

HIGHER-THAN-CONVENTIONAL SUBCUTANEOUS REGULAR INSULIN DOSES FOLLOWING DIABETIC KETOACIDOSIS ARE ASSOCIATED WITH BETTER SHORT-TERM GLYCEMIC CONTROL IN CHILDREN AND ADOLESCENTS



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BACKGROUND

Initial daily insulin dose following resolution of diabetic ketoacidosis (DKA) differs

-Some guidelines recommend 0.5–1.0 units/kg/d

-Up to 2 units/kg/d are used in various centers

OBJECTIVE

To evaluate the effect of initial insulin dose on glycemic control in first 48 hours after DKA in children and adolescents with new onset T1DM

METHODS and SUBJECTS

Retrospective analysis of records of patients with DKA in the last 3 years evaluated in a tertiary reference center

-n=76, median (25th–75th p) age=10.0 (6.0-12.0) years, M/F:44/32

-Group 1: n=28, median dose= 1.45 u/kg/d (1.41-1.5)

-Group 2: n=48, median dose= 0.96 u/kg/d (0.89-1)

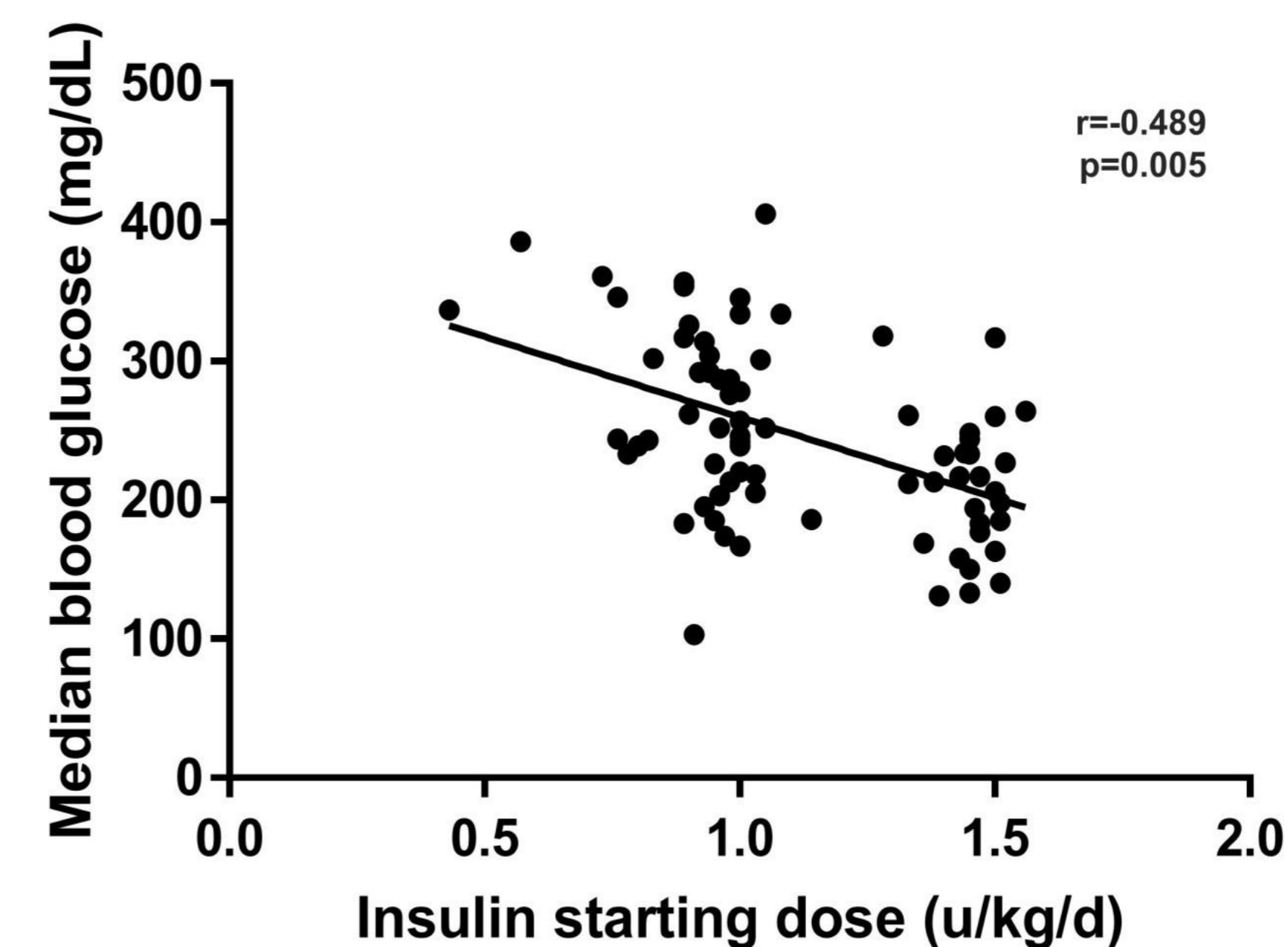


Figure 1. Correlation of starting insulin dose with median level of subsequent blood glucose measurements.

