



Achievement of metabolic parameter goals in children and adolescent with type 1 diabetes according to the latest ADA/ISPAD Standards of Medical Care in Diabetes in a Pediatric Diabetes Clinic in North Greece



Papagianni M, Vamvakis A, Tsiroukidou K, Kosta K, Mameka I, Chatzakis C, Grenda E, Tsanakas I.

Endocrine Unit, 3rd Pediatric Department, Aristotle University of Thessaloniki, Hippokrateion General Hospital of Thessaloniki

Background

Blood glucose control in children and adolescents with type 1 diabetes (TD1) is the most important goal in order to reduce potential complications. Following up these patients frequently and recording the relative metabolic parameters on a regular basis is necessary.

Objective and hypotheses

The aim of the study was to compare the level of metabolic control in the children and adolescents with TD1 that are followed up in our Pediatric Diabetes Clinic with the targets set by the latest ADA/ISPAD Standards of Medical Care in Diabetes.

Methods

74 children and adolescents (38 boys, 36 girls), aged $12,6 \pm 3,9$ years old, suffered from TD1 for $5,8 \pm 4,1$ years, met the criteria (<18 years old, >1 year from TD1 diagnosis, >3 visits per year) for participating in the study. 61% of the patients had normal weight, 25% were overweight and 14% obese. Fifty of the patients were under multiple insulin injections (MDI) and twenty four on insulin pump (CSII). For all patients metabolic parameters (HbA1c, BMI, Blood Pressure, LDL, HDL, Triglycerides) were recorded and they compared with the goals set by ADA (HbA1c<7,5%, LDL<100mg/d, HDL>35mg/dl, TG<150mg/dl, BMI<85th centile, BP<90th centile).

Patients characteristics	
Age (years)	$12,6 \pm 3,9$
Gender	38 Boys 36 Girls
BMI z-score	$0,628 \pm 1,089$
Diabetes duration (years)	$5,8 \pm 4,1$
Insulin treatment	50 MDI 24 CSII

Results

In total, 62% of patients achieved HbA1c target ($7,4 \pm 0,8$). There was no difference between patients on MDI or CSII ($7,3 \pm 0,8$ vs $7,4 \pm 0,9$, respectively). When the patients were categorized by age (<12 and >12 yrs old), it was found that 65% of the patients over 12yrs old and 54% of those below 12yrs old had HbA1c<7.5%.

Lipid profile targets for HDL (58 ± 15 mg/dl), LDL (98 ± 28 mg/dl), TG (70 ± 33 mg/dl), were achieved by 97%, 54%, 97% of all patients respectively. In total, 74,6% of the patients had normal BP.

		% of patients meeting ADA and ISPAD goals
HbA1C	$7,4 \pm 0,8$	62
MDI	$7,3 \pm 0,8$	62
CSII	$7,4 \pm 0,9$	67
Serum Lipids levels		
HDL (mg/dl)	58 ± 15	97
LDL (mg/dl)	98 ± 28	54
TG (mg/dl)	70 ± 33	97
Body Weight		
Normal		61
Overweight		25
Obese		14
Blood Pressure		74,6

	<12 yrs (n=28)	>12 yrs (n=46)	Comparison between two groups (%)
HbA1C	$7,3 \pm 0,6$	$7,4 \pm 0,9$	54 vs 65
Serum Lipid levels			
HDL	$59 \pm 20,0$	$56,7 \pm 11,9$	96 vs 98
LDL	$102 \pm 29,4$	$96,1 \pm 28,0$	50 vs 57
TG	$106 \pm 39,6$	$68,8 \pm 28,9$	96 vs 98
Body Weight			
Normal			68 vs 59
Overweight			21 vs 26
Obese			11 vs 15
Blood Pressure			75 vs 76

Conclusion

Most of the patients followed up in our unit achieve metabolic goals established by ADA and ISPAD. Regular monitoring of TD1 patients can lead to a better glucose control, thus reducing the potential for future health complications.

Bibliography

- American Diabetes Association. Standards of medical care in diabetes – 2014. Diabetes Care 2014;37(Suppl. 1):S14–80
- ISPAD clinical practice consensus guidelines compendium 2009. Pediatr Diabetes. 2010;10:1–210.