ARGIDON PLUS

Instructions

on medical use of the drug

Tradename: Argidon Plus.

MMN: Arginine hydrochloride, levocarnitine.

Dosage form: Solution for infusion.

Composition: *1 ml of solution contains:*

Arginine hydrochloride……. 42 mg;

Levocarnitine ……20 mg;
excipients: water for injection.

Description: transparent, colorless or slightly yellowish liquid.

Pharmaco - therapeutic group:

Additional solutions for intravenous administration. Amino acids.

ATX code: B05X B.

Pharmacological properties:

Pharmacodynamics:

levocarnitine and arginine hydrochloride as active ingredients.
Arginine (a- amino -d- guanidinovaleric acid) is an amino acid that belongs to the class of conditionally essential amino acids and is an active and versatile cellular regulator of numerous vital functions of the body, exhibiting protective effects that are important in a critical condition of the body.
Arginine has antihypoxic, membrane stabilizing, cytoprotective, antioxidant, antiradical, detoxification effects, manifests itself as an active regulator of intermediate metabolism and energy supply processes, and plays a certain role in maintaining hormonal balance in the body. It is known that arginine increases the blood levels of insulin, glucagon, growth hormone and prolactin, takes part in the synthesis of proline, polyamine, agmatine, is involved in the processes of fibrinogenolysis, spermatogenesis, and has a membrane depolarizing effect.
Arginine is one of the main substrates in the urea synthesis cycle in the liver. The hypoammonemic effect of the drug is realized by activating the conversion of ammonia to urea. It has a hepatoprotective effect due to antioxidant, antihypoxic and membrane-stabilizing activity, and has a positive effect on energy supply processes in hepatocytes.
Arginine is a substrate for N O synthase, an enzyme that catalyzes the synthesis of nitric oxide in endothelial cells. The drug activates guanylate cyclase and increases the level of cyclic guanosine monophosphate (cGMP) in the vascular endothelium, reduces the activation and adhesion of leukocytes and platelets to the vascular endothelium, suppresses the synthesis of adhesion proteins VCAM-1 and MCP-1, thereby preventing the formation and development of atherosclerotic plaques, suppresses the synthesis of endothelin , which is a powerful vasoconstrictor and stimulator of proliferation and migration of smooth myocytes of the vascular wall. Arginine also suppresses the synthesis of asymmetric dimethylarginine, a powerful endogenous stimulator of oxidative stress. The drug stimulates the activity of the thymus gland, which produces T cells, regulates blood glucose levels during physical activity. It

has an acid-producing effect and helps correct acid-base balance.
Levocarnitine is a natural substance involved in energy metabolism, as well as the metabolism of ketone bodies. Only the L-isomer of carnitine is biologically active.
Levocarnitine necessary for the transport of long-chain fatty acids into mitochondria for their further beta-oxidation and energy production. Fatty acids are used as an energy substrate by all tissues except the brain. In skeletal muscles and myocardium, fatty acids are the main substrate for energy production. Levocarnitine plays an important role in cardiac metabolism, since the oxidation of fatty acids depends on the presence of sufficient amounts of this substance. Experimental studies have shown that under certain conditions, such as stress, acute ischemia, myocarditis, a decrease in the level of levocarnitine in myocardial tissue is possible. A large number of studies have been conducted on animals that have confirmed the positive effects of levocarnitine in the case of various induced cardiac disorders: acute and chronic ischemia, cardiac decompensation, heart failure as a result of myocarditis, drug cardiotoxicity (taxanes, adriamycin, etc.).
By releasing coenzyme A from thioesters, levocarnitine also enhances the oxidation of carbohydrates in the Krebs tricarboxylic acid cycle, stimulates the activity of the key enzyme of glycolysis - pyruvate dehydrogenase, and in skeletal muscles - the oxidation of branched chain amino acids. Thus, levocarnitine is directly or indirectly involved in most energy processes; its presence is required for the oxidation of fatty acids, amino acids, carbohydrates and ketone bodies.
In humans, physiological needs for carnitine are replenished by consuming food products containing carnitine (primarily meat). The highest concentration of levocarnitine is determined in muscle tissue, myocardium and liver.
Primary systemic carnitine deficiency is characterized by low concentrations of levocarnitine in blood plasma, red blood cells and/or tissues. Secondary carnitine deficiency may result from inborn errors of carnitine metabolism or iatrogenic interventions such as hemodialysis.

Pharmacokinetics:

With continuous infusion, the maximum concentration of arginine hydrochloride in the blood plasma is achieved within 20-30 minutes from the start of administration. Arginine penetrates the placental barrier, is filtered in the renal glomeruli, but is almost completely reabsorbed in the renal tubules.
Levocarnitine is absorbed by the cells of the mucous membrane of the small intestine and enters the bloodstream relatively slowly; Absorption is likely due to an active transluminal mechanism. Absorption after administration is limited (<10%) and variable.
Absorbed Levocarnitine is transported to various organs through the blood; The transport process is believed to involve the erythrocyte transport system.
Levocarnitine is excreted in the urine. The rate of elimination is directly proportional to the concentration of carnitine in the blood. Levocarnitine is practically not metabolized in the body.

