

# Structured insulin pump carbohydrate-counting group education programme

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In 2008, the diabetes team at the Royal Cornwall Hospital Trust initiated a short, 2-day structured education course for people with type 1 diabetes who are considering insulin pump therapy (continuous subcutaneous insulin infusion [CSII]).

## Background

Carbohydrate-counting education programmes, such as DAFNE (Dose Adjustment for Normal Eating), have been shown to improve glycaemic control in people with type 1 diabetes (DAFNE Study Group, 2002); however, such courses can be time-consuming (e.g. a 5-day training course) and costly. The Royal Cornwall Hospital diabetes team sought to develop a shorter, affordable structured education course that could be as effective in improving glycaemic control in individuals who were identified to meet NICE (2008) criteria for CSII. Such individuals are identified using the team's local CSII referral service.

## Sessions

The sessions are held over two half-days (for 4.5 hours) 2 weeks apart at the hospital's Diabetes and Endocrine Centre. These are small group sessions,

each one attended by approximately four participants and conducted by a DSN and a dietitian who have both completed the Bournemouth Insulin Dose Adjustment Course (BIDAC) for healthcare professionals. The course contents include:

- Carbohydrate counting.
- Calculating insulin ratios.
- Learning how to titrate/correct insulin doses.
- Exercise.
- Management of hypoglycaemia.
- Management of hyperglycaemia.

Participants are also shown insulin pumps and given practical instruction on how to use them. Group discussions on the different applications of pump therapy are also undertaken.

## Findings

HbA<sub>1c</sub> levels were measured and recorded for each participant at the start of the programme and at 3 and 6 months following course completion. All eligible individuals commenced CSII therapy within 6 months after completing the education sessions.

Over a period of 12 months, data were collected for 21 participants. The mean baseline HbA<sub>1c</sub> level was 9.2% (77 mmol/mol; range 6.7–12.3%

[50–111 mmol/mol]). At 3 and 6 months, HbA<sub>1c</sub> levels had reduced to 8.8% (73 mmol/mol) and 8.4% (68 mmol/mol), respectively ( $P < 0.001$ ). There was a 0.6% (6.6 mmol/mol) reduction from pre-course to 6 months in those proceeding to CSII ( $n = 13$ ) and a 1.2% (13.1 mmol/mol) reduction in those continuing on multiple daily injections (MDI;  $n = 7$ ).

At the end of the course, participants were given evaluation forms; 95% rated the sessions as excellent and enjoyable and 90% reported that the course exceeded their expectations.

## Conclusion

The data show that this short, structured CSII education group programme can lead to significantly improved glycaemic control in people with type 1 diabetes who progress to CSII or continue with MDI therapy. ■

DAFNE Study Group (2002) Training in flexible, intensive insulin management to enable dietary freedom in people with type 1 diabetes: dose adjustment for normal eating (DAFNE) randomised controlled trial. *BMJ* 325: 746

NICE (2008) *Continuous Subcutaneous Insulin Infusion for the Treatment of Diabetes Mellitus*. NICE, London. Available at: <http://www.nice.org.uk/nicemedia/live/12014/41300/41300.pdf> (accessed 11.07.11)

## 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 2011, 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).

