Clinical Practice Assessment

Safety and effectiveness of intensive blood glucose control in type 2 diabetes.

Clinical Question:

In patients with type 2 diabetes does intensive therapy (goal: A1c<7) compared to conventional therapy (goal: A1c<8) result in improved patient-oriented outcomes?

Bottom Line:

While epidemiological studies suggest that lowering blood glucose reduces mortality in patients with type 2 diabetes the results of randomized controlled trials have been negative. Attempts to intensively lower blood glucose and the A1C to less than 7% does not reduce the risk of death from any cause, or death from cardiovascular disease compared to conventional or less intensive therapy. Intensive blood glucose lowering does decrease the risk of amputation of a lower extremity and microvascular complications (such as retinopathy and microalbuminuria) while increasing the risk of hypoglycemia and even death in one study.

The decision to undertake intensive blood glucose control needs to take into account patient preferences and should be a shared decision between patient and provider eliciting the risks and benefits of such therapy. Intensive blood glucose lowering to normalize A1C should not be pursued aggressively unless such a target can be achieved with reasonable safety and ease.

Synopsis:

A Cochrane review that included 20 RCT’s of patients with type 2 DM, in which a total of 16,106 patients were randomized to intensive therapy and 13,880 patients were randomized to conventional or less intensive therapy did not show any decrease in all cause or cardiovascular mortality when comparing intensive to conventional blood glucose control. The risk of microvascular complications was lower with intensive therapy but there was an increased risk of hypoglycemia. The duration of the studies conducted primarily in Europe and North America varied from three days to 12.5 years, in which the mean age of participants was 62.1 years and their numbers varied from 20 to 11,140.

In another meta-analysis of 13 RCT’s published in the British Medical Journal in July 2011, there was no significant reduction in all cause or cardiovascular mortality with intensive therapy in patients with type 2 DM. The risk of non-fatal myocardial infarction and microalbuminuria were lower in the intensively treated group, but there was a twofold increase in the risk of severe hypoglycemia with intensive treatment.
Sources:

1. **UKPDS33**: UK-Prospective-Diabetes-Study-(UKPDS)-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; 352:837-853. (Level 1 study)


