

EFFICACY AND SAFETY OF CONTINUOUS SUBCUTANEOUS INSULIN INFUSION IN PRESCHOOLERS.

LONG TERM EXPERIENCE OF A TERTIARY CARE CENTRE OF SPAIN.

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Background: There is limited knowledge in children younger than six years of age about the safety and efficacy of CSII treatment during long periods of time.

Objective and hypotheses: Evaluate the efficacy and safety of CSII treatment in pre-schoolers with T1D, assess if ISPAD/ADA criteria for good metabolic control are achieved and define general and specific characteristics of the treatment in this range of age.

Methods: Charts of patients younger than 6 years of age who started CSII treatment between 2003 and 2014 were reviewed.

The cohort consisted of 27 patients (mean age 4 (2.9-4.7) years, 56% males).

Age at start, T1D duration, HbA1c (HPLC, Menarini, normal value $5.1 \pm 0.31\%$), insulin dose, self monitoring blood glucose measurements (SMBG), number of basal rates (BR) per day, % basal/total insulin (B/TI), insulin ratios at different meals, severe hypoglycaemia (SH episodes/100 patients years), DKA events, percentages of normoglycaemia (70-180mg/dl) and hypoglycaemia (<70mg/dl) (N/H%) and average glycemia and SD (GLSD) were analysed.

Statistical analysis was performed by SPSS.

Results: HbA1c decreased to 6.8% in the first year. Afterwards, it remained under 6.8% during the follow-up (median 5 (3-6), range 1-9 years). Prior to CSII, 74% of children met ISPAD criteria for good metabolic control. At one year, 96% had HbA1c < 7.5%. SMBG median per day was 10 (9-11). Total insulin dose did not change significantly. There was 1 episode of DKA and 1 episode of SH during the whole follow-up period. Insulin needs to cover breakfast were higher than to cover others meals (first year 0.92 vs 0.55, 0.6 and 0.5) see chart 1

	Prior n=27	1y n=27	2y n=24	3y n=20	4y n=17	5y n=13
HbA1c	6.9 (6.7-7.5)	6.8 (6.4-7.1)*	6.6 (6.3-7)*	6.7 (6.2-6.9)*	6.6 (6.2-7.1)*	6.7 (6.2-7.1)*
(B/TI)	40 (36-50)	29 (24-42)*	34 (29-44)	39 (27-46)	37 (30-45)	34 (27-47)
N/H%	48/9	54/11	55/9	52/11	56/10	58/9
BR		7(6-8)	7.5(6-8)	8(7-9)	7(7-8)	6.5(5-7)

Table 1. HbA1c, percentage of basal /total insulin, percentages of normoglycaemia (N) and hypoglycemia (H), and number of basal rates during the first 5 years of CSII treatment. * p< 0.05

	CSII start	Last visit
Age (years)	4 (2.23-4.67)	8.5 (5.9-9.67) *
T1DM duration (years)	1.58 (0.92-2,1)	5.8 (3.8-7.6) *
CSII treatment duration (years)	-	5 (3-6)
HbA1c (%)	6.9 (6.7-7.5)	6.8 (6.4-7.1) *
Insulin dose (u/kg/day)	0.61 (0.45-0.78)	0.67 (0.41/0.97)
Basal insulin (%)	40 (36-50)	36 (26-47)
ISPAD/ADA achievers(%)	74	93.5

Table 2. Comparison between the visit previous to start CSII treatment and the last visit. * p < 0.05

