A NEW NASAL SPRAY EFFICACY IN EXPERIMENTAL RHINOSINUSITIS: HISTOMORPHOLOGICAL STUDY

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Currently, the high world prevalence of rhinosinusitis (RS) (6 15%) initiates the ways of a favorable search for effective and safe medicines for its pathogenetic treatment. The important part of this process is the choice of the most comfortable dosage form for a patient, which will enhance therapeutic compliance and assure the appropriate efficacy and safety of a medicine. Farmak JSC (Ukraine) has developed a new original dosage form containing an aqueous solution of a well-known pharmaceutical substance Enisamium Iodide (EI).

Aim of the research: to study the histomorphological features of the rabbit nasal cavity and paranasal sinuses mucous membrane with experimental rhinosinusitis (ERS) under therapy intranasally (i.n.) by the new nasal spray with anti-inflammatory action, which contains EI at a concentration of 10 mg/mL.

Materials and methods.

ERS was induced in rabbits on the first day of the study by tamponade of the right half of the nasal cavity under general anesthesia. After 15 days of pathology inducement, sponges were removed and RS manifestation was determined by the endoscopic method. Starting from the 15th day and for the next 10 days, the animals received treatment according to the experimental group.

The study was performed using 24 rabbits (4 groups, 6 rabbits in each group): intact control group and control pathology group was treated with 0.9% saline 0.1 mL i.n.; EI treated group – 0.1 mL i.n; Sinupret treated group – Sinupret® (coated tablets) 25 mg/kg intragastrically. The histomorphological examination of the nasal cavity was performed on the 25th day of the study by the standard light microscopy methods after euthanasia under general anaesthesia in compliance with bioethical standards of conducting experiments with laboratory animals.

The histomorphological assessment scale and the semi-quantitative assessment method of certain parameters with subsequent statistical analysis were used to assure of the study result objectivity.

Results. The histomorphological examination of 10 mg/mL EI (nasal spray) impact on RS in rabbits, which administered i.n. during 10 days, revealed the significant therapeutic effect presented by reduced inflammation signs in the epithelium of the nasal cavities and paranasal sinuses mucosa. Besides, the EI impact was not inferior to the reference drug Sinupret® in tablets. The study of the pharmacological properties of the EI (nasal spray) on ERS in rabbits showed the high rate of onset of EI actions when used i.n. which was superior to the rate of actions of the reference drug Sinupret® (tablets) administered orally.

Conclusions. 10 mg/mL EI (nasal spray) is a promising drug for ARS pathogenetic therapy, which demands further pre-clinical studies and clinical trials aiming to substantiate its implementation to the clinical practice.