Published: September 10, 2023 | Pages: 93-96

INFLUENCE OF NSAIDS, DEXAMETHASONE ON THE REPRODUCTIVE ORGANS OF MALE RATS

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ABSTRACT: - Glucocorticoids are very initial chemicals for the functions of the human body. Many cells are consider as the targets and one of them is Leydig cells. The experiment was carried out on 3-month-old male rats. During the study, it was found that the process of spermatogenesis is suddenly disrupted in the seminiferous tubules, the size of spermatogonia of the 1st-2nd order decreases, the size and number of Sertoli cells increases.

KEY WORDS: - Testes, aspirin, ibuprofen, dexamethasone.

INTRODUCTION

Research relevance. Glucocorticoids play an important role in many physiological processes in the body. Glucocorticoids work at the cellular level by binding to NR3C1 receptors. Endogenous glucocorticoids are cortisol (the main glucocorticoid in humans) or corticosterone (the main glucocorticoid in rats). Glucocorticoids can pharmacologically inhibit the immune system, brain and reproductive functions. Clinically potent synthetic glucocorticoids such as dexamethasone are widely used as drugs for the treatment of inflammatory diseases. However, its long-term use can cause many negative effects, and these effects can be as dangerous as other pathological factors of the external environment [1-15].

In fact, glucocorticoids are capable of inhibiting male reproduction. One of the target cells affected by glucocorticoids is the Leydig cells in the testes. Leydig cells are the main cells that produce testosterone, which is necessary for the onset of puberty, spermatogenesis, and the appearance of secondary sex characteristics in males. Leydig cells contain NR3C1 genes, and glucocorticoids reduce NR3C1-mediated testosterone biosynthesis. The combined use of dexamethasone and non-steroidal anti-inflammatory drugs can increase these negative effects. Considering the above, this study was conducted.

THE MAIN FINDINGS AND RESULTS

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The purpose of the study is to study the morphological characteristics of testes and their excesses in polypharmacy of anti-inflammatory drugs.

Research materials and methods. In addition to the control group, 50 white male rats of 3 months of age were selected for the experiment. They were given the following drugs: paracetamol 94.1 mg/kg + aspirin 31.3 mg/kg + ibuprofen 37.6 mg/kg + dexamethasone 0.6 mg/kg

These drugs were administered intragastrically through a tube as a solution to each experimental group for 10 days. The control group received 0.5 ml of distilled water intragastrically instead of drugs.

The amount of all drugs used in the experiment was calculated empirically.

The experiment was conducted based on the requirements of the European Convention on the Protection of Vertebrate Animals Used for Research or Other Scientific Purposes (ETS No. 123, Strasburg, 1986), as well as the requirements of the National Manual on the Care and Use of Laboratory Animals and on the basis of normative and methodological documents of the Republic of Uzbekistan.

At the end of the experiment, the rats were euthanized under light ether (chloroform) anesthesia on an empty stomach. For morphological examination, spermatozoa were isolated, weighed, fixed in 10% neutral formalin, dehydrated in increasing concentrations of alcohol, and embedded in paraffin. Sections with a thickness of 5-7 µm were prepared on a microtome, deparaffinized in xylene and stained with hematoxylin and eosin, studied using morphological and morphometric methods.

RESEARCH RESULTS

Under experimental conditions, under the influence of non-steroidal anti-inflammatory drugs aspirin+paracetamol+ibuprofen+dexamethasone, which were given per os to rats, due to the potentiation of NSAIDs and dexamethasone medicinal substances and the increase in the rate of passage through various biological membranes, a sharp derailment of the synthesis of arachidonic acid and prostaglandins was observed, swelling in interstitial tissues and it was found that the uneven filling of blood vessels continues with the development of deep dystrophic and necrobiotic changes in cells. The more severe and deepening of the process, the slowdown in the production of germ cells is explained by the active effect of dexamethasone. Although dexamethasone does not have a direct effect on the genitals and sperm, it has an indirect effect.

CONCLUSION

In particular, dexamethasone was shown to be anti-inflammatory, cause hyperglycemia, sharply inhibit pro-inflammatory mediators, have an inhibitory effect on proliferative processes, and block the proliferative effect of all labile (cells that are always in the proliferating phase) cells. This, in

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turn, inhibits the transition of epithelio-spermatogenic cells, which are germ cells from labile cells, to spermatocytes and the next stage of the cell cycle, and a sharp derailment.

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