

Does Case Management Improve Physiologic Outcomes for Patients with Poorly Controlled Diabetes?

Krein SL, Klamerus ML, Vijan S, et al. Case management for patients with poorly controlled diabetes: a randomized trial. *Am J Med* 2004;116:732–9.

Study Overview

Objective. To determine if a collaborative case management program improves diabetes and cardiovascular care in patients with poorly controlled diabetes mellitus.

Design. Randomized controlled trial.

Setting and participants. 246 patients with poorly controlled type 2 diabetes (ie, hemoglobin A_{1c} levels >7.5%) who were receiving care at 1 of 2 Veterans Affairs hospitals in Michigan. Participants randomized to the intervention group were monitored by active nurse case management through use of telephone contacts, collaborative goal setting, and treatment algorithms. Control patients received educational materials and usual care from their primary care physician.

Main outcome measures. Glycemic control, cholesterol level, blood pressure, and patient satisfaction.

Main results. Average follow-up between the 2 groups was 19 months, with a complete follow-up of 209 patients. There was no difference in level of glycemic control between the intervention and control groups (9.3% versus 9.2% [95% confidence interval, -0.4%–0.7%]; $P = 0.65$). Similarly, there was no difference in level of low-density lipoprotein cholesterol or blood pressure. Patients in the intervention arm were much more likely to report being satisfied with their care than those in the control group. 82% of intervention group patients rated their providers as above average versus 64% in the control group ($P = 0.04$).

Conclusion. Collaborative case management of diabetes patients did not lead to improved glycemic, cholesterol, or blood pressure control. The benefits of case management in improving care for patients with chronic diseases may be limited.

Commentary

The obesity epidemic has led to major increases in the prevalence and severity of diabetes mellitus. Given that diabetes is

a major risk factor for complications of vascular disease (eg, leg amputations, neuropathy, blindness) and that better diabetes management can reduce the incidence of these complications, finding ways to improve the care of diabetics is a major priority of clinicians and policy makers. Long-term diabetes management is complicated and requires constant vigilance by the provider and the patient. Therefore, case management has been proposed as a way to improve care by engaging patients in better self-management and allowing providers to stay focused on aggressive therapy. However, Krein and colleagues failed to find any benefit of such a program.

How are we to interpret the findings of this study? The literature on case management of chronic disease care is mixed and is notable for poorly defined interventions and poorly designed evaluations. That said, the bulk of the literature suggests that there are benefits of case or disease management programs in patients with chronic disease [1]; however, the lack of an effect in better designed studies such as this one suggests that the benefit is likely to be small.

With regard to the strengths and weaknesses of this study, this randomized controlled trial has important advantages over most observational studies—one can control for both observed and unobserved factors that might confound the relationship between case management and improved diabetes care. However, the relatively small sample size makes finding small improvements in care more difficult and, therefore, a modest impact of the intervention cannot be ruled out. More importantly, there may be biases that limit our ability to find a difference: only 1 out of 3 patients eligible for the study eventually enrolled, and those that declined to participate were much more likely to have poor control. Thus, the study may have included relatively motivated

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patients, who would be less likely to benefit from the intervention. Case management in less motivated, sicker patients may be more beneficial.

Applications for Clinical Practice

This nicely conducted randomized trial by Krein and colleagues demonstrates some of the limits of case management for improving the care of patients with chronic disease.

The search for better management of these patients continues, and case management still may play an important role; however, it clearly is not a panacea.

—Review by Ashish K. Jha, MD

References

1. Shojania KG, Grimshaw JM. Still no magic bullets: pursuing more rigorous research in quality improvement. *Am J Med* 2004;116:778–80.

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