

**The immune answer of the staff of critical care medicine does not differ significantly from the immune answer of patients, whom they treat.**

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Studies are conducted on the immune response of critical care medicine doctor's and of patients in critical states. It is indicated that response does not differ significantly, which is caused as a result of more or less important suppression of critical care medicine doctor's immune response and by developing secondary immunodeficiency picture in the doctors working in this field.

**Key words: immune answer, patient, treat.**

#### **Urgency:**

Anesthesiologists and critical care medical doctors permanently face different stress factors while performing their professional duties, among those there should be emphasized psycho-emotional and physical stress, breathe of inhalation anesthetics containing air, infectious agents influence, roentgenologic and radiological radiation and other events, greatly impacting the immune system (Z. Kheladze, 1998).

Investigations conducted in this direction indicate depression of an immune system among the critical care medical doctors (M.Salo and others, 1985; V.Shinde and others, 1986; L.Zice and others, 1988); though the data are of fragmental character and do not envisage working conditions as well as other more or less significant factors, without which it would be difficult to obtain the reliable information and development of practical recommendation; accordingly, the goal of the work is to study medical immune status, taking into consideration their professional activity.

It should be mentioned that the similar kind of work aiming at study of the immune status of anesthesiologists and critical care medical doctors was conducted twenty years ago (Z.Kheladze and others, 1992) in our institute, but whereas the methods of immunological investigation became more perfected and specified during the time the institute decided reasonable to repeat the investigation, particularly if such research would cover interleukin and endomorphine study. With this respect it should be emphasized the working environment that has been significantly changed during this time, especially the conditions for the critical care medical doctors that became more comfortable and safe.

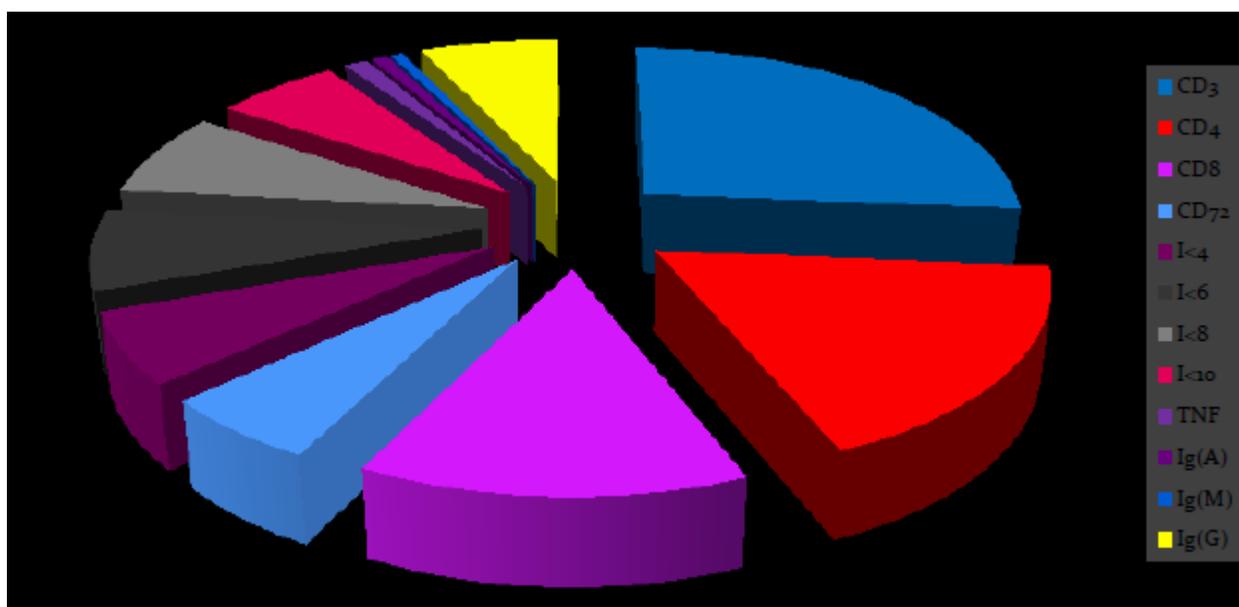
### Materials and methods:

There were investigated 22 minor critical care medical employees, in particular physicians and nurses; there were investigated 22 nonmedical healthy individuals in their full age as well 49 patients of full age in critical conditions; among the latter the critical conditions was associated with polytrauma, serious craniocerebral injury, sepsis, lungs acute injury syndrome, hemorrhagic stroke, cerebral infarction and other pathological conditions. The patients took treatment in compliance with the state medical standards (Z.Kheladze, 2001), which covered lungs artificial ventilation, water and electrolytes exchange correction, parenteral and enteral nutrition, antibacterial therapy etc.

