SANSULIN®N – 100 IU

Recombinant Human Insulin
Suspension for Injection s.c.

Each ml contains:
Recombinant Human Insulin 100 IU
(as isophane cresol and phenol stabilized insulin suspension)

Product Description
SANSULIN N is a crystalline suspension of human insulin with protamine and zinc providing an intermediate-acting insulin with a slower onset of action and a longer duration of activity (up to 24 hours) than that of regular insulin. The time course of action of any insulin may vary considerably in different individuals or at different time line in the same individual. As with all insulin preparations, the duration of action of SANSULIN N is dependent on dose, site of injection, blood supply, temperature, and physical activity.

PHARMACOLOGY
Insulin in the blood stream has a half-life of a few minutes. Consequently, the time-action profile of an insulin preparation is determined solely by its absorption characteristics. This process is influenced by several factors (e.g. insulin dosage, injection route and site) which is why considerable intra- and inter-patient variations are seen.

INDICATIONS
Type 1 Diabetes Mellitus.

CONTRA-INDICATIONS
- Hypoglycaemia.
- Hypersensitivity to human insulin or any of the excipients.

ADVERSE REACTIONS
Hypoglicaemia is a frequently occuring undesirable effect of insulin therapy. Symptoms of hypoglycaemia usually occur suddenly. They may include cold sweat, cool pale skin, nervousness or tremor, anxious feeling, unusual tiredness or weakness, confusion, difficulty in concentration, drowsiness, excessive hunger, temporeary vision changes, headache, nausea and palpitation. Severe hypoglycaemia may lead to unconsciousness and may result in temporary or permanent impairment of brain function or even death. Oedema and refraction anomalies may occur upon initiation of insulin therapy. These symptoms are usually of transitory nature.

Local hypersensitivity reactions (redness, swelling and itching at the injection site) may occur during treatment with insulin. These reactions are usually transitory and normally disappear during continued treatment.
Generalized hypersensitivity reactions may occasionally occur. They are potentially more serious and may cause generalized skin rash, itching, sweating, gastrointestinal upset, angioneurotic oedema, difficulties in breathing, palpitation and reduction in blood pressure. Generalized hypersensitivity reactions are potentially life threatening. Lipodystrophy may occur at the injection site as a consequence of failure to rotate injection site within an area.

PRECAUTIONS
Inadequate dosing or discontinuation of treatment, especially in type 1 diabetes, may lead to hyperglycaemia and diabetic ketoacidosis. The first symptoms of hyperglycaemia usually set in gradually, over a period of hours or days. They include thirst, increased urination, nausea, vomiting, drowsiness, flushed dry skin, dry mouth, loss of appetite as well as acetone breath.

In type 1 diabetes, untreated hyperglycaemic events eventually leads to diabetic ketoacidosis which is potentially lethal.
Concomitant illness, especially infections and feverish conditions, usually increases the patient's insulin requirement. Renal or hepatic impairment may reduce insulin requirement. Adjustment of dosage may also be necessary if patients undertake increased physical activity or change their usual diet. Transferring a patient to another type or brand of insulin should be done under strict medical supervision. Changes in strength, brand (manufacturer), type (rapid acting insulin, intermediate acting insulin, long acting insulin etc), species (animal, human insulin analog) and/or method of manufacturer (recombinant DNA versus animal source insulin) may result in the need for a change in dose. Patients switching to SANSULIN N may require a change in dosage from that used with their usual insulin.
If an adjustment is needed, it may occur with the first dose or during the first several weeks or months.
A few patients who have experienced hypoglycaemic reactions after transfer from animal source insulin have reported that early warning symptoms of hypoglycaemia were less pronounced or different from those experienced with their previous insulin.
Patients whose blood glucose control is greatly improved e.g. by intensified insulin therapy, may experienced a change in their usual warning symptoms of hypoglycaemia and should be advised accordingly.
Insulin suspensions are not to be used in insulin infusion pumps.