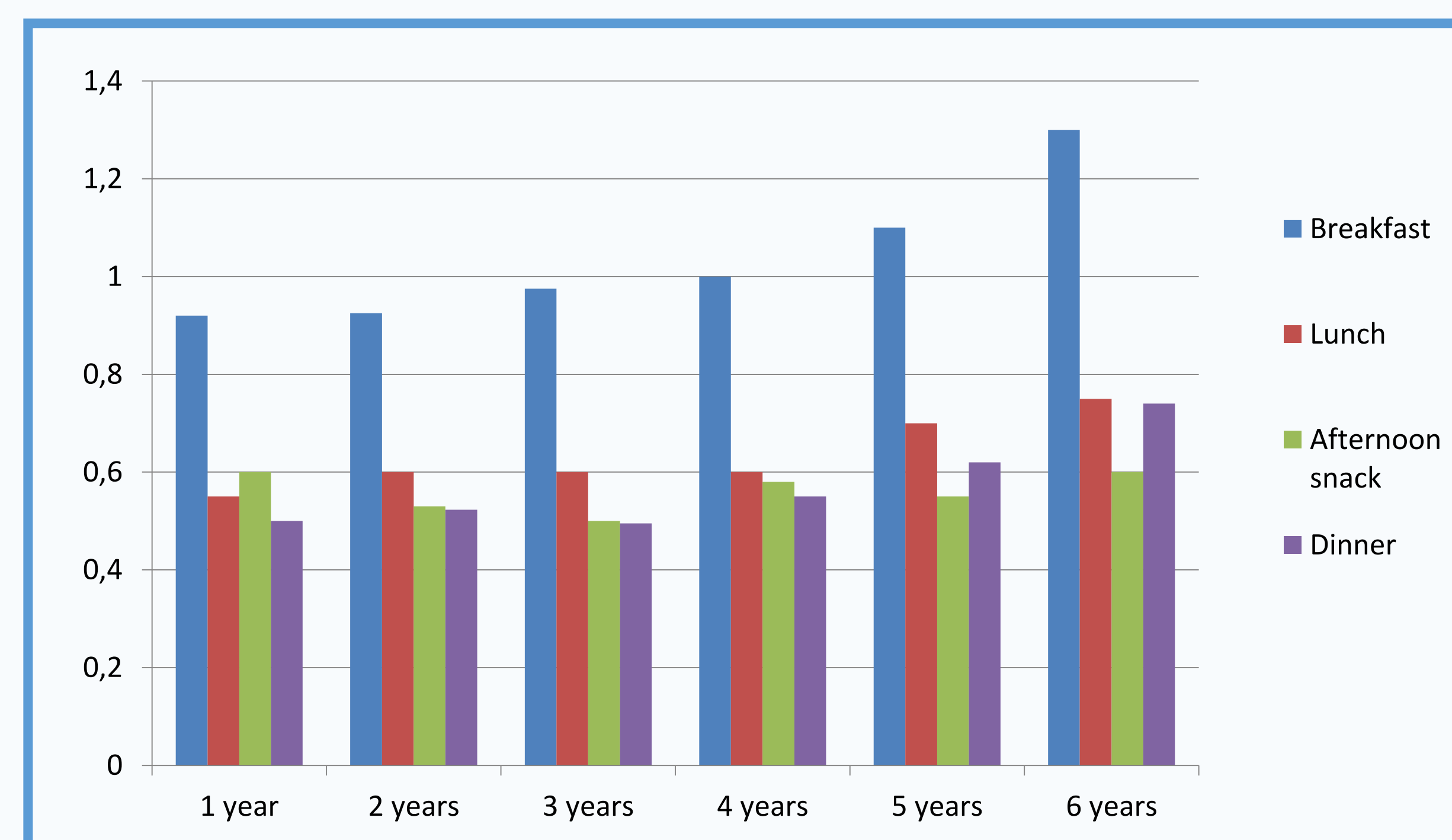


Chart 1. Insulin to carbohydrate ratios at breakfast, lunch, afternoon snack and dinner during the first 6 years of CSII follow up.

Conclusions:

CSII is effective and safe in pre-schoolers with type 1 diabetes. It allows to achieve and maintain good metabolic control (based on ISPAD/ADA criteria) during long periods of time without increasing adverse effects.

