Response

Dr Greiver has brought up several issues with respect to tight glycemic control. First, she incorrectly cites the HbA_{1c} levels achieved in the UKPDS. In the original study the average HbA_{1c} was in fact 7.0% (range 6.2% to 8.2%) in the intensive group compared with 7.9% (range 6.9% to 8.8%) in the conventional group. We believe she is looking at the final HbA_{1c} levels, which did increase over time.[1] This evidence, along with the studies cited in our original article, is the basis of the recommendation for an HbA_{1c} level of at least as low as 7% for people with diabetes, not only by the Canadian Diabetes Association but also the American Diabetes Association and the American Association of Clinical Endocrinologists.

She is correct in stating that the HbA_{1c} levels that are targeted in the studies are not the HbA_{1c} levels attained. This would also be true in her practice. If she targets an individual HbA_{1c} level of 7%, her population average will likely be above this. If, however, she targets an individual HbA_{1c} level of somewhere between 7% and 8%, she will end up with a higher population average.

In terms of her point about findings in the ADVANCE trial, as indicated in the original article, there does appear to be a direct relationship between HbA_{1c} levels and micovascular complications that holds at least down to HbA_{1c} values of 6.5%. We do not believe these complications can be discounted because they are, as she says, "mainly driven by improvements in nephropathy." The largest group requiring dialysis is those with diabetes. Mortality increases steeply once a patient is on dialysis, so targeting an HbA_{1c} level that reduces this end point should be seen as valuable.

She also makes the point that reducing the HbA_{1c} values for patients with the highest HbA_{1c} levels would be worthwhile, and this is quite true. It is easier to reduce an HbA_{1c} level from 10% to 9% than from 8% to 7%, as the risk of hypoglycemia is not as great and indeed the benefit is at least equal, as there is a linear relationship between increased HbA_{1c} levels and certain complications. However, it is not mutually exclusive to also look at her patients who have levels between 7% and 8%. I am sure that if she had a patient who was newly diagnosed, treated with diet alone, and had an HbA_{1c} level of 7.9%, she would think there was a benefit to prescribing metformin to help him get to 7%.

Finally, with respect to cardiovascular disease in particular, since publishing our original debate, a meta-analysis by Ray et al[2] in the *Lancet* found that intensive versus standard glycemic control substantially reduces coronary events without an increased risk of death. So we hold to our original position—that tight glycemic control (6.5% to 7.0%) *is* worthwhile![3]

—Maureen Clement MD CCFP
Vernon, BC
—Onil Bhattacharyya MD PhD CCFP
Toronto, Ont
—Robin Conway MD
Smiths Falls, Ont

References

1. UK Prospective Diabetes Study Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). *Lancet* 1998;352(9131):837-53.
2. Ray KK, Seshasai SR, Wijesuriya S, Sivakumaran R, Nethercott S, Preiss D, et al. Effect of intensive control of glucose on cardiovascular outcomes and death in patients with diabetes mellitus: a meta-analysis of randomised controlled trials. *Lancet* 2009;373(9677):1765-72.
3. Clement M, Bhattacharyya O, Conway JR. Is tight glycemic control in type 2 diabetes really worthwhile? Yes. *Can Fam Physician* 2009;55:580,582 (Eng); 584,586 (Fr).