

SUPPRESSION OF GVH-REACTION IN CHICKEN EMBRYO WITH ANTILYMPHOCYtic SERUM

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The reaction GRAFT VERSUS HOST (GVH) is one of the main reasons for immunological conflict leading to death of recipients with transplanted lymphoid and blood-producing cells (5). Therefore, the application of new methods to prevent GVH-reaction, which causes runt-syndrome in new-born and allogenic disease in adult recipients, is very important for the transplantation immunology.

There are three ways of suppression of GVH-reaction:

1) Selection of maximum genetically compatible donors (3, 6) — difficult for the practice. 2) Influence upon the recipient cells by using various cytotoxic substances (5, 16), antibiotics (5), X-rays (9), etc. 3) Suppression of cell immunological activity of donors by applying X-rays (8), immunization of donors with various antigens (11, 12), antilymphocytic serum (ALS).

Material and methods

22-day-old noninbred chickens (race «White Leghorn») were used as donors. 22 chickens (from the incubator of the Department of Biology, Higher Institute of Medicine, Varna city) were divided into the following groups: I — controls, II — bursectomized (Bec), III — treated with ALS, IV — Bec+ALS.

The bursectomia was done in the first day after hatching.

ALS was prepared by using the adapted scheme of S. Dinoeva (1).

Beginning from the 12th day the chickens from group III and IV were injected every day (for 10 days) i. p. c. 0,25 ml ALS (20). From all donors (22-day-old) was taken out 2—2,5 ml blood from v. jugularis and heparinized with 5 U/ml heparin. Bec-chickens were checked for bursa-remnants and those with such particles were not used in the experiment.

12—13-day-old chickens' embryos of the same race (incubator Tolbuhin) were used as recipients. They were oocoped, thus marking a place with relatively large blood vessel, where a hole in the egg-shell was made. 0,1 ml donor blood was inoculated by using syringe-needle No. 18 or No. 20. After that the hole was covered with scotch-band and the embryos were 5 days incubated at 37° C and 60—80% humidity. They were opened on the 5th day; weight of the spleen and total embryo weight representing spleen-index (SI) were registered (18).

Results and discussion

Table 1 shows similar values of SI with transplanted blood of both normal and Bec-donors into chicken embryos. GVH-reaction is almost equally decreased in group III (nearly 1,5 less with $p < 0,20$) and group IV (nearly

Table 1

Suppression of GVH-reaction in chicken embryos after bursectomia of donors and ALS-application

Group	Donors	Recipient's spleen index
1	control	0,284±0,065
2	Bec	0,252±0,062
3	ALS-treated	0,1535±0,075
4	Bec+ALS	0,168±0,077

1,9 less with $p < 0,05$) after ALS-application. It is obvious that this is not statistically reliable in equal scales. It is probably due to the fact that the lymphoid elements of some donors show a low SI whereas others have relatively high index. Such variable GVH-reaction are reported with a similar experimental condition (thymectomiated, X-rays influenced and thymectomiated + X-rays influenced donors) by D. Good. It can be probably explained by the noninbred donors and recipients.

Our data do not fully coincide with those of D. Tucker. He establishes that donor lymphocytes treated with ALS are able to respond to embryo antigens but they cannot respond in vivo to similar foreign antigens located in the allograft. He accepts that birds have 2 or 3 populations of lymphocytes and ALS inactivates the cell population responsible for allograft rejection, while the subpopulation affected by GVH-reaction (20) is intact. Regardless to the differences between our own and D. Tucker's experiments (transplantation of allogenic skin in donors, followed by ALS-application and registering of the reaction in chicken embryos) we presume that it is out of question to accept such lymphocyte population because we establish (though statistically unreliable) a decrease of GVH-reaction in groups III and IV.

We do not exclude the complication from noninbred experimental animals and the possibility of forming extrabursal areas of B-cells' proliferation (10). However, we presume that the bursectomia does not considerably affect the level of GVH-reaction (20, 21) in spite of some data of B-cell influence upon T-lymphocytic system (2, 19). The applied ALS suppresses the manifestation of the reaction GVH. Our experiments do not allow the interpretation of the intimate mechanism of action of this serum. Most probably, it blocks the donor lymphocyte activity, thus «blinding» the receptors of the immunocompetent cells (4, 15).

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ПОДАВЛЕНИЕ GVH РЕАКЦИИ В КУРИНЫХ ЭМБРИОНАХ ПОСРЕДСТВОМ АНТИЛИМФОЦИТАРНОЙ СЫВОРОТКИ

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РЕЗЮМЕ

Антилимфоцитарная сыворотка, примененная на бурсэктомированных и небурсэктомированных донорах (были использованы цыплята) подавляет GVH реакцию (реакцию «трансплантат против хозяина») в куриных эмбрионах. Авторы считают, что бурсэктомия не оказывает существенного влияния на степень проявления GVH реакции.