

Pump discontinuation in children and adolescents with type 1 diabetes



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Background

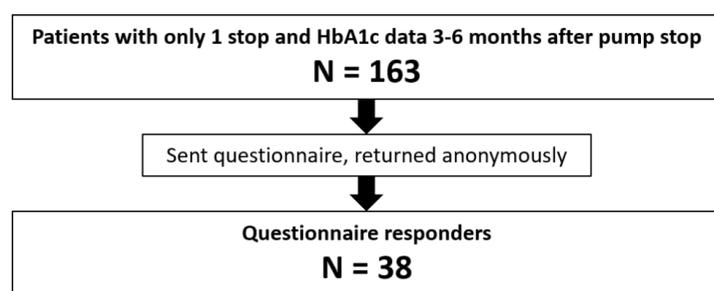
- Insulin pumps are often used for insulin administration: Continuous Subcutaneous Insulin Infusion (CSII)
- CSII improves glycaemic control¹ and quality of life²
- However, many patients with type 1 diabetes (T1D) on CSII are experiencing problems in reaching good glycaemic control³
- It is important to assess which factors determine successful pump treatment

Research questions

- What are reasons for discontinuing CSII treatment among T1D patients?
- How does CSII discontinuation affect glycaemic control?

Study design

- Retrospective observational study among patients from Diabeter, a large T1D center (>2400 patients) in The Netherlands
- Study population: patients who discontinued CSII between 2007 and 2018
- HbA1c data were retrieved from electronic health records
- Questionnaire sent to included patients (returned anonymously), including questions on:
 - Age, gender, diabetes duration and duration of pump use
 - Statements regarding 4 categories⁴ (5-point Likert scale): practical, emotional, clinical, technical



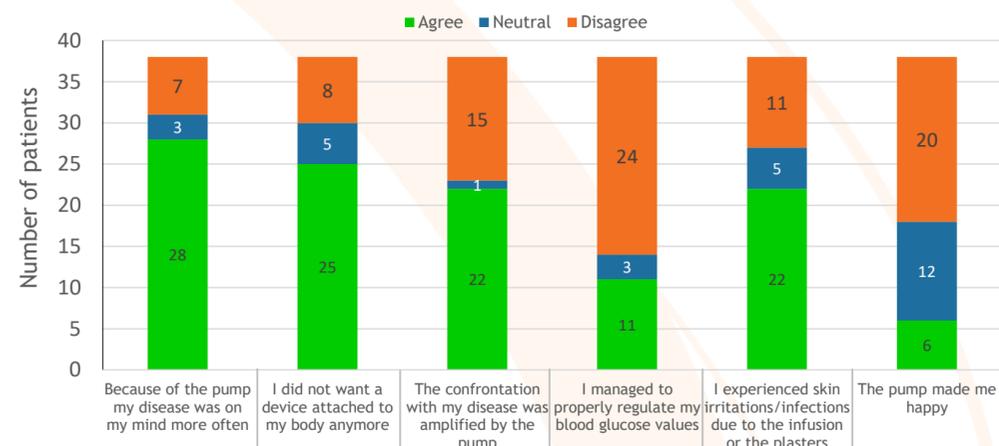
Results

- Patient characteristics

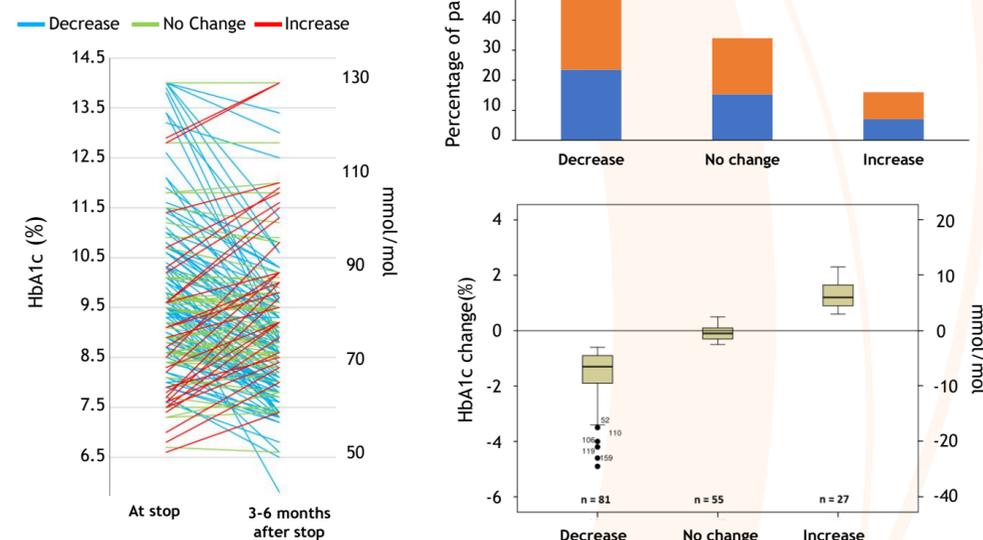
All included CSII discontinuers		Questionnaire responders	
N	163	N	38
Current age in years, mean (SD)	20,5 (5,9)	Current age in years, mean (SD)	23 (10)
Age diagnosis in years, mean (SD)	7,9 (4,6)	Gender (% male)	26
Gender (% male)	46	Diabetes duration (%)	
Age CSII start(SD)	11,7 (5,3)	< 5 years	5
Age at CSII discontinuation in years, mean (SD)	15,8 (5,1)	5-10 years	32
CSII duration (SD)	4,1 (3,3)	10-15 years	26
HbA1c at discontinuation % (SD)	9,7 (1,7)	15-20 years	16
mmol/ml (SD)	82 (18)	> 20 years	21
		CSII duration (%)	
		< 1 year	16
		1-5 years	39
		5-10 years	24
		> 10 years	21

Questionnaires:

- 20 of 38 responders indicated that their HCP felt they should discontinue CSII: 80% of patients agreed
- Most striking results:



HbA1c results:



Conclusions & Discussion

- Although CSII is considered to be positive in terms of glycemic regulation and QoL, this is not the case for all patients with T1D
- Mostly discontinuation of CSII was suggested by HCPs: however, most patients agreed
- Reasons for discontinuing CSII involved various factors: emotional, practical, technical, clinical
- In 50% of patients, HbA1c improved considerably 3 to 6 months after discontinuing CSII. HbA1c did not change or even increased for 1/3 and 1/6 of patients, respectively.
- Before initiating CSII, suitability of this treatment should be assessed, not only based on clinical factors, but also on emotional and practical factors: tools for this aim should be developed
- Future studies should test if more extensive training would allow certain subgroups of patients to benefit from CSII

Disclosures

- Healthcare contracts with all Dutch insurance organizations
- Diabeter was acquired by Medtronic in April 2015: Diabeter is compliant with legal and healthcare policies and laws on independency for prescription, patient data, research and employee data. This includes supervisory board, client board, complaint board and transparency requirements.

References

- 1Karges et al., JAMA. 2017 Oct 10;318(14):1358-1366
- 2Cummins et al., Health Technology Assessment. 2010;14(11):1-208
- 3Perry et al., J Eval Clin Pract. 2017;23:554-61
- 4Seereiner et al., Diabetes Technol Ther. 2010;12(1):89-94.