

Counting carbohydrates in type 1 diabetes mellitus

Abstract

The thesis entitled "Carbohydrate Counting in Type 1 Diabetes" focuses on how to count carbohydrates and accurately determine the insulin dose according to the calculation. The aim of the thesis was to evaluate how carbohydrate counting in diabetic patients and switching to a flexible insulin regimen will affect diabetes compensation. In the thesis 4 research questions were set.

This thesis is divided into two parts. The first part, theoretical, focuses on diabetes in general, diagnosis, complications and treatment. The second part of the thesis is practical and presents the results of the research.

The practical part of this thesis was prepared using the method of quantitative retrospective research. Data was collected over a period of 6 months using sensor technology, specifically Dexcom and Libre sensors. The research population consisted of 20 respondents who underwent 3 nutritional interventions over a 6month period, learned to calculate the exact amount of carbohydrate in their meals and to determine an adequate bolus dose of insulin to go with it. To facilitate this, respondents used the bolus calculator in the MyLife mobile app and the Calorie Tables app.

Results are presented using graphs and tables. The resulting values were compared with each other. The main objective was to assess changes in glycated hemoglobin (HbA1c), mean glycemia, glycemic variability and time spent in target range (TIR). The results show that regular carbohydrate monitoring and accurate calculation of insulin doses have a positive effect on diabetes compensation, especially on reducing mean glycemia and increasing time spent in target range (TIR). Although the decrease in HbA1c and glycaemic variability was not statistically significant, the positive trend points to the potential effectiveness of this approach in long-term follow-up. The combination of a flexible insulin regimen and patient education represents a promising way to improve type 1 diabetes control.

Key words

diabetes mellitus; type 1 diabetes mellitus; insulin; glycemia; diabetes compensation; carbohydrates; flexible insulin treatment; carbohydrate counting