International Journal of Pharmacy

www.ijpjournal.org

e-ISSN: 2249 – 7684
Print ISSN: 2249 – 7692

STUDIES ON IMMUNOLOGICAL RATES AND EFFECT OF VAGINAL SUPPOSITORIES ON VAGINITIS INDUCTED ANIMALS

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ABSTRACT

Preclinical study of safety for human health is a set of chemical, physical, biological, microbiological, pharmacological, and toxicological researches. Preclinical study of medical agent (MA) is a preclinical research in laboratory environment and on animal models for determination of specific activity and safety of MA. The main task of preclinical study is: determination of MA action mechanisms, development guidance concerning to safe starting dose in clinical studies andproposals for human oriented dosage regimen, ascertainment of potential target organs as to toxicity/activity point of view.

Key words: Preclinical study, Medical agent, Vaginitis, Immunological studies.

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INTRODUCTION

Preclinical MA studies on animals or test cultures are conducting for ascertainment / verification pharmacological activity of MA, identification of side effects and for development to initial database concerning to MD actions *invivo*.

MATERIALSANDMETHODS

Study of immunological characteristics on animals with inducted vaginitison day 3 after treatment termination.

In this study were used original author-developed vaginal suppositories with metronidazole, clotrimazole, ibuprofen, and progesterone.

On day 11 after termination of antibiotic treatment the assessment of lymphocyte cytological activity demonstrated the tendency of immunological cell activation in allanimalswithinductedvaginitis [1, 3].

In treated group of animals with vaginitis there was significant ($p \leq 0.05$) stimulation of lymphocyte cytological activity: 67.09±3,21% vs. 50.50±4,18% in intact controls. In group of animals with vaginitis the lymphocyte activity was 54,81±1,35% and was similar as in intact controls.

The estimation of lymphocyte antibody-dependent cellular cytotoxicity (LADCC) revealed that studied treatment significant ($p \leq 0.05$) stimulate of LADCC

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(80.70±3,02%, vs66,82±1,16% in intactcontrols). In untreated controls the lymphocyte antibody-dependant cellular cytotoxicity was 63,09±2,92%.

Macrophage cytotoxic activity investigation demonstrated that macrophage activity in all experimental groups had not significant differences from characteristics of intact controls (IM=61,99±1,04%) and ranged from 56,06±2,72% («vaginitis») to 62,92±2,56% («treatment»).

Macrophage antibody-dependent cytotoxic activity investigation revealed in all groups the characteristics that was similar to intact control level and makes up 63,62±1,15 in intact controls, 62,27±2,62% in vaginitis group and 68,65±2,74% after treatment.

After research of effector cell cooperative cytotoxicity it was established that only in active treatment group the cooperative cytotoxicity of lymphocytes and macrophages was significantly greater than in intact controls (63.34±2,90%) and was equal to 75.44±2,28%. In vaginitis group the activity rates were 61.35±2,87%.

Study of medium-molecular weight immune complexes doesn't reveal the significant differences between experimental and intact groups. Therewith in untreated group there was tendency to CIC increasing (0.11±0.02 OU vs. 0.09±0 OU in intact controls), and this may indicate to inflammatory process presence.

Serumlytic capacity study demonstrated that in untreated group these rum stimulate the proliferation of target cells (-7,32±1,34%, vs. 14,03±4,80% inintactanimals). This observation together with CIC rates once again confirms the extended inflammatory process and as result the synthesis ofhumoralfactors, that inflammatory process accompanying (and simultaneously stimulating the target cells proliferation). Intreated animalsthelyticcapacity of serumwas 15,68±2,13%.

Study of immunologicalcharacteristics inanimalswithinductedvaginitis on day 21 after treatment termination.The research of lymphocyte citotoxicity activity on day 21 after treatment termination demonstrated that in experimental groups the lymphocyte activity was similar to intact control (CI=53,60±2,84%) level and makes up 54,29±1,49% in animals with inducted vaginitis or 55,29±2,59% in treated animals [2, 4].

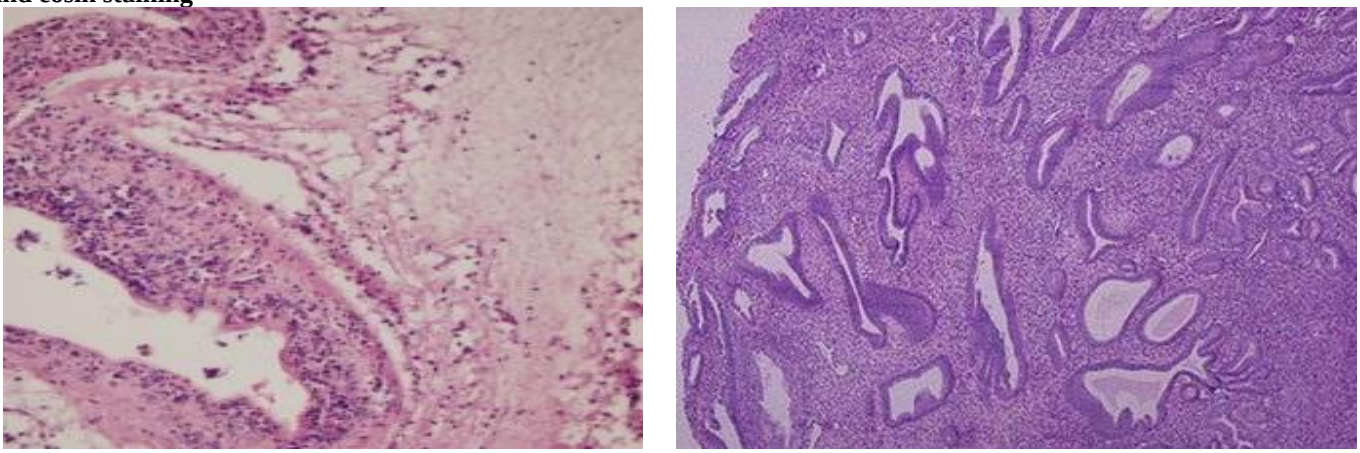
The macrophage antibody-dependent cytotoxic activity investigation demonstrated that in untreated mice this activity was significantly ($p \leq 0.05$) lower than in intact animals (57,17±1,80%) and makes up 12,74±1,69%. Intreated animals this activity was 53,70±2,39%.

RESULTS AND DISCUSSION

After research of effector cell cooperative cytotoxic activity it was established that in experimental groups this activity was significantly ($p \leq 0.05$) greater than intact control figures (CI=66,08±1,99%) and makes up 78,46±2,43% in group with inducted vaginitis or 75,29±1,05% in untreated animals.

Study of medium-molecular weight immune complexes on day 21 after treatment termination doesn't reveal the significant differences between groups. The MIC level was 0.107±0.007 OU («vaginitis») and 0.10±0.01 OU («treatment») vs. 0.10±0.002 OU in intact control. The tendency to MIC quantity increasing can indicates on inflammatory process presence.

Fig. 1. There isendometriumofexperimentalanimalsbeforeandafteruseof suppositories (enlargement 200×), hematoxylin and eosin staining



SUMMARY AND CONCLUSION

On the basis of collected data it was established that on vaginitis background the inflammatory reactions is developed. In blood serum this reactions stimulate the accumulate of factors, which on the late stages (day 21 after vaginitis induction) of inflammatory process blocking the lymphocyte- and macrophage-mediated reactions along with maintenance of cytotoxic activity express capacity. As result on late stages of our study the animals with untreated vaginitis demonstrated the marked immunosuppression, but treatment by author-developed vaginal suppositories ensured the immune system state normalization.

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