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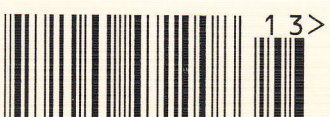

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ABSTRACT

ISP 2006

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Sepsis and SIRS in splenectomised mice

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AIM: Susceptibility to bacterial infections, sepsis, meningitis and pneumonia are major clinical complications of splenectomy. Such infections have the abrupt onset and mortality rate up to 50% to 80%. In the mouse model we explored several aspects of etiopathogenetic mechanisms. **METHODS**: A splenic host reactivity was compared to a normosplenic mice reactivity using in vivo model of sepsis. Standardized - pooled fecal inoculum when injected intraperitoneally causes strong polymicrobial peritonitis, which progresses to sepsis, shock and eventually leads to death. **RESULTS**: Statistically significant decrease in survival time was found in splenectomised animals in comparison to normosplenic animals (17. 2 vs 22. 6 hours, respectively). The spread of microorganisms had an identical pattern in both groups as demonstrated by the microorganism's growth in the tissue samples. The survival rate of splenectomised animals treated with sterile fecal inoculum is 45% lower in comparison to normosplenic animals (survival rate of 72%). Animals in this model have shown different response to high dosages of dexamethason. There is a decrease in mortality of septic asplenic animals treated with dexamethason, while normosplenic animals show a low increase in average survival time. Overall survival periods as well as severity scores of illness, show identical kinetics in the septic normosplenic and splenectomised TNF - α - p55 receptor deficient mice. **CONCLUSION**: While septic splenectomised animals showed accelerated mortality kinetics and increased disease severity, there were no alterations in the patterns of bacterial colonization. Peritonitis induced by sterile inoculum showed improved survival rates, but was not in normosplenic animals accompanied by bacterial spread, whereas the remote tissues were colonized by bacteria in splenectomised animals.

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Propylthiouracil and function of phagocytic peripheral blood cells in persons with hyperthyroidism

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INTRODUCTION: It is known that hyperthyroidism, as well as thyreosupresive therapy, can influence cells of immunological system. **AIM**: To examine the function of phagocyte cells in persons with hyperthyroidism and to examine if propylthiouracil (PTU) influences this function. **METHODS**: The study included 15 patients with hyperthyroidism and 10 healthy persons. The parameters of phagocytic activity of mononuclear and polymorphonuclear leucocytes were tested by method of ingestion of particles of inactivated yeast labeled with neutral - red. **RESULTS**: It was demonstrated that patients with hyperthyroidism, before the start of the therapy as well as 14 days after introduction of PTU, have decreased number of leucocytes (before PTU: 6. 68 ± 3. 18 × 10^9/L, after PTU: 6. 07 ± 1. 96 × 10^9/L and control: 8. 01 ± 1. 61 × 10^9/L; P = 0. 039), PMN leucocytes (before PTU: 3. 94 ± 2. 41 × 10^9/;, after PTU: 3. 54 ± 1. 62 × 10^9/L and control: 4. 84 ± 0. 89 × 10^9/L; P = 0. 037) and number of phagocyte PMN cells (before PTU: 0. 937 ± 0. 852 x 109/1, after PTU: 0. 895 ± 0. 740 × 10^9/L and control: 1. 304 ± 0. 602 × 10^9/L; P < 0. 05), but have increased their index of phagocytosis (before PTU: 1. 996 ± 0. 217, after PTU: 1. 864 ± 0. 241 and control: 1. 746 ± 0. 201; P = 0. 029), while capacity of phagocytosis has remained unchanged (before PTU: 1. 867 ± 1. 704 × 10^9/L, after PTU: 1. 632 ± 1. 889 × 10^9/L and control: 2. 365 ± 1. 409 × 10^9/L; P > 0. 05). The number of mononuclear leucocytes and parameters of phagocytic activity of mononuclear phagocytes at persons with hyperthyroidism have not changed significantly in comparation with the control group. **CONCLUSION**: Patients with hyperthyroidism have decreased number of leucocytes, PMN leucocytes and number of phagocyte PMN cells, but have increased their index of phagocytosis while

capacity of phagocytosis has remained unchanged. The number and parameters of phagocytic activity of mononuclear leucocytes have not changed. Therapy by PTU does not influence examined parameters.

P – II – 15@ ISP – 31 – 0038 – 051130

Some aspects of radio protective properties of phytoecdysteroids

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Adaptogenic and immunostimulating effect of ecdysteron and turkesteron, isolated from Rhaponticum carfhamoides and Ajiga turkestanica, as well as the sums of ecdysteroids (SE), isolated from Silene viridiflora, were studied. It was revealed that after the intraperitoneal injection at the doze of 5 mg/kg and directly prior to the beginning of the experiment they both eliminated negative shifts in the catabolic character in rats upon the modeling of stress immobilization in the position on their back for 16 hours. Individual compound and SE intercepted adrenal glands hypertrophies and a drop of ascorbic acid and cholesterol content in them. They reduced the involution of thymino – lymphatic apparatus and weakened the trophic abnormality in the stomach mucus. Both in intact and irradiated mice (at the doze of 5 g using the apparatus RUM – 17) they noticeably increased antibody – forming cell formation process in the spleen in response to immunization with sheep erythrocytes (2×10^7 per mouse). An increase in the number of thymus cells, mesenteric lymph nodes and bone marrow was also noted. The disturbance in hemopoiesis and leucopoiesis was less manifested in irradiated mice. In some cases, the effect of SE was more pronounced than during the individual phytoecdisteroids. The revealed effects considerably add up to the known spectrum of biological activity of phytoecdisteroids as the stimulator of metabolic processes in an organism.

P – II – 16@ ISP – 30 – 0476 – 060214

Effects of chicken intestinal antimicrobial peptides on immunity of chickens

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Antimicrobial peptides are polypeptides of fewer than 100 amino acids, they are found in all species of life, ranging from plants to animals, they have the capacity to kill bacteria, fungi or some enveloped virus, some of the mammalian antimicrobial peptides have been shown to have function of rapidly chemoattracting and activating host cells to engage in innate host defense and adaptive immune responses. The purpose of this study was to evaluate the effect of chicken intestinal antimicrobial peptides (CIAMP) on immunity of chicken, and to provide a probable theory for the use of antimicrobial peptides in protecting animal health. Sixty chickens were randomly divided into two groups to determine the effect of oral administration of CIAMP on the immune response. The chickens in the first group were fed with the diet without CIAMP as the control, and the chickens in the second group were fed with the same diet, except that CIAMP (1 mg/L) was suspended in drinking water just after hatching. Blood sample, thymus, bursa of Fabricius, spleen and intestine were taken at the age of 1, 4, 7, 10 and 17 day. The results showed: (1) orally fed with CIAMP could enhance the systemic immune responses. CIAMP enhanced the content of IgG from the age of 4 to 10 day ($P < 0.05$) and IgM from the age of 10 to 17 day ($P < 0.05$) in serum, IgM – forming cells in bursa of Fabricius and spleen at the age of 7 ($P < 0.05$), IgG – forming cells in bursa of Fabricius at the age of 4 ($P < 0.05$). (2) CIAMP could slightly enhance the intestinal mucosal immune response from the age of 4 to 7 day ($P > 0.05$). (3) CIAMP enhanced the antibody of infectious bursal disease virus in sera of chickens at the 21 days after infectious bursal disease virus vaccine was injected ($P < 0.05$). These results suggested that CIAMP could modulate immune responses of chickens and increased the immune activity of infectious bursal disease virus vaccine.