

# Individualised diabetes education for adolescents: A pilot study

Katarzyna A Gajewska, Psychologist and Diabetes Educator, Outpatient Diabetes Clinic, Mother and Child Institute, Warsaw, Poland;  
Ewa Pankowska, Professor of Paediatrics and Head of Outpatient Diabetes Clinic, Mother and Child Institute, Warsaw, Poland.

A decline in metabolic control is often observed during puberty in type 1 diabetes. Factors such as the physical, emotional and psychosocial maturity process affect insulin requirement and self-monitoring of blood glucose, which can be challenging for the whole family (Court et al, 2009). The ISPAD consensus guidelines in 2009 state that diabetes education should be “adaptable, personalized, appropriate to each individual’s age, stage of diabetes... and at a pace to suit individual needs” (Swift, 2009). The purpose of this pilot study was to assess the effectiveness of age-appropriate individual diabetes education training (IDET) encouraging adolescents with type 1 diabetes “to become independent” (TBI) and providing “motivational education” (ME) in reaching optimal control. The training comprised at least four “one-to-one” 1-hour sessions.

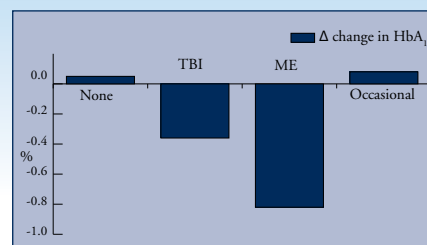
TBI training was prepared for individuals aged 10–14 years as a prevention against declining metabolic control in late adolescence. It aims to enhance skills

and knowledge in diabetes management, encourage greater independence and self-confidence in decision-making, and allow participation in activities such as school trips without carers. ME training was conducted for those aged 15–18 years, focusing on motivation rather than increasing knowledge. It aims to recognise the problems affecting diabetes management, respond to these problems and clarify why solving them is important, with a focus on individual needs and capabilities.

## Results

In the whole study-group (see Table 1 for group characteristics), diabetes education programmes significantly decreased HbA<sub>1c</sub> levels ( $3.2 \pm 11.5$  mmol/mol [ $-0.29 \pm 1.05\%$ ]), compared with adolescents with no diabetes education ( $0.5 \pm 6.4$  mmol/mol [ $0.05 \pm 0.59\%$ ,  $P < 0.05$ ]). The greatest decrease in HbA<sub>1c</sub> ( $5.1 \pm 12.8$  mmol/mol [ $-0.47 \pm 1.17\%$ ,  $P < 0.001$ ]) was observed in those who received structured IDET training,

Figure 1. HbA<sub>1c</sub> change post-education.



and the HbA<sub>1c</sub> decreased by more than 10.9 mmol/mol (1%) in 14 IDET participants. A linear regression model was estimated, revealing that a lack of diabetes education was a strong predictor of an increase in HbA<sub>1c</sub> levels ( $P < 0.05$ ; see Figure 1).

## Conclusions

Participation in IDET, particularly increased educational support and visits to the clinic, was associated with improvement in HbA<sub>1c</sub> levels. ME was associated with the most marked improvement in HbA<sub>1c</sub>, and long-term observation over 2–4 years is required to confirm the efficacy of TBI training owing to its preventative style. The authors note that other parameters may be useful to assess the effectiveness of diabetes programmes, such as the prevalence of diabetic ketoacidosis. ■

For further information on the education programmes, email [katarzyna.gajewska@imid.med.pl](mailto:katarzyna.gajewska@imid.med.pl).

Court JM, Cameron FJ, Berg-Kelly K, Swift PG (2009) Diabetes in adolescence. *Pediatr Diabetes* 10(Suppl 12): 185–94

Swift PG (2009) Diabetes education in children and adolescents. *Pediatr Diabetes* 10(Suppl 12): 51–7

Table 1. Group characteristics.

	All (n=120)	TBI (n=34)	ME (n=11)	Occasional (n=23)	None (n=52)
Mean age (years)	13.8	13.6	16.6	13.2	13.6
Mean diabetes duration (years)	7.4	8.3	10.4	6.4	6.6
Mean age of onset (years)	6.4	5.4	6.2	6.8	7
Number treated with CSII/MDI	108/12	32/2	9/2	22/1	45/7
CSII duration (years)	5.9	7	8.1	5.6	5.8
Starting HbA <sub>1c</sub> (mmol/mol [%])	63 (7.9)	65 (8.1)	87 (10.1)	57 (7.4)	58 (7.5)

CSII=continuous subcutaneous insulin infusion; MDI=multiple daily injections; ME=motivational education; TBI=“to become independent” education.

## The IMPROVE™ Control Campaign

The Global Task Force on Glycaemic Control is a group of physicians and specialists in the field of diabetes from around the world that is working in collaboration with Novo Nordisk with the ultimate aim of identifying and developing practical solutions to the global problem of poor glycaemic control in people with diabetes. Since early 2008, the *Journal of Diabetes Nursing* has featured articles and submissions under the banner of IMPROVE™ Control – a global public awareness campaign focused on the need for improved control, as part of the Task Force’s work. Throughout 2012, the journal will continue to bring you articles on the barriers to good glycaemic control, and submissions from you, our readers, outlining the strategies you have used to help people with diabetes improve their control.

For example, perhaps you have implemented a new educational session in your area that has helped break down barriers to control, or maybe you have set up a new referral pathway that has helped improve HbA<sub>1c</sub> levels. The *Journal of Diabetes Nursing* would like to help you share your practical solutions for improving control, no matter how big or small, with other nurses working in diabetes. We encourage you to take part in this global initiative by calling 020 7627 1510, or emailing [jdn@sbcommunicationsgroup.com](mailto:jdn@sbcommunicationsgroup.com).

