Rapid-acting insulin analogues in the treatment of diabetes mellitus type 1

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Record Status
This is a bibliographic record of a published health technology assessment from a member of INAHTA. No evaluation of the quality of this assessment has been made for the HTA database.

Citation

Authors' objectives
The aims of this review were: 1. the evaluation of the benefits and harms of long-term therapy with an RAI compared with short-acting human insulin 2. the evaluation of the benefits and harms of RAIs compared with each other, in each case in patients with diabetes mellitus type 1.

The focus of the evaluation was on patient-relevant therapy goals (in particular, morbidity, mortality, quality of life, and adverse events).

Authors' conclusions
Adult patients
The benefit of insulin aspart compared with human insulin in adult patients is unclear due to a lack of data or poor-quality data; an additional benefit is therefore not proven.

In patients without a higher than usual risk of hypoglycaemia, overall, the studies show similar results between insulin lispro and human insulin. On the basis of the data available, it is unclear whether insulin lispro has an additional benefit in patients with an increased risk of serious hypoglycaemic events.

Due to a lack of data, there is no evidence of an additional benefit of insulin glulisine versus human insulin.

There is an indication of an additional benefit of insulin lispro versus insulin glulisine. This indication is solely based on a lower rate of serious nocturnal hypoglycaemic events under insulin lispro observed in one study. Other direct comparative studies between RAIs were not available.

The benefit of insulin analogues in insulin pump therapy is unclear. Only short-term studies were available, which cannot be used to evaluate the patient-relevant benefit of long-term therapy with insulin analogues.

Children and adolescents
Insulin aspart and insulin lispro are the only RAIs approved for the treatment of children and adolescents. The benefit of both of these RAIs in children and adolescents is unclear. Only short-term studies were available as full-text publications, which cannot be used to evaluate the patient-relevant benefit of long-term therapy with insulin analogues. Long-term studies in children and adolescents were identified. However, due to the lack of full-text publications, and the fact that the sponsor Novo Nordisk did not provide the corresponding data, they could not be included in the evaluation. Therefore, no concluding statements can be made regarding the benefit of insulin analogues in children and adolescents. The same applies to their use in insulin pump therapy.

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