TEST FOR INSULIN PUMP USERS
– THE TOOL TO TAILOR EDUCATION AND CHECK PATIENT'S KNOWLEDGE

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Introduction

- CSII therapy in the Czech Republic is free of charge for patients fulfilling the defined indication criteria.
- The basic premise for this study was that CSII therapy has underutilized potential (as many patients do not reach the recommended HbA1c after introducing CSII therapy), and its main task was to determine how education strategy could be improved further.
- For this reason, a special test for insulin pump users was prepared. The test is based on one of the books recommended for ongoing self-study of the patient at home.
- From the test results, the patient's education was personalized.

Methods

This tool is based on Moodle (Modular Object-Oriented Dynamic Learning Environment; an interactive platform used for teaching and testing worldwide).

The test (a practice run and a full run, with a time limit) comprised 42 multiple choice questions, each with four optional choices, and could be answered online

(www.diabetickaasociace.cz/diatest).
Patients could familiarize themselves with the whole question pool first. Patients could repeat a full run attempt if they failed and were offered focused remedial education.

The test covered eight domains focusing on basic diabetes knowledge and insulin pump therapy specifically.

Domain No.	Domain description	Question pool size
1	General knowledge on diabetes	13
2	Insulin application and insulin regimes	16
3	Introduction to insulin pump therapy (what the insulin pump is, how to wear the pump etc.)	10
4	Insulin pump operation (how to handle the pump)	11
5	Diet	32
6	Bolus doses	20
7	Basal doses	11
8	CGM and handling special situations (travelling, sick-day management, sport, alcohol consumption)	28

The study group comprised 27 females and 23 males, 47/50 treated for T1DM and 3/50 for T2DM. The median of diabetes duration was 13 years (range 2-52 years), median of HbA1c was 65.5 mmol/mol (range 39-107 mmol/mol), respectively 8.1% according to DCCT (range 5.7-11.9%), median of total daily insulin dose was 40 IU (range 22-74 IU), median of BMI was 25 (range 18-37). Nineteen patients were newly introduced to CSII therapy. The most frequent reason (in 52% of cases) for starting/continuing CSII therapy was suboptimal diabetes stabilization (despite the patient's maximum efforts when using MDII).

Data were processed by SPSS sw.v.24.

Results

38/50 patients successfully completed their first full run attempt (80% or higher correct answers).
The median of the test score was 2 mistakes (range 0-17 mistakes).
The most problematic topics were Diet and Insulin application and insulin regimes.
The crucial factor influencing the test score was the willingness to try practice run(s).
Other factors, mainly age and a diabetes condition existing for more than 15 years, impacted the result as well (negative impact).

Fig. The positive effect of self-training (attempting practice run tests)
a) on full run test scores
b) on HbA1c after 6 months
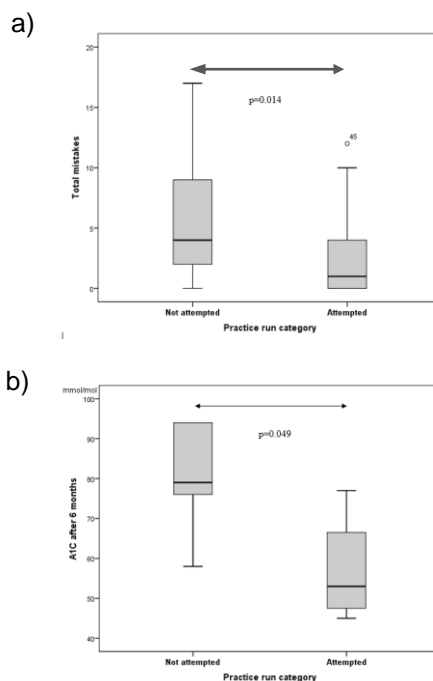
Conclusions

The type of test introduced is a good tool for checking a patient's theoretical knowledge and indirectly revealing a patient's level of motivation.
We suggest that everyone prior to starting this therapy should be psychologically evaluated, with a special emphasis on adjusting the educational strategy accordingly to the patient's personality type.

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