OBSERVATIONS

Quality of Life, Coping Ability, and Metabolic Control in Patients With Type 1 Diabetes Managed By Group Care and a Carbohydrate Counting Program

Group care is a clinical-pedagogic model in which traditional routine visits are substituted by sessions of group education. This approach improves quality of life and metabolic control in patients with type 2 diabetes (1) but only quality of life in those with type 1 diabetes (2). The latter must match multiple daily insulin administrations with blood glucose monitoring, dietary intake, and energy expenditure (3). We hypothesized that to improve their coping strategies, patients with type 1 diabetes need more specific training in the technical aspects of day-to-day management of insulin therapy. To verify this, we studied the effects of embedding a carbohydrate counting program within group care on quality of life, knowledge of diabetes, coping ability, and metabolic control.

Of 56 patients with type 1 diabetes already followed by group care, 27 were randomized to receive an eight-session carbohydrate counting program and 29 continued a more generic curriculum (control subjects). Inclusion criteria were: age <70 years, onset of diabetes before age 30 years, and having started insulin treatment within 1 year of diagnosis. All patients were on four-daily injections and self-monitored blood glucose. None refused to participate, and all gave their informed consent to the study, which conformed with the principles of the Helsinki Declaration. Quality of life, knowledge, and coping ability were measured by questionnaires (1,4) at baseline and af-ter 30 months. A1C, body weight, blood glucose, hypoglycemic episodes, and insulin dosages were checked every 3 months.

All patients completed the study. Compared with baseline, the quality of life score improved ($P < 0.0001$) in both the patients on the carbohydrate counting program (88.7 ± 9.2 vs. 78.0 ± 9.9) and the control subjects (88.7 ± 12.5 vs. 80.4 ± 11.7). However, knowledge (9.3 ± 1.7 vs. 10.6 ± 0.6, $P < 0.0001$) and the three coping areas (problem solving: 28.1 ± 1.9 vs. 30.0 ± 1.6, $P < 0.0001$; social support seeking: 18.0 ± 4.4 vs. 16.9 ± 5.1, $P < 0.05$; and avoidance: 16.7 ± 3.6 vs. 14.8 ± 3.5, $P < 0.005$) improved only in the former. All these variables showed a greater, though not statistically significant, improvement in patients with poor education levels. After 30 months, A1C was lower in the patients on carbohydrate counting than in the control subjects ($7.2 \pm 0.9\%$ vs. $7.9 \pm 1.4\%$, $P < 0.05$). Insulin dosage, hypoglycemic episodes, and blood lipids did not change.

It was suggested that patients tend to cope with diabetes by avoiding the negative emotions associated with their disease rather than adjusting to the demands and challenges posed by it. This strategy is considered less adaptive (5). Our results confirm that group care improves quality of life in patients with type 1 diabetes (2) and suggest that specific educational and psychological supports are needed to improve adaptation to the disease. In fact, all three areas explored by the coping questionnaire were modified in directions that suggest better adaptation. Knowledge about nutritional aspects improved in both treatment groups but after adjusting for all control variables, the improvement remained significant only in the patients followed by carbohydrate counting, particularly those patients with poor education levels. We suggest that offering a carbohydrate counting program within a group care management approach may help patients with type 1 diabetes acquire better self-efficacy and restructure their cognitive and lifestyle potential.

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