effect of MP on RES can be assumed without subsequent hyperactive phase [3,4]. On the ground of these data, we attempted investigation of a possible immunosuppressive effect of MP on transplantation of a skin graft.

*Material and methods.* The experiment was performed on 2 groups of rats. The first group was applied MP, the other one was used as control. As skin graft recipients, male rats of Lewis strain, of mean weight 250 g ± 30 g and F 1 (Lewis × AVN) rats as graft donors were used. The skin graft transplantation was done according to Billingham[8]. In thiopental anaesthesia, the donors were excised a graft of 2 × 1,5 cm on the ventral side; the graft was implanted on the dorsal part of the recipient in which dorsal skin in the corresponding extent had been removed. Then the graft was glued in marginal points with colloid, covered with gauze and firmly dressed. The MP emulsion in concentration of 0.5 g MP/ml was prepared as follows: The mixture of MP (Eastman Rochester N.Y.) and 1% of Tween 20 in a 5%-glucose-solution was first homogenized for 10 min in a glass homogenizer and thereafter exposed to sonication for 5 min. The MP particle size oscillated about 1 μm[9]. The pattern of the experiment: 1 day prior to transplantation the experimental group of 23 rats received a single dose of MP emulsion into the tail vein in an amount containing 0.25 g MP per 100 g of body weight. The control group of 16 animals was injected a corresponding amount of Tween 20 in glucose without MP. Following transplantation, the dressings of the controls and experimental group were removed on day 9 and 12, respectively. The statistical evaluation was done by the t-test.

*Results and discussion.* In the experimental group 3 animals died within 4 h. In the remaining 20 animals and the control group the mean survival time of the graft was 20.3 and 13 days respectively. The difference of the mean survival time of skin grafts is significant at the 0.01 significance level (see table). The study showed that MP applied in a single dose of 0.25 g per 100 g of body weight 1 day before transplantation of the skin graft considerably prolonged its survival. The object of our further work is to establish such a dose, or repeated doses, which would minimize the animals mortality and help to prolong survival of the skin graft.

Survival of skin semi-allografts following application of methyl palmitate

| Group | Number of animals | Number of days in survival of grafts In individual rats | Mean | Standard deviation |
|---|---|---|---|---|
| Experimental with MP | 20 | 25, 22, 20, 20, 20, 21, 21, 26, 18, 18, 18, 18, 20, 20, 20, 24, 17, 20, 19, 19 | 20.3 | 2.32 |
| Control (Tween 20) | 16 | 15, 14, 13, 14, 11, 11, 13, 13, 13, 13 11, 15, 13, 13, 13, 13 | 13.0 | 1.17 |

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## Gamma globulins in the mice vaginal fluids: Cyclic and experimental variations[1]

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*Summary.* The study of the gamma globulins in the vaginal fluids reveals that the lowest values were found in mice at estrus and in castrated mice 8 days after the estrogen treatment. We suggest that the variation of gamma globulins in the vaginal fluids is influenced both under physiological and experimental conditions by estrogens.

The protein content of secretions bathing the reproductor female tract has been studied by several authors[4-6]. Special attention has been given to the study of the gamma globulins fractions in several secretions in women and in other animal species[7-11]. Previously, cyclical and experimental variations of immunoglobulins of human vaginal fluids have been found, these variations seem to be regulated by estrogen action[12,13]. In the present work we are studying vaginal secretion in mice and their gamma globulins in different physiological and experimental conditions.

320 female albino Swiss virgin mice, 3 or 4 months old, were used. The animals were maintained under the same environmental and nutritional conditions and were divided into 2 groups: I. normal and II. experimental mice. The animals in group I were studied in different cycle conditions: 1. diestrus, 2. proestrus, 3. estrus, 4. metaestrus. By means of the cytological study of the vaginal content, the cyclical condition was determined; thus the animal hormonal status was indirectly appreciated. The animals in group II were castrated by means of a lumbar incision and they were studied 30 days after castration. The vaginal fluids of the same animals were analyzed 3, 8 and 32 days after being treated by a single s.c. injection of 2 μg of 17 B estradiol in oil. The vaginal secretions were obtained washing the vaginal cavity with 100 μl of physiological solution and the cells were removed by centrifugation for 3 min at 12,000 rpm. As the proteins obtained from one animal is too small, pools of 8 or 10 animals were made. The material was lyophilized and then redissolved in 50 μl of physiological solution. Part of the concentrated vaginal secretion was destined to determine total proteins by Lowry et al.[14] method. The other part was studied by agar radial inmunodiffusion method[15] to know the gamma globulin content with relation to a pattern serum (Kallestad lot 012 E 021). Goat antimouse gamma globulins (Kallestad lot 270 F 011) were used in this determination. The gamma globulins

