

EFFECT OF DOCTOR ALI 1 TEA INFUSION ON THE IMMUNE AND HEMATOPOIETIC SYSTEMS IN IRRADIATED ANIMALS

Boreskaya A.S., Rasulov F.Kh.

Fergana Institute of Public Health, Fergana, Uzbekistan

Tel.: (99)-604-82-66

E-mail: alisa2678@gmail.com

Relevance of the Study

Currently, there is an increasing interest in medicinal products that influence the immune system and exhibit complex, multi-target effects depending on the level and severity of immune disorders. Rapidly advancing research technologies in biology, medicine, and pharmacology have confirmed that herbal preparations possess unique properties, including the ability to exert systemic effects with low toxicity and high efficacy. These advantages allow their use not only for treatment but also for the prevention of diseases.

Objective of the Study: to investigate the effect of Doctor Ali 1 tea infusion on immunogenesis and hematopoiesis in irradiated animals.

Materials and Methods:

In this series of experiments, white mice were exposed to a sublethal dose of 5 Gy. Eight days later, they were immunized with sheep red blood cells (SRBC) at a dose of 2×10^8 /mL. Five days after immunization, the number of antibody-forming cells (AFCs) in the spleen was determined. Doctor Ali 1 tea infusion was administered once intraperitoneally at a dose of 1.5 mL/kg simultaneously with SRBC. For comparison, one group of mice received the reference immunomodulatory drug Immunomodulin at a dose of 0.01 mL/kg.

Results:

On Day 5 after immunization, the intact group developed 9750 ± 64.6 AFCs in the spleen. In irradiated animals, antibody formation in the spleen significantly decreased 4.5-fold, indicating the development of secondary immunodeficiency. The number of nucleated spleen cells (NSCs) decreased 1.9-fold compared with intact animals.

Administration of Doctor Ali 1 tea infusion to irradiated animals at a dose of 1.5 mL/kg significantly enhanced the immune response to SRBC 2.0-fold (4317 ± 47.7). Thus, Doctor Ali 1 tea infusion demonstrated the ability to reliably increase the absolute number of AFCs in the spleen.

Analysis of nucleated spleen cells showed that this parameter in the intact group was 64.4 ± 0.5 . Exposure to X-rays caused a significant 1.9-fold reduction in this parameter, whereas in animals receiving Doctor Ali 1 tea infusion (1.5 mL/kg), it increased 1.8-fold.

Radiation exposure leads to disturbances not only in the immune system, but also in the hematopoietic system. The number of erythrocytes in peripheral blood of irradiated animals decreased 1.2-fold, indicating the development of hematological pathology (intact — $6.8 \pm 0.3 \times 10^9$ /mL; irradiated — $5.8 \pm 0.1 \times 10^9$ /mL).

Administration of Doctor Ali 1 tea infusion (1.5 mL/kg) to irradiated animals significantly increased the erythrocyte count 1.7-fold.

Radiation also induced leukopenia. The number of leukocytes in intact animals was $6.9 \pm 0.3 \times 10^6/\text{mL}$, whereas in irradiated animals it decreased 2.2-fold. Injection of Doctor Ali 1 tea infusion (1.5 mL/kg) significantly increased the leukocyte count 1.5-fold.

Conclusions:

1. The investigated herbal infusion, Doctor Ali 1, possesses the ability to enhance immunological parameters in irradiated animals.
2. The obtained results indicate that Doctor Ali 1 tea infusion can correct radiation-induced disorders in the immune status and hematopoietic system of irradiated animals.