.001$) but was not significant for diabetes duration and pulse index of right MCA ($p=0.556$). The relation between diabetes duration and resistance index of right MCA ($p<0.001$), left MCA ($p=0.020$) and basilar artery ($p<0.001$) was observed significant. There was no significant relation between age, BMI and HbA1C with pulse and resistance indexes among patients.

Conclusion

In this study abnormal pulse and resistance indexes in patients with duration more than 5 years was more than patients with less than 5, this may indicate the effect of disease duration on the vascular wall.

Keywords: transcranial doppler, diabetes