Impact on absolute mortality due to intensive glucose lowering for patients with diabetes

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Introduction: Intensive control of blood glucose in diabetic patients is associated with suboptimal survival. In the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial, 10 104 patients were randomised to intensive or standard therapy (target glycated haemoglobin levels <6.0% vs 7.0-7.9%) for a mean treatment duration of 3.7 years. To properly appreciate the implications of this trial’s findings, they should be viewed in absolute terms.

Methods: Relevant results reported in the ACCORD trial were therefore used to calculate unadjusted number needed to treat (NNT) and relative risk (RR) values and their 95% confidence intervals (CIs), as described previously.

Results: Fatal event rates expressed as unadjusted RR and NNT/year values together with their respective 95% CIs, are shown in the Table.

Conclusion: Intensive glucose lowering was associated with a small but statistically significant negative NNT/year that amounts to a “number needed to harm”. This contrasts with the mortality benefit (NNT/year of +163), which accrued from simvastatin therapy in the high-risk patients reported in 4S (Scandinavian Simvastatin Survival Study). In terms of all-cause mortality, the potential harm from such intensive glucose lowering is a matter of concern.

Deaths RR (95% CI) NNT/year (95% CI)
From any cause 1.22 (1.02 to 1.46) -367 (-196 to -2750)
Cardiovascular
Unexpected 1.14 (0.84 to 1.56) -1699 (-510 to 1278)
Myocardial infarction 1.67 (0.80 to 3.46) -2337 (-969 to 1278)
Congestive heart failure 1.30 (0.72 to 2.36) -3115 (-967 to 2481)
Procedure related 2.20 (0.75 to 6.47) -3115 (-1336 to 9380)
Arrhythmia 0.33 (0.10 to 1.06) 2337 (1169 to 2359681)
Stroke 0.75 (0.31 to 0.69) 6231 (-3037 to 1538)

References