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IMMUNOMODULATORY ACTION OF IMUPURIN IN DEXAMETAZONE-INDUCED SECONDARY IMMUNODEFFICIENCY

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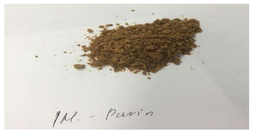
Introduction: Currently, advanced technology leading to ecological disasters, incorrect nutrition with many chemical additives, hard intellectual work, etc., affect the functionality of the immune system, predisposing the body to various attacks of microorganisms. All these directs researchers to study and discover new immunomodulatory drugs, including imupurin, a biologically active substance extracted from the larvae of butterflies of the order Lepidoptera, Lemantria family. Previous studies on the pharmacological properties of imupurin have shown that the preparation has an immunotropic effect; increases nonspecific resistance in vivo studies.

Keywords: Imupurin, dexamethasone, secondary immunodeficiency, immune system.

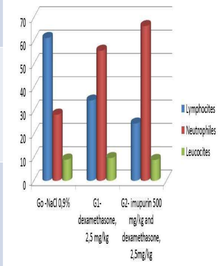


Purpose: Study of the immunomodulatory effect of imupurin on leukocyte formula in dexamethasone-induced secondary immunodeficiency.

Material and methods: The study included 31 rats, weighing 180.80 ± 5.99, of both sexes. The animals were randomly divided into 3 groups: G0- were given intraperitoneal saline solution, 0,9%-0,2 ml, G1-was administered dexamethasone sol. 2.5 mg / kg / body; G2- was given imupurin, internally 500 mg / kg in combination with dexamethasone. For the prophylaxis of bacterial infections, 500 mg / l doxycycline was added to the water of the animals. To determine the immunomodulatory effect, was collected blood from the inferior cava vena after general anesthesia with ketamine.

Results: Experimental research has shown that dexamethasone reduced the percentage of lymphocytes by 50% compared to the control-negative group (34.4 ± 6.73 versus 61.23 ± 3.35; P <0.05) and increased neutrophils (55, 78 ± 7.57 versus 28.36 ± 2.91; P <0.05). G2, wich received imupurine plus dexamethasone, resulted in a more significant reduction in

Batch	Neutrofile	Leucocite	Monocite	Limfocite	Eozinofile	Bazofile	Granulocite	Reticulocite
G0-NaCl sol.	28,36±2,91	9,09±1,00	5,63±1,05	61,23±3,35	4,6±0,58	0,163±0,02	0,36±0,14	3,25±0,24
G1-dexamethasone 2,5 mg/kg,	55,78±7,57*	9,75±1,72	5,38±1,21	34,4±6,73	3,76±0,73	0,16±0,08	0,6	4,84±0,89
G2-imupurin + dexamethasone	66,34±4,42*	8,93±2,12	5,87±1,66	24,54±4,6*	5,1±2,56*	0,24±0,19*	0,9±0,6*	7,3±1,82*



During 5 weeks, animals were supervised; Go did not show any changes in behavior, the skin, mucous membranes and the hairy part remained unchanged. An insignificant change was weight gain of approximately 16.18 grams per batch. G1 showed weight loss of 38.4 grams per batch. A hair loss (alopecia) was observed on the entire body surface in all rats and towards the end of the study period the rats became apathetic, drowsy. In addition, diarrhea occurred in 2 rats, others 3- left ear infection, with the formation on the earlobe of sōme concretions(image nr.1, nr.2).

Image nr.1

Image nr.2

The study group, were also monitored to determine body weight, which by the end of the study had decreased by up to 54 grams per group.

The following table (Nr.2) shows the changes in body mass during the research

Date of body weight determination	Go	G1	G2
28.05.19	168,18±9,26	181,5±11,84	194,0±7,95
13.06.19	176,09±7,49	162,0±9,05	166,3±5,7
3.07.19	184,27±7,35	143,1±8,19	140,1±8,44

Conclusions: Dexamethasone produced a secondary immunodeficiency, and the preparation of entomological origin did not prevent glucocorticoid-induced lucocyte formula disorders.