

Small Changes Count in Type 2 Diabetes Patients

By: [MICHELE G. SULLIVAN, Internal Medicine News Digital Network](#)

10/06/11

LISBON – Even small changes in hemoglobin A1c and blood pressure could significantly reduce the risk of heart attack, stroke, and other cardiovascular complications in people with type 2 diabetes, according to the findings of a population-based observational study.

A 0.5% decrease in HbA1c and a 10 Hg/mm decrease in systolic blood pressure could avert 10% of such events over 5 years, Dr. Edith Heintjes said at the annual meeting of the European Society for the Study of Diabetes. Greater changes could reduce cardiovascular events by as much as 21%, said Dr. Heintjes of the PHARMO Institute for Drug Research, Utrecht, the Netherlands.

While her study on population attributable risk was albeit theoretical, it still adds weight to the emerging theory that small changes can make a big difference to the health of people with type 2 diabetes.

"Even when we examined only modest incremental reductions, which could be achieved in the clinical setting, we found the possibility of significant benefit," she said. Those patients with the greatest risk factors – elevated HbA1c, high blood pressure, and higher body mass index – stand to gain the most when they improve those factors, she said.

Dr. Heintjes' analysis included 5,841 Dutch patients with a diagnosis of type 2 diabetes for at least 2 years. The patients were all taking some form of treatment – oral medications, insulin, or both – for at least 6 months to be included in the study. After examining both baseline data and 5-year outcomes, she was able to extrapolate how improvements in the three risk factors might impact the expected number of cardiovascular events.

Patient data were drawn from the PHARMO record linkage system, which includes community pharmaceutical dispensing information, laboratory information, national hospitalization information, and statistics from the Dutch national diabetes monitoring program.

Patients were treated with the aim of achieving the country's national targets: an HbA1c of below 7%, a systolic blood pressure of 140 mmHg or lower, and a body mass index of 25 kg/m² or less.

"Even when we examined only modest incremental reductions, we found the possibility of significant benefit."

At baseline, the patients' average age was 66 years. The average HbA1c was 7%; systolic blood pressure 149 mmHg, and body mass index, 29.5 kg/m². Most (92%) were taking only oral medications; the remainder was also taking insulin.

Some cardiovascular morbidity was already present in the group, including peripheral artery disease (0.5%), renal impairment (11%), neuropathy (51%), and retinopathy (7%). About half of the group (45%) had a family history of cardiovascular disease.

Small Changes Count in Type 2 Diabetes Patients

By: [MICHELE G. SULLIVAN, Internal Medicine News Digital Network](#)

10/06/11

Dr. Heintjes divided the group according to the number of risk factors each patient exhibited. A quarter (24%) had just one elevated risk factor; 47% had two elevated risk factors, and 26% had elevations in all three risk factors.

A multivariable analysis allowed her to extrapolate that 796 cardiovascular events (heart attack, ischemic heart disease, stroke, and chronic heart failure) would occur if all of the patients were followed for 5 years.

If every patient in this population were able to correct each one of the risk factors to the national recommendations, she said, 687 events would occur – a 14% decrease. Correcting HbA1c and blood pressure accounted for this change, she said; changing BMI did nothing to increase the benefit.

Theoretically, she said, patients with the most risk factors would reap the greatest benefit. The 24% with one elevated risk factor would experience a 5% reduction in cardiovascular events, while those with all three elevated risk factors, upon correcting them, would see a 21% reduction.

Considering the group's baseline measurements, correcting to national Dutch standards would mean an average HbA1c reduction of 0.8%, a 26-mmHg reduction in systolic blood pressure, and a weight loss of 16 kg (equivalent to a BMI decrease of 5.7 kg/m²). However, Dr. Heintjes said, it might not be realistic to expect such changes. Her second analysis explored the improvements that could arise from smaller changes: a 0.5% reduction in HbA1c, a 10-mmHg reduction in systolic blood pressure and a 10% reduction in total body weight (2.6 kg/m² decrease in BMI).

"With this analysis, we saw in the overall population that 6% of the risk could be averted," she said. Among those in the subpopulation with three risk factors, applying the smaller changes could cut the number of events by 10%.

It's not exactly clear how the results can change clinical practice, Dr. Heintjes acknowledged. "But this does allow us to understand how small changes can translate into bigger benefits for people with type 2 diabetes."

Dr. Heintjes reported having no conflicts of interest. Her employer, PHARMO, however, receives funding from numerous pharmaceutical companies, including Astra Zeneca, which sponsored the current study.