GLYCATED HEMOGLOBIN VARIABILITY AND MICROVASCULAR COMPLICATIONS IN PATIENTS WITH TYPE 1 DIABETES MELLITUS

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INTRODUCTION

- Nephropathy, retinopathy, neuropathy are long-term microvascular complications of diabetes.
- Glycated hemoglobin (HbA1c), used as a glycemic control indicator, have proven to be indicative in the development of microvascular complications.

AIM

- In this study, it was aimed to evaluate the contribution of HbA1c variability to the development of microvascular complications.

METHOD

- Twenty one cases with type 1 diabetes mellitus (T1DM) who developed microvascular complications and 39 cases without complications, that were similar in terms of age, gender, age of diagnosis, insulin treatment regimen, insulin doses (U / Kg), and mean HbA1c (%) levels were included in the study.
- Student t test and Mann Whitney U methods were used for statistical analysis and ROC analysis were used to determine limit values.

RESULTS

- Mean age of 21 cases (15 girls, 6 boys) who developed microvascular complications was 18.11 ± 4.39 years, and the mean duration of diabetes was 5.87 ± 3.93 years.
- Mean age and duration of diabetes of 39 control patients (24 girls, 15 boys) were 13.25 ± 5.22 and 4.63 ± 3.33 years respectively.
- Nephropathy was detected in 17 cases, neuropathy in 8 cases, and retinopathy in 1 case. Nephropathy occurred at a mean age of 11.62 ± 4.12 years; neuropathy at 14.13 ± 5.68 years and retinopathy at 18.41 years.
- Mean age of Type1 DM diagnosis in the complication group was 5.67 ± 3.93 years and 4.63 ± 3.33 years in the control group (p = 0.20).
- Insulin infusion pump therapy (CSII) was initiated 3.12 ± 2.91 years after the diagnosis of diabetes and mean duration of CSII use was 7.45 ± 3.78 years. In the complication group 40% of the patients and in the control group 32.5 % were using CSII.
- The mean HbA1c during follow up was similar in both of the groups (8.60% ± 0.63 vs 8.84% ± 1.32%). Adjusted HbA1c-Standard deviation (SD) and HbA1c-Variation coefficient (CV) values were 1.30 ± 0.65 and 14.36 ± 6.23 in the group with complications, and 0.91 ± 0.37 and 10.59 ± 4.01 in the control group (p<0.05).
- In the ROC-analysis for microvascular complications, the limit value HbA1c-CV value was 11.99%. (sensitivity: 61.9%, specificity: 71.9%; Youden index J: 0.3370). This value for HbA1c-SD was 0.9699. (sensitivity: 71.43%, specificity: 86.67; Youden index J: 0.3810)

CONCLUSIONS

- This study has shown that long-term fluctuations in HbA1c are associated with the development of microvascular complications in type 1 diabetes.
- However, new studies with more patients are needed in this area.

REFERENCES


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