Pharmaceutical forms containing glycosamines and chondroitins in their composition stimulate the synthesis of articular proteoglycans. In addition, glucosamine exhibits anti-inflammatory properties, slows down the degradation of articular cartilage, mainly due to its metabolic activity, the ability to inhibit the activity of interleukin (IL)-1, lysosomal enzymes, collagenase and phospholipase A2. The effect of treatment with glucosamine sulfate is noticeable after 2 weeks from the start of treatment. The question remains how and in what sequence to use chondroprotective drugs to normalize the work of joint structures.

The material of the experimental study was 25 sexually mature mongrel eight-month-old male rats. Before the experiment, the animals were divided into 5 groups of five in each group. The left knee joint was selected for experimental observation.

The rats of the first group received intramuscular injections of Sinarta. The calculation of the amount of the administered substance was carried out taking into account the average weight of the animals. The average weight of the animals was 250 g. The drug was administered every alternate day, as recommended by the instructions for use of this drug. The entire course consisted of 10 injections.

In addition, Chondroxide gel was applied to the joint of the animals of this group over the period of 20 days.

The rats of the second group received intramuscular injections of Sinarta and electrophoresis with Chondroxide gel on the knee joint every other day. Electrophoresis was carried out as follows: Chondroxide gel was applied to a shaved knee joint; active electrodes were installed parallel to each other (this condition was mandatory so that the active substance penetrated into the structures of the joint as deep as possible). The passive electrode was placed on the shaved part of the spinal and caudal region. Electrophoresis was carried out for 7 minutes, with a
The third group received only intramuscular injections of Sinarta according to the same scheme as in the first and second groups.

The fourth group received only application of Chondroxide gel to the knee joint for 20 days twice a day, as recommended by the instructions for the use of this drug.

The fifth group of animals was the control group and was kept under normal standard conditions.

After 21 days, the rats were withdrawn from the experiment. The slaughter of animals was carried out by decapitation under ether anesthesia in accordance with “Methodological recommendations for the withdrawal of animals from the experiment”. After removing the animals from the experiment, the knee joint, on which therapeutic measures were carried out, was isolated and in groups No. 3 and No. 5, the left knee joint was isolated, as stipulated above.

Based on the analysis of the results of the study, the maximum optical density of the studied supernatant of the homogenates of the knee joints in the first and second groups was: 0.027±0.0008 and 0.026±0.004 respectively. These groups received parenteral administration of Sinarta, additional application of Chondroxide gel in the first group, and electrophoresis with Chondroxide gel in the second group.

The third and fourth groups, which received only the intramuscular administration of Sinarta and only the application of Chondroxide gel to the knee joint, respectively, showed an increase in the optical density of the supernatant of homogenates of knee joint in relation to the control group and a slight increase in relation to the first and second groups. The numerical values were distributed as follows: the third group 0.023±0.0009, the fourth group 0.022±0.0004, the fifth group - the control group 0.021±0.001 (optical density units).

The reliability of differences in indicators P≤0.05 between the first two groups was obtained when compared with the third, fourth and fifth groups, respectively. Between the first and second groups, as well as between the third and fourth groups, no significant differences in P≥0.05 were found. The reliability of the differences in the indicators between the first two groups with the indicators of the third and fourth groups shows the effectiveness of the combined method of using chondroprotective drugs.

In this study, the causes of the development of joint diseases and the component of pathogenesis, which must be affected by the combined method of administration of chondroprotectors, were taken into account.

1. The most effective way to accumulate glucosamines in the joint structures is a combination of intramuscular administration of the drug and local administration by application or electrophoresis.

2. Digital values of the optical density of joint homogenates indicate the effectiveness of the cumulative method of administration of glucosamines and chondroitin sulfates into the structures of the joint.

3. Significant differences were obtained when using different methods of administration of drugs with a chondroprotective effect on joint structures.