Coping skills training reduced haemoglobin A_{1c} and improved self efficacy in youths with diabetes

Grey M, Boland EA, Davidson M, et al. *Coping skills training for youths with diabetes on intensive therapy*. *Appl Nurs Res* 1999 Feb;12:3-12.

Question

In adolescents with type 1 diabetes mellitus, does the addition of a behavioural programme of coping skills training (CST) to intensive diabetes management improve metabolic and psychosocial outcomes?

Design

Randomised, double blind (clinicians and outcome assessors), controlled trial with 6 months follow up.

Setting

Yale Pediatric Diabetes Service in New Haven, Connecticut, USA.

Patients

77 adolescents who were 12.5-20 years of age (mean age 16 y, 58% girls, 92% white), had type 1 diabetes (mean duration 8.4 y) with no other health problems except for treated hypothyroidism, had been treated with insulin for ≥ 1 year, had haemoglobin A_{1c} (HbA_{1c}) concentration of 7-14%, had had no severe hypoglycaemic events in the previous 6 months, and were in an appropriate school grade for their age (within 1 year). Follow up was 100%.

Intervention

Adolescents were allocated to intensive management plus CST (n = 42) or intensive management alone (n = 35). Intensive management consisted of ≥ 3 daily insulin injections or an external insulin pump, self monitoring of blood glucose ≥ 4 times daily, monthly outpatient visits, and interim telephone contacts. CST was given in small groups of 2-3 adolescents who were of similar age. CST sessions lasted 1-1.5 hours, and adolescents attended 4-8 initial weekly sessions and subsequent monthly booster sessions.

Main outcome measures

HbA_{1c} concentration, hypoglycaemic events, proportion of adolescents who were overweight, self efficacy (Self-Efficacy for

Diabetes Scale [SEDS]), depression (Children's Depression Inventory), and quality of life (Diabetes Quality of Life Scale).

Main results

HbA_{1c} concentrations decreased in both groups after 6 months; the decrease was greater for CST than for intensive management alone (HbA_{1c} concentration 7.8% v 8.3%, $p=0.02$). Hypoglycaemic events were similar in both groups (23 v 22 episodes for CST and intensive management alone, respectively; $p=0.6$). The groups did not differ in the number of adolescents who were overweight after 6 months (12% for CST and 20% for intensive management alone, $p=0.85$). General self efficacy was greater in the CST group than in the intensive management alone group at 6 months (mean SEDS score 28.9 v 26.1, $p=0.01$). CST led to greater improvement on quality of life subscales than did intensive management alone (mean score difference for disease impact 6.3 v 2.5, $p=0.01$; mean score difference for worry 3.3 v 0.1, $p=0.02$). No difference between groups existed for depression.

Conclusions

In adolescents with type 1 diabetes mellitus, the addition of a coping skills training programme to intensive diabetes management led to improvement in haemoglobin A_{1c} concentration, general self efficacy, and some quality of life measures. Coping skills training did not reduce hypoglycaemic events, number of adolescents who were overweight, or depression.

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Abstract and commentary also appear in *Evidence-Based Mental Health*.

Commentary

Although the Diabetes Control and Complications Trial showed that improved glycaemic control delays the onset and slows the progression of severe microvascular complications of diabetes,¹ improving glycaemic control remains a daunting problem for many people with type 1 diabetes mellitus. Often, the demanding lifestyle changes and rigorous self management behaviours are difficult to implement. In the first well designed randomised controlled trial that tests the effects of a behavioural intervention for adolescents receiving intensive diabetes treatment, the findings of Grey *et al* have important implications for the treatment of type 1 diabetes. They show that CST improves both glycaemic and quality of life outcomes in adolescents, a group that often has difficulty reaching glycaemic goals.

This study shows the importance of

teaching adolescents how to deal with the demands of a chronic illness. CST, a nurse taught intervention that incorporates behavioural strategies with coping skills and cognitive approaches, goes beyond simply offering support and knowledge. Adolescents learnt to deal with difficult situations, such as managing food decisions with friends, by role playing and observing the nurse model appropriate coping behaviours. This innovative approach is a valuable addition to diabetes treatment.

Because only a small number of adolescents from minority groups were studied, the effectiveness of CST for non-white adolescents is unclear. Although CST is designed for adolescents, the synergistic effect between CST and intensive treatment suggests that a similar behavioural approach should be developed and tested in adults with type 1

type 2 diabetes, including those from non-white ethnic groups.

Grey *et al* describe CST as a relatively inexpensive, brief intervention. Although the actual costs of CST were not reported, intensive treatment, with its improvement in glycaemic control, leads to large healthcare cost savings over time through slowed progression of complications.² Detailed investigation into further cost savings realised by CST, if any, may lead to wider use by healthcare organisations and providers.

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- 1 The Diabetes Control and Complications Trial Research Group. *N Engl J Med* 1993;329:977-86.
- 2 The Diabetes Control and Complications Trial Research Group. *JAMA* 1996;276:1409-15.