Pregnancy and Lactation
There are no restrictions on the treatment of diabetes with insulin during pregnancy as insulin does not pass the placental barrier, intensified control in the treatment of pregnant women with diabetes is recommended troughout pregnancy and when contemplating pregnancy.

Insulin requirements usually fall in the first trimester and increase subsequently during the second and third trimester.

DRUG INTERACTIONS
The following substances may reduce the insulin requirements: Oral hypoglycaemic agents (OHA), octreotide monoamine oxidase inhibitors (MAOI), Sulfa antibiotics, certain antidepressants, non-selective beta-blocking agents, angiotensin converting enzyme (ACE) inhibitors, salicylates, alcohol and anabolic steroids.
The following substances may increase the insulin requirements: Oral contraceptives, thiazides, glucocorticoids, thyroid hormones, corticosteroid, β-2 stimulants (ritodrine, salbutamol, terbutalin) and sympathomimetics, danazol. Beta-blocking agents may mask the symptoms of hypoglycaemia. Alcohol may intensify and prolong the hypoglycaemia efect of insulin.

DOSAGES
Recommended Dose
Dosage is individual and determined by the physician in accordance with the needs of the patient. Use of injection should be notated so that the same site not used more than approximately once a month.
The average range of total daily insulin requirement for maintenance therapy in type 1 diabetic patients lies between 0.5 and 1.0 IU/kg. However, in pre-pubertal children it usually varies from 0.7 to 1.0 IU/kg, but can be much lower during the period of partial remission. In insulin resistance, e.g. during puberty or due to obesity, the daily insulin requirement may be substantially higher.
Initial dosages for type 2 diabetic patients are often lower, e.g. 0.3 to 0.6 IU/kg/day.
In patients with diabetes mellitus optimised metabolic control effectively delays the onset and slows the progression of late diabetic complications. Optimised metabolic control, including glucose monitoring, is therefore recommended.
In the elderly the primary aim of treatment is symptom relief and avoidance of hypoglycaemic events.

Mode of Administration
The preparations are administered subcutaneously, in the thigh, if convenient the abdominal wall, the gluteal region, or the deltoid region may be used. Insulin suspensions are never to be administered intravenously. Injection into a lifted skin fold minimises the risk of intramuscular injection.
A subcutaneous injection into the thigh results in a slower and less variable absorption compared to the other injection sites.
In order to avoid lipodystrophy, injection sites for a given insulin preparation should be related, within an anatomic region.
The physician determines whether one or several daily injections are necessary. The preparations may be used alone or mixed with short acting soluble insulin (e.g. SANSULIN® R). In intensive insulin therapy the suspensions may be used as basal insulin (evening and/or morning injection) with soluble insulin given at meals. SANSULIN® N may also be used in combination with oral hypoglicaemic agents (OHA), when OHA alone has not given satisfactory control of blood glucose.

Overdose and Treatment
Insulins have no specific overdose definitions. However, hypoglycaemic may develop over sequential stages:
- Mild hypoglycaemic episodes can be treated by oral administration of glucose or sugary products. It is therefore recommended that the diabetic patient constantly carry some sugar lumps or e.g. a few biscuits.
- Severe hypoglycaemic episodes, where the patient has become unconscious, can be treated by glucagon (0.5 to 1 mg) given intramuscularly or subcutaneously by a trained person or glucose given intravenously by a medical professional.

Upon regaining consciousness admnistration of oral carbohydrate is recommended for the patient in order to prevent relapse.

ON MEDICAL PRESCRIPTION ONLY

PRESENTATIONS
Box of 5 cartridges @ 3 ml
Reg. No.: DKI 0708100343A1

STORAGE
Store at temperature 2°-8°C. Do not freeze. Protect from light. Keep out of reach of children.

Insulin preparations which have been frozen must not be used. Insulin suspensions should not be used if they do not appear uniformly white and cloudy after suspension.

The storage life of the preparation after the first opening of the cartridge last maximally 28 days in room temperature (+15°C to +25°C) and at temperature of +5°C ± 3°C up to 2 years.

Manufactured by: BIOTON S.A., Poland
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