Specific immunity in healthy rabbits

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Abstract

The profile of chosen indices of specific immunity in healthy 3-5 months of age rabbits was presented to serve as referential values, as they were obtained from 200 rabbits, within the period of 16 years and provided stable and similar results.

Key words: *rabbit, immune parameters.*

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Introduction

Specific immunity in healthy rabbits has never been a widely disputed subject. Nevertheless, the knowledge of its variables in those animals, serving so often as laboratory animals in several research is absolutely required for a correct interpretation of results. Moreover, to establish a proper interpretation of a result, one usually rely on standards or norms, which are based on many minor results taken together. To this point, few studies have been published in this country on specific immunity indices in healthy rabbits [1-6]; therefore, those studies aimed at determining chosen specific immunity parameters in rabbits to provide referential values.

Material and Methods

The observations were conducted in years of 1990-2006, between March and June, on 200 healthy rabbits, classified as conventional animals and originating from a breeding colony remaining under constant veterinary-zootechnical supervision [7]. The rabbits represented hybrids, 3 to 5 months of age, weighing each 2.5-4.0 kg, of various sex. In the course of the experiment the animals were housed in typical rabbit cages, in vivarium of the Department of Microbiology and Immunology, FNSci, US, in which conditions corresponded to the binding standards [8]. Peripheral blood for tests was sampled from the marginal ear vein of 200 rabbits tested in three consecutive days, with intervals of 24 hours (0, 24, 48 h). In the blood percentages of T (with $CD5^+$ marker) lymphocytes and of their subpopulations: Th (with $CD4^+$ marker), Tc/Ts (with $CD8^+$ marker) and of lymphocytes with $CD25^+$ marker were established using monoclonal (mouse anti-rabbit) antibodies (Serotec) and FACScan flow cytometer (Becton Dickinson) with Cell Quest software (USA) [9]. Moreover, the percent of lymphocytes B (IgM μ chain) in peripheral blood [9] was also measured in the FACScan flow cytometer (Becton Dickinson) with Cell Quest software (USA) and serum concentration of IgG class immunoglobulins was established by the plate technique, against standards of ICN (USA) [3]. Results of tests conducted on 200 rabbit blood sampls from hours 0, 24 and 48 of the experiment were presented in the form of arythmetic means and standart deviation in Table 1.

Results

The results were shown in Table 1 and amounted as follows: percentage of lymphocytes T: between 55.61% in 0 h and 58.40% in 48 h, percentage of Th lymphocytes: between 39.35% in 0 h and 41,38 in 24 h, percentage of Tc/Ts lymphocytes: between 18.47% in 0 h and 19.82% in 48 h, percentage of lymphocytes with $CD25^+$ marker: between 20.58% in 0 h and 24.92% in 48 h, percentage of lymphocytes B ($CD19^+$): between 19.23% in 0 h and 21.17% in 48 h and serum IgG level: between 14,30 g/1 in 0 h and 15,70 g/l in 48 h.

Discussion

Evaluating parameters of specific immunity it should be concluded that they are consistent with the thesis that

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Table 1. Parameters of specific immunity in healthy rabbits

Value	Number of animals	Hour of blood sampling	Lymphocytes T (with $CD5^+$ marker) [%]	Lymphocytes Th (with $CD4^+$ marker) [%]	Lymphocytes Tc/Ts (with $CD8^+$ marker) [%]	Lymphocytes with $CD25^+$ marker [%]	Lymphocytes B (with IgM μ chain) [%]	IgG [g/l]
$\bar{x}$	200	0	55.61	39.35	18.47	20.58	19.23	14.30
SD±			1.42	2.54	1.52	1.54	1.75	1.51
$\bar{x}$		24	57.09	41.38	19.45	21.96	20.20	14.40
SD±			1.03	2.78	1.32	1.23	1.09	1.10
$\bar{x}$		48	58.40	40.90	19.82	24.92	21.17	15.70
SD±			2.04	1.96	1.59	1.83	1.99	1.32

flow cytometry tests provide stable and similar results. The values related to proportions of lymphocytes T, Th, Tc/Ts and of lymphocytes with $CD25^+$ marker corroborate the results obtained earlier in mixed breed rabbits of either sex [2, 4-6, 9].

Analysis of results related to percentage of lymphocytes B, which in this study has amounted between 19.23% and 21.17% has been higher than that noted earlier and amounting to 11.40% [1, 2, 4, 5], while serum IgG level, documented in this study at 14.8 g/1, corresponds to the levels documented earlier, which fitted the range of 10.8 to 14.9 g/1 [1,2].

Summarizing, one may note, that the obtained results have the features specific for referential values – they were performed on a big amount of animals (200), made within a long period of time (16 years) on animals originating from identical breeding colonies remaining under constant veterinary-zootechnical supervision. Moreover, the obtained results seems to be stable, possible to repeat, that is why they should provide standards for the animals in the country.

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