RESULTS

	Group 1 (n=28)	Group 2 (n=48)	p
Age (years)	10.5 (5.63-13.6)	9 (6-11.9)	0.205
Male	15 (53.6%)	29 (60.4%)	0.560
Pubertal patient	15 (53.6%)	21 (44%)	0.479
Blood glucose on admission (mg/dL)	465 (366-577)	466 (394-573)	0.635
pH	7.18 (7.06-7.24)	7.16 (7.03-7.24)	0.987
Bicarbonate (mmol/L)	9.6 (7.3-11.7)	8.5 (5.5-13)	0.983
HbA1c (%)	12.8 (11.2-14.6)	12.5 (10.6-13.8)	0.598
Dose of insulin infusion (u/h)	0.1 (0.1-0.1)	0.1 (0.1-0.1)	0.042
Blood glucose at the start of subcutaneous insulin (mg/dL)	159 (124-194)	157 (123-200)	0.718
Starting insulin dose (u/kg/d)	1.45 (1.41-1.5)	0.96 (0.89-1)	<0.001
Insulin dose on 1 st day (u/kg/d)	1.5 (1.41-1.56)	0.99 (0.93-1.03)	<0.001

Table 1 . Descriptive data of patients among the two groups.

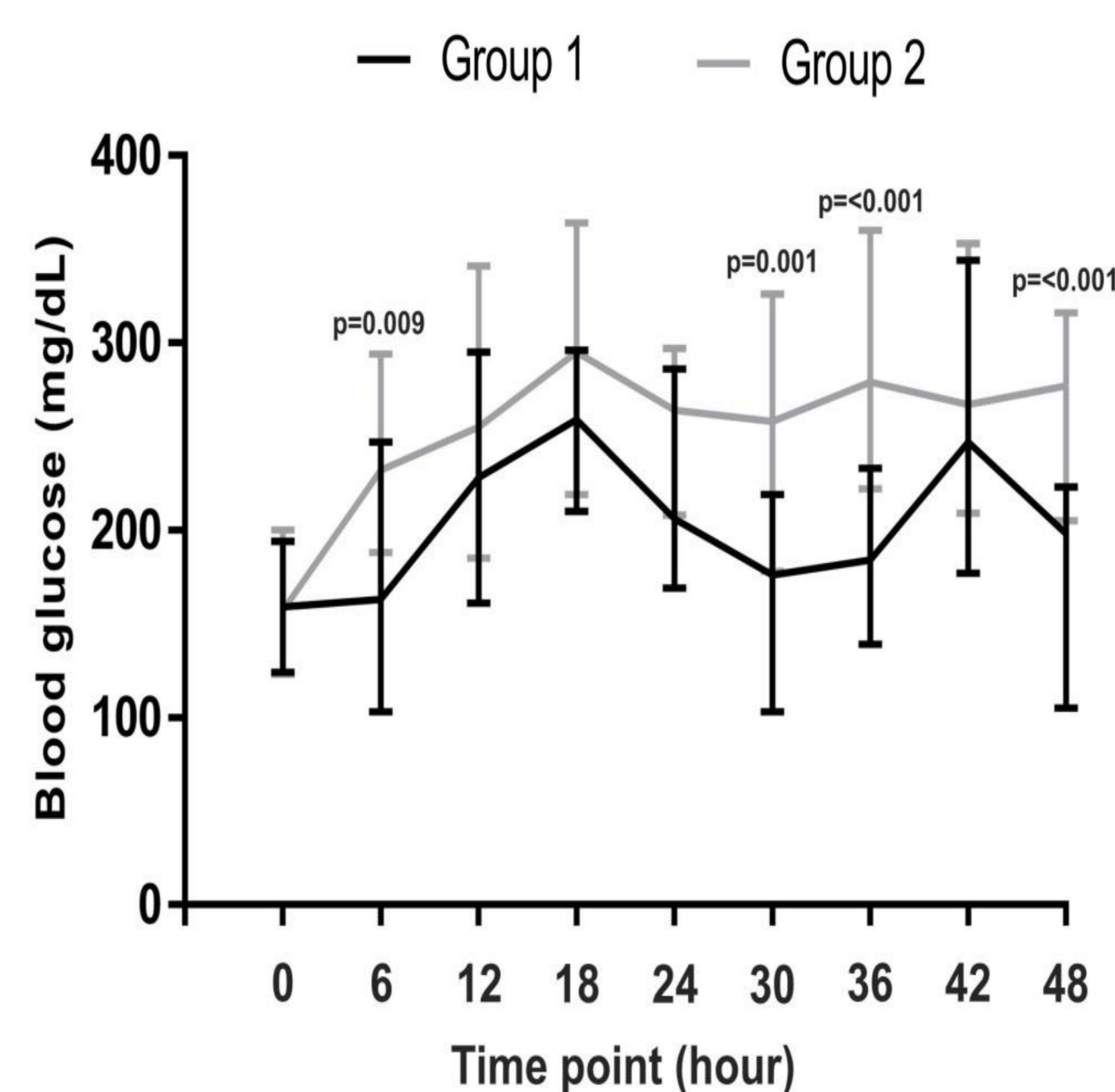


Figure 2. Median, 25th, and 75th percentile values of the two groups are shown at the baseline and specific time points during first two days of subcutaneous insulin treatment

	Group 1 (n=28)	Group 2 (n=48)	p
Median BG levels	213 (171-242)	255 (222-316)	<0.001
Minimum BG levels	102 (85-151)	129 (105-109)	0.004
Maximum BG levels	335 (290-365)	375 (341-438)	<0.001
Ratio of BG levels in 100-200 mg/dl	37.5%	12.5%	0.001
Ratio of BG levels >200 mg/dl	50%	81.3%	<0.001
Number of patients with hypoglycemia	5 (17.9%)*	4 (8.3%)*	0.276

Table 2 . BG measurements of the two groups during first 48 hours. *None had severe hypoglycemia.

CONCLUSIONS

After resolution of DKA, a higher initial dose of 1.4-1.5 u/kg/day regular insulin is associated with better glycemic control in children and adolescents without increased risk of hypoglycemia.

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