concentration of the samples was expressed in percentage in relation to the pattern serum. The absolute values of total proteins of each groups were used as witnesses in relation with those values of gamma globulins as a way of allowing the comparison between the groups studied. The statistical analysis of the samples was made by the t-test method. The concentrations of total proteins studied during the cycle did not have significant variations: the values were found in the range of 5.47 to 8.04 mg/ml. The highest values of total protein in the vaginal fluids of experimental animals was found in the castrated and estrogen-treated animals after 8 days of treatment. In this group the protein concentration was found in a range of 3.48 to 12.74 mg/ml (table). A considerable decrease of the gamma globulin fraction of the vaginal fluids was found in the samples obtained during the estrus in comparison with the values found in diestrus ($p < 0.001$). The vaginal fluids of the mice in group II studied 3 and 8 days after estrogen treatment showed a significant decrease ($p < 0.001$) of gamma globulins fraction in relation to the non-treated castrated animals. The lowest values were found after 8 days of the estrogen therapy (table).

Previously, we had found that the plasma cells in the lamina propria of the mice vaginal mucosa show a cyclical and experimental variations[16]. This phenomenon had also been found in hamster[17] and in women[18] and it is apparently controlled by estrogens. The results of the present report show cyclical and experimental variations of the gamma globulin fraction in the protein content of the mouse vaginal fluids. It is of interest to point out that the greatest content of gamma globulins found in the diestrus and castrated mice coincide with the greatest number of plasma cells in the lamina propria in the vaginal mucosa. Our results suggest that the variation of gamma globulins found in the vaginal fluids is related in part by the presence of vaginal plasma cells and influenced by estrogens.

Relation between of the total proteins and gamma globulins content in the mice vaginal fluids

| Group | Total proteins (mg/ml) | Gamma globulins c/o pattern serum |
|---|---|---|
| Diestrus | 7.00 ± 1.06 | 5.54 ± 1.42 |
| Proestrus | 8.04 ± 1.91 | 4.24 ± 1.21 |
| Estrus | 5.47 ± 0.42 | 1.16 ± 0.20 |
| Metaestrus | 5.99 ± 2.02 | 3.36 ± 1.03 |
| Castrated | 3.48 ± 0.94 | 2.51 ± 0.93 |
| Castrated + estradiol 3 days | 6.66 ± 1.76 | 2.43 ± 0.97 |
| Castrated + estradiol 8 days | 12.74 ± 2.52 | 2.99 ± 0.60 |
| Castrated + estradiol 32 days | 5.32 ± 1.27 | 1.93 ± 0.46 |

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## Vitamin C and the immune response

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*Summary.* The inclusion of vitamin C in the drinking water of BALB/c mice was without effect on the humoral antibody response to sheep red blood cells and bacterial lipopolysaccharide. However, there was a significantly increased cell-mediated immune response as determined by increased T-lymphocyte responses to concanavalin A. This might suggest a mechanism, along with interferon enhancement, for the possible protection by vitamin C against some viral infections.

Previous reports[2,3] have suggested that the participation of vitamin C in protection against some viral infections may be in the enhancement of interferon production. We have reported an increased response to interferon induction in mice fed a diet containing vitamin C[2] and have also observed a similar phenomenon in mouse cell cultures[3]. There has been some evidence recently that interferon may have a modulating effect on the immune response[4]. It was therefore of interest to determine whether ascorbic acid might also play a role in the mediating of the immune response.

*Materials and methods.* BALB/c mice, males 2.5–4.5 months of age, were used except where indicated. Experimental animals were fed L-ascorbate (250 mg%) in their drinking water ad libitum, and similar sets of control animals remained on untreated water. Vitamin C and

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