

Benefit of blood glucose lowering to near-normal levels remains unclear

July 14 2011

Whether patients with type 2 diabetes mellitus benefit from attempts to lower their blood glucose levels to near-normal levels through treatment ("intensive blood glucose control") remains an unanswered question. The studies currently available provide indications of a benefit but also of potential harm. This is the result of a report published by the German Institute for Quality and Efficiency in Health Care (IQWiG).

Epidemiological studies have shown that the risk of vascular disease or death rises with increasing [blood glucose levels](#) in people with [type 2 diabetes](#). In order to prevent late complications of [diabetes](#), clinical practice guidelines therefore recommend lowering blood glucose levels to a "near-normal" range. This refers to levels close to those of people without diabetes. In the report now presented (a rapid report), IQWiG investigated whether this treatment strategy, i.e. a strategy aiming to achieve (nearly) normal blood glucose levels, also actually reduces the risk of late complications of diabetes.

Comparison of two treatment strategies

For this purpose IQWiG searched for [randomized controlled trials](#) comparing two [treatment strategies](#) in patients with type 2 diabetes. In the test group the measures were aimed at long-term lowering of blood glucose to near-normal levels. In the control group there was no such aim or the measure applied was not so intensive. In this context, the main criteria for assessing the benefit or harm of the interventions were

mortality (all-cause mortality), late complications of diabetes (heart attacks, strokes, damage to the kidneys or eyes etc.), as well as quality of life.

Three studies conducted after 2000

Overall, IQWiG included seven studies, in which a total of 28,000 patients had participated, in the assessment. The studies differed quite considerably: four studies had already been conducted between the 1960s and 1990s, the others after the year 2000. They partly included patients of a specific ethnic origin (Japan) and in some studies drugs were widely applied that are no longer on the market (rosiglitazone).

IQWiG finds no differences for important treatment outcomes

In the analysis of the studies, IQWiG found no differences between the two groups for relevant aspects of treatment. Proof or indications that one of the two treatment strategies offered more advantages or disadvantages were found neither for all-cause mortality nor for fatal heart attacks, (fatal and non-fatal) strokes, end-stage renal disease (and its pre-stages), amputations, or pre-stages of blindness. Insufficient data were available for the outcomes "quality of life" and "blindness".

Indications that patients with type 2 diabetes benefit from intensive blood glucose control were found only for the outcome "non-fatal heart attacks". However, at the same time the data provide indications that severe hypoglycaemic episodes as well as other serious events in part occurred considerably more often in the intensive-therapy group than in the group with less intensive lowering of blood [glucose levels](#).

Overall, the results of the current IQWiG report are consistent with those

of reviews and meta-analyses recently conducted and presented by other researchers.

Question as to which treatment strategy is better still remains unanswered

The IQWiG Director Jürgen Windeler comments on the current report: "It is quite astonishing: individual interventions, particularly drugs, have in part been well investigated in studies; however, we know relatively little about the advantages and disadvantages of treatment strategies. If doctors are faced with the question as to what they can specifically offer to their diabetes patients, whether they should lower [blood glucose](#) levels as much as possible, and in which patients this a promising (or less promising) approach, they still do not receive satisfactory answers." Even though this is a key question in the care of people with type 2 diabetes, the few studies available do not allow reliable conclusions.

Provided by Institute for Quality and Efficiency in Health Care

Citation: Benefit of blood glucose lowering to near-normal levels remains unclear (2011, July 14) retrieved 7 May 2024 from

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