

Insulin Use in NIDDM. Rationale Based on Pathophysiology of Disease

Turner R.C, Holman R.R.

Diabetes Care (1990) 13: 1011-1020

Because basal hyperglycemia is a major feature in non-insulin-dependent diabetes mellitus, diabetes control can be monitored by the fasting blood glucose concentration. A hierarchical sequence of therapies is proposed in which the major aim is to maintain near-normal fasting blood glucose concentrations, in the expectation that this will help prevent development of long-term complications. When diet and tablet therapy are no longer effective in keeping the fasting blood glucose level <6 mM, a basal insulin supplement from a long-acting insulin such as ultralente can be added. When monitored by fasting blood glucose concentration, there is little risk of hypoglycemia, and the patient can continue a normal life-style without restrictions concerning exercise or the size of individual meals. A basal insulin supplement does not induce marked weight gain. The dose of insulin required can be predicted from the level of the fasting blood glucose and the degree of obesity, which provides an index of the accompanying insulin resistance. Based on current evidence, insulin therapy is equally appropriate in patients with insulin deficiency and insulin resistance, because the benefit from maintaining near-normal glucose concentrations probably outweighs a putative risk of hyperinsulinemia. In more severely affected patients, additional regular insulin to cover meals is needed. Lowering fasting blood glucose to normal with a basal insulin supplement reduces endogenous insulin production, and this may be advantageous if accompanying production of islet amyloid polypeptide and islet amyloid formation are also reduced.