Indications for use:

- In cardiology: to maintain and restore myocardial function during hypoxia, atherosclerosis of coronary and peripheral vessels, the recovery period after myocardial infarction (in the late period), as well as for maintenance therapy of cardiomyopathy;
- In gastroenterology: in the treatment of the digestive system (secretory insufficiency of the gastrointestinal tract, chronic gastritis, pancreatitis, fatty liver);

- In neurology: maintenance and restoration of brain function and mental activity in hypoxic, ischemic, traumatic conditions, atherosclerotic changes in cerebral vessels;
- In andrology: to improve sperm motility and ejaculate volume in patients suffering from infertility;
- In the postoperative period in patients with varicocele;
- In endocrinology: to normalize fat metabolism in obesity, diabetes;

- In nephrology: in patients with chronic renal failure;
- For muscle weakness and/or myopathy, loss of muscle mass, hypotension;
- In ophthalmology: for eye diseases associated with retinal degeneration, vascular pathology of the fundus;
- Asthenic conditions, including asthenia in post-Covid syndrome;
- In sports medicine: to increase muscle activity during intense physical exercise.

Contraindications:

- hypersensitivity to the drug, history of allergic reactions;

- severe renal dysfunction;

- hyperchloremic acidosis;

- use of potassium-sparing diuretics, as well as spironolactone.

- myocardial infarction (including history).

Interaction with other drugs and other types of interactions:

When using the drug, it is necessary to take into account that the drug can cause severe and persistent hyperkalemia due to renal failure in patients taking or who have taken spironolactone. Pretreatment with potassium-sparing diuretics may also increase blood potassium concentrations. When used simultaneously with aminophylline, an increase in insulin levels in the blood is possible.

The simultaneous use of glucocorticosteroids leads to the accumulation of levocarnitine in body tissues (except the liver). Other anabolic agents enhance the effect of the drug.

In patients receiving coumarin anticoagulants simultaneously with levocarnitine (see section "Peculiarities of use"), very rare cases of increased international normalized ratio (INR) were observed. INR or other appropriate coagulation test should be performed weekly until values are stable and monthly thereafter in patients taking such anticoagulants with levocarnitine.

The simultaneous use of levocarnitine with drugs that induce hypocarnitinemia, increasing the excretion of carnitine by the kidneys (for example, valproic acid, prodrugs containing pivalonic acid, cephalosporins, cisplatin, carboplatin, ifosfamide), can reduce its level.

The drug is incompatible with thiopental .

Features of application:

In patients with renal insufficiency, diuresis and plasma potassium levels should be checked before starting the infusion, as the drug may contribute to the development of hyperkalemia.
The drug is used with caution in cases of dysfunction of the endocrine glands. The drug can stimulate the secretion of insulin and growth hormone.
If you experience dry mouth, you should check your blood sugar levels.

Should be used with caution in cases of electrolyte metabolism disorders and kidney diseases. If symptoms of asthenia increase while taking the drug, treatment should be discontinued.
Use with caution in patients with angina pectoris.
Levocarnitine improves the absorption of glucose, so the use of the drug in patients with diabetes mellitus receiving treatment with glucose-lowering drugs can lead to hypoglycemia. The level of glucose in the

blood plasma in such cases must be regularly monitored for timely correction of therapy.

Very rare cases of increased international normalized ratio have been observed in patients who simultaneously took levocarnitine and coumarin anticoagulants (see Section “Interaction with other drugs and other types of interactions”). When coumarin anticoagulants are used simultaneously , appropriate monitoring is required.

Seizures have been reported in patients with a history of seizure activity, but it is not completely clear whether levocarnitine increases the frequency and/or severity of seizures. In cases where levocarnitine is suspected of causing seizures, discontinuation of this drug should be considered.

The ability to influence reaction speed when driving vehicles or operating machinery:

Some adverse reactions from the central nervous system may affect the ability to drive vehicles or operate machinery.

Use during pregnancy or breastfeeding:

There is no data regarding the use of the drug in pregnant women. Data on the excretion of the drug into breast milk and its effect on the fetus are unknown. Therefore, during pregnancy and lactation, the drug is prescribed only when the expected benefit to the mother outweighs the potential risk to the fetus.

Directions for use and dosage:

The drug is administered intravenously at a rate of 10 drops per minute for the first 10-15 minutes, then the rate of administration can be increased to 30 drops per minute.

The daily dose is 100 ml of solution.

Children:

There is no data on the use of the drug in children.

Overdose:

Symptoms Renal failure, hypoglycemia, metabolic acidosis, large doses may cause diarrhea.

Treatment. In case of overdose, the drug infusion must be stopped. Physiological reactions should be monitored and vital functions of the body should be maintained. If necessary, alkaline agents and means for establishing diuresis (saluretics), electrolyte solutions (0.9% sodium chloride solution), 5% glucose solution are administered. Therapy is symptomatic.

Adverse reactions:

From the musculoskeletal system: joint pain.

From the digestive tract: dry mouth, nausea, vomiting, abdominal pain, diarrhea.

On the part of the skin and subcutaneous tissue: changes at the injection site, including hyperemia, itching, pallor of the skin, up to acrocyanosis.

From the immune system : anaphylactic shock, hypersensitivity reactions, including rash, urticaria, angioedema.

From the respiratory system, chest and mediastinum: shortness of breath.

From the cardiovascular system: fluctuations in blood pressure, changes in heart rate, pain in the heart area.

From the nervous system: headache, dizziness, feeling of fear, weakness, convulsions, tremors, more often when the rate of administration is exceeded.

General disorders: hyperthermia, feeling of heat, body aches.

Laboratory indicators: hyperkalemia.

Best before date:

2 years.

Storage conditions:

Store at a temperature not exceeding 30 °C in the original packaging.

Keep out of the reach of children.

Release form:

100 ml in a bottle; 1 bottle per package.

Vacation conditions:

On prescription.

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