

Learning unit: Insulins

Impact of the learning unit:

The number of diabetic patients has been growing recently. Diabetes is a chronic metabolic disease with different etiopathology. Hyperglycemia is the common feature due to the insufficient effect of insulin through its relative or absolute deficiency. Type I diabetes mellitus (i.e., with absolute deficiency) is associated with high morbidity and mortality. Insulin therapy is a basis of treatment, but it is also used in patients with type II diabetes when diet and antidiabetic drugs are not effective. Information about insulin preparations and their combinations in insulin regimens is essential for every physician.

Relevant terms

hypoglycemia as an adverse effect
lipodystrophy
sites of injection
insulin analogues
human insulins
classification according to their onset and duration of effect
 short-acting insulins
 rapid-acting analogues
 lispro
 aspart
 glulisine
 short-acting human insulins
 neutral insulin solutions
intermediate-acting insulins
 NPH insulin (Isophane insulin)
Long-acting insulin analogues
 glargine
 detemir
 degludec
insulin mixtures
 biphasic analogues
 stabilized mixtures of human insulins
insulin regimen
 conventional
 intensified
insulin pen
insulin pump

Learning outcomes

Student characterizes different types of insulin preparations according to their onset and duration of effect.

Student describes pitfalls of insulin therapy – adverse effects and site of injections.

Student explains the principles of setting the insulin regimen and preparations for the individual model patient.

Student is aware of other drugs used in diabetology, mainly in acute states.

Student briefly describes the principles of gestational diabetes therapy.

Student knows basic pharmacological profile (mode of action, unwanted effects, indications and contraindications) of single subgroups of insulins.

Information sources

Rang & Dale's Pharmacology, 8th edition, 2016, chapter 31 (The control of blood glucose and drug treatment of diabetes mellitus)

Study materials for courses aVLFA0721p and aVLFA0721c.

Exam questions

Special pharmacology: 9. Insulines

Essential drugs: 26. insulin lispro, 27. insulin glargin