Social implications of tight glycemic control

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Mr N. sat in front of me, his head bowed, pondering his answer to my question at a routine diabetes checkup: "How many hypoglycemic episodes have you had in the past 3 months?" A truck drove by, breaking his concentration. He raised his head with a worried expression and said, "I am not letting you take my licence away!"

His concern was legitimate. According to the Canadian Medical Association guide for determining medical fitness to drive, an insulin-treated patient with diabetes should not drive if he or she has a history of severe hypoglycemic episodes that required intervention or that produced a loss of consciousness.[1] Studies have shown that even mild to moderate hypoglycemia (mean [SD] glucose level of 2.6 [0.28] mmol/L) impairs driving reaction time.[2] In many provinces, physicians are required by law to report patients with medical conditions that might adversely affect the patients' ability to drive safely. In addition, patients who are commercial drivers must have no episodes of hypoglycemia within the previous 6 months to maintain their commercial licences and to continue driving. Hypoglycemic episodes have a tremendously negative effect on the livelihood of truck drivers. One can only imagine the social effects brought on by hypoglycemic episodes.

Important studies, such as ADVANCE (Action in Diabetes and Vascular Disease: Preterax and Diamicron MR Controlled Evaluation),[3] UKPDS-33 (United Kingdom Prospective Diabetes Study),[4] and DCCT (Diabetes Control and Complications Trial),[5] showed that intensive glucose control yielded a reduction in major macrovascular and microvascular events at 5- to 10-year follow-up analysis. The ADVANCE Collaborative Group demonstrated that after a median of 5 years of follow-up, intensive control reduced the incidence of combined major macrovascular and microvascular events (18.1% with intensive control vs 20.0% with standard control; hazard ratio 0.90; 95% CI 0.77 to 0.97; *P*=.01).[3] Over 10 years, the UKPDS-33 group found that compared with the conventional group, the risk in the intensive treatment group was 12% lower (95% CI 1% to 21%; *P*=.029) for the diabetes-related end point; although other differences were not statistically significant, risk was also 10% lower (95% CI -11% to 27%; *P*=.34) for any diabetes-related death and 6% lower (95% CI -10% to 20%; *P*=.44) for all-cause mortality.[4] The DCCT group showed that in patients with no baseline retinopathy, intensive treatment was associated with a 76% reduction in the risk of retinopathy, a 39% reduction in the risk of microalbuminuria, a 54% reduction in the risk of albuminuria, and a 60% reduction in the risk of clinical neuropathy compared with conventional treatment.[5] However, intensive treatment has the substantial disadvantage of severe hypoglycemia, as shown in the DCCT trial.[5] The risk of severe hypoglycemia in intensively treated patients was approximately 3 times higher than in conventionally treated patients (62 vs 19 episodes per 100 patient-years).[6] As a result, endocrinologists in the United States have recently been emphasizing "adequate glycemic control" with individualized therapy and glycemic goals while minimizing the risk of hypoglycemia.[6]

The long-term goal of glycemic control must be weighed against the distinct risk of hypoglycemia, especially in a patient such as Mr N. He is elderly, with multiple medical comorbidities and a limited life expectancy, and requires support from others for his instrumental activities of daily living. While he is still "sharp as a tack," it is undeniable that the process of aging predisposes him to the risk of hypoglycemia. Tight glycemic control, in the case of the frail elderly, increases the risk of falls, which would adversely affect Mr N.'s quality of life and independence.

Historically, the development of guidelines for the management of diabetes has been based on large randomized controlled trials of carefully chosen patients, with close follow-up and few individualized treatment plans. Studies contain strict exclusion criteria, and so findings might not directly apply to the patients we are treating.[4,5] Given the heterogeneity of patients with diabetes, I believe that guidelines should not be applied to every patient, and that treatment decisions must be individualized. We need to conscientiously apply discretion and avoid the trap of blending research findings into guidelines with no concerns about the reality of patient care. As part of the health care team, we must consider patient values and preferences, and incorporate them into our treatment plans. With the movement to pay-for-performance there might be increased pressure and rewards for physicians to attain targets based on guidelines—based on a target hemoglobin A_{1c} of less than 7%.[7] There is a distinct possibility of patients being harmed by strict adherence to generic guidelines, and it has the potential to rob the clinician of the ability to provide personalized care.

The day-to-day management of blood glucose for Mr N. is taxing and has already taken a considerable social toll. He greatly depends on his caregiver. Mr N. frequently leaves specific instructions for us to call his wife with any medication changes. The requirement of strict glycemic control complicates self-care. Frequent "lows" adversely affect

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his safety at home. In this case, intensive glycemic control poses as a potential burden on the caregiver and the patient. Survey studies have shown that hypoglycemic symptoms are associated with reduced health-related quality of life.[8] Fear of hypoglycemia might further lead to decreased treatment compliance by impinging on the patient's capacity to cope psychologically. From the patient's and caregiver's perspectives, minimizing the risk of hypoglycemia via individualized glycemic control, as opposed to generalized tight control, provides patient-centred care and enhances the patient's sense of self-reliance and efficacy.

Mr N. and his wife have opted to control his blood glucose at a level that has the lowest risk of hypoglycemia, balancing the psychological and social burden of therapy. They and the health care team have chosen a less rigorous target of blood glucose control—hemoglobin A_{1c} levels less than 8.0%. Mr N. considers his quality of life, his psychological well-being, and, of course, his capability to continue to drive to be the best indicators of the quality of his diabetes care.

As I continue the diabetes checkup with Mr N., I realize that overly rigorous attention to guidelines can lead to very real negative social consequences. I learned that guidelines frequently fail to consider numerous Mr Ns. in our clinic—the individual patients. Nonetheless, guidelines are often applied to everyone. Throughout my residency training, it has become clear to me that the measure of a good physician should be the ability to achieve a balance between patient choice and attaining health care goals, and not attaining numbers prescribed by guidelines. I instinctively know that the capability to come and go at will in his own car, to Mr N. and to me, signifies freedom and so much more.

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Competing interests

None declared

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