

DICLOCOR SHOWS SUPERIOR CHONDROPROTECTION COMPARED TO DICLOFENAC SODIUM IN A MORPHOLOGICAL STUDY ON THE MODEL OF STERIOD OSTEOARTHRITIS IN RATS

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Introduction. Safety of nonsteroidal anti-inflammatory drugs (NSAIDs) remains a troublesome problem justifying research of new pharmaceutical compositions. Diclocor (D) is a combination of diclofenac sodium (DS) and a flavonol quercetin (Q). Since one of the indications for its use may be osteoarthritis, it was crucial to see how D influences joint cartilage on the model of this pathology.

Materials and methods. 50 rats, divided into 5 groups, were used for the experiment. Steroid osteoarthritis was induced in 40 of them by triple intramuscular injection of dexamethasone at a dose of 7 mg/kg with one-week intervals between the injections. Three groups were treated with D, DS, and Q for 4 weeks accordingly; one group was left untreated; and one group comprised of intact animals. After the treatment course, we performed microscopy, morphometric calculations, and semiquantative assessment.

Results and discussion.

Study group	Dose, mg/kg	Cartilage thickness, conv. units	Cell density on a conv. area unit	Sum of points (semiquantative assessment)	Occurrence of pathological changes, %
Intact	—	15.33±1.15	42.40±5.64	24.46±0.22	—
Control pathology	—	12.62±0.58	28.63±1.85	12.68±0.85	100.0
D	17.8	15.73±0.59	35.83±4.31	20.19±0.93	50.0
Q	11.0	15.66±1.35	32.67±2.48	18.09±0.94	60.0
DS	6.8	13.77±0.52	32.20±3.02	14.66±0.95	80.0

The preparations from the D group were the closest to the intact with 50% of the samples almost with no pathological changes and other 50% with only mild decrease in cell density, loss of zoning, enhanced chondrocyte proliferation, usuras, focal cartilage destruction, and pathological vascularization. In the DS group, same types of pathological changes occurred in 80% of the samples and had a more profound character; moreover, unlike in the D group, the examination showed degenerative and dystrophic cell abnormalities. The Q group samples were in-between the two above mentioned groups.

Conclusions. D has advantages over DS in normalizing cartilage structure on the model of steroid osteoarthritis in rats owing to the presence of Q in its compound. D is a promising pharmaceutical combination and is apt for further evaluation.