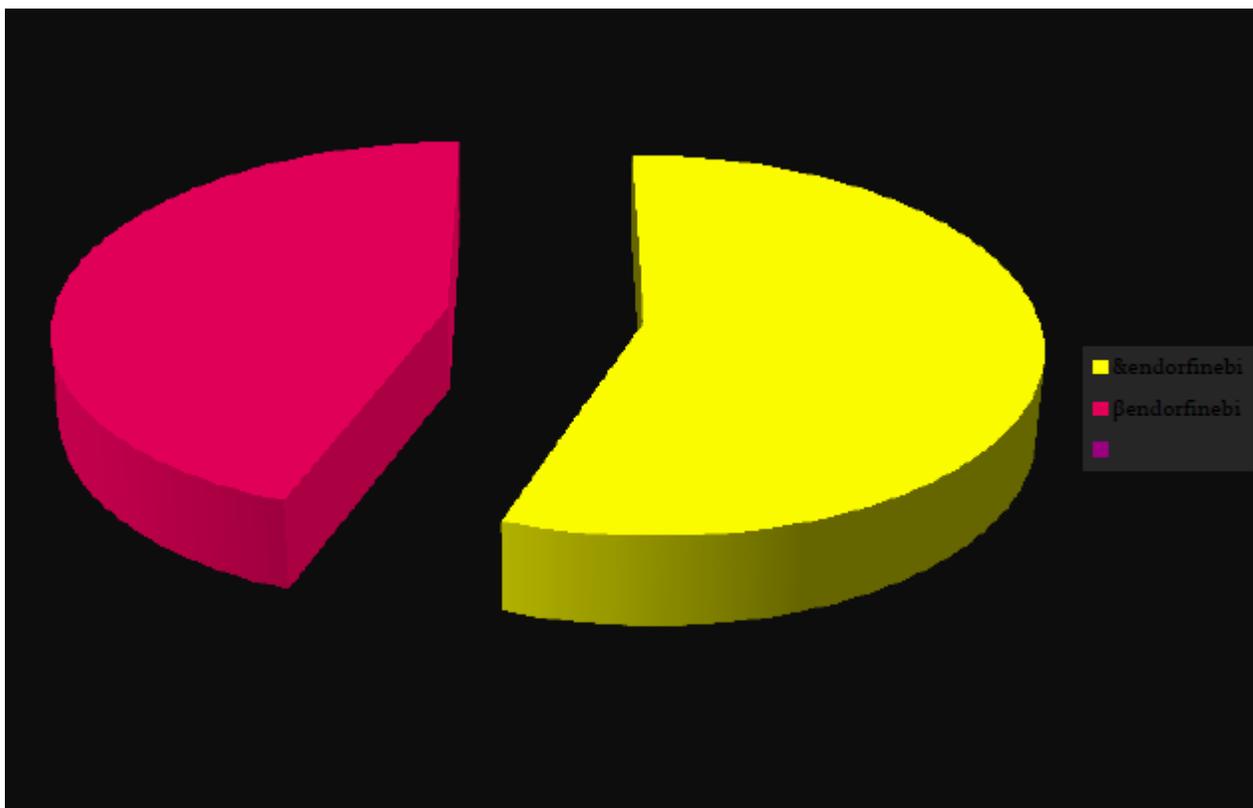
The special method of investigation is introduced by investigation of immunocompetent cells in a peripheral blood; there were investigated CD3, CD4, CD8, CD34, CD72 quantity by monoclonal antibodies of “phagotost” (The USA) manufacturing; the lymphocytes were discharged in a phycol-verographin gradient, resiliency of which amounted to 1.079m/cm<sup>3</sup>; in the discharged cultures the cells concentration was 10<sup>6</sup> cell/ml, suspension clearness – 95%; the lymphocytes were counted by the luminescence microscope of the Luman C4”; there were also studied the cytokines concentration in a peripheral blood. The concentration IL4, IL6, IL8, IL10 and TNF $\alpha$  were investigated by the “Vector – best” (Russia) brand test-system; the results were filed by a immune-enzyme Sider RAITO 2100; simultaneously there were studied endorfin a and B concentration according to the EIAAB (China) brand test-system – “Sandwich – LLISA”, the commonly recognized .

### Outcomes and discussion:

The investigations results are provided in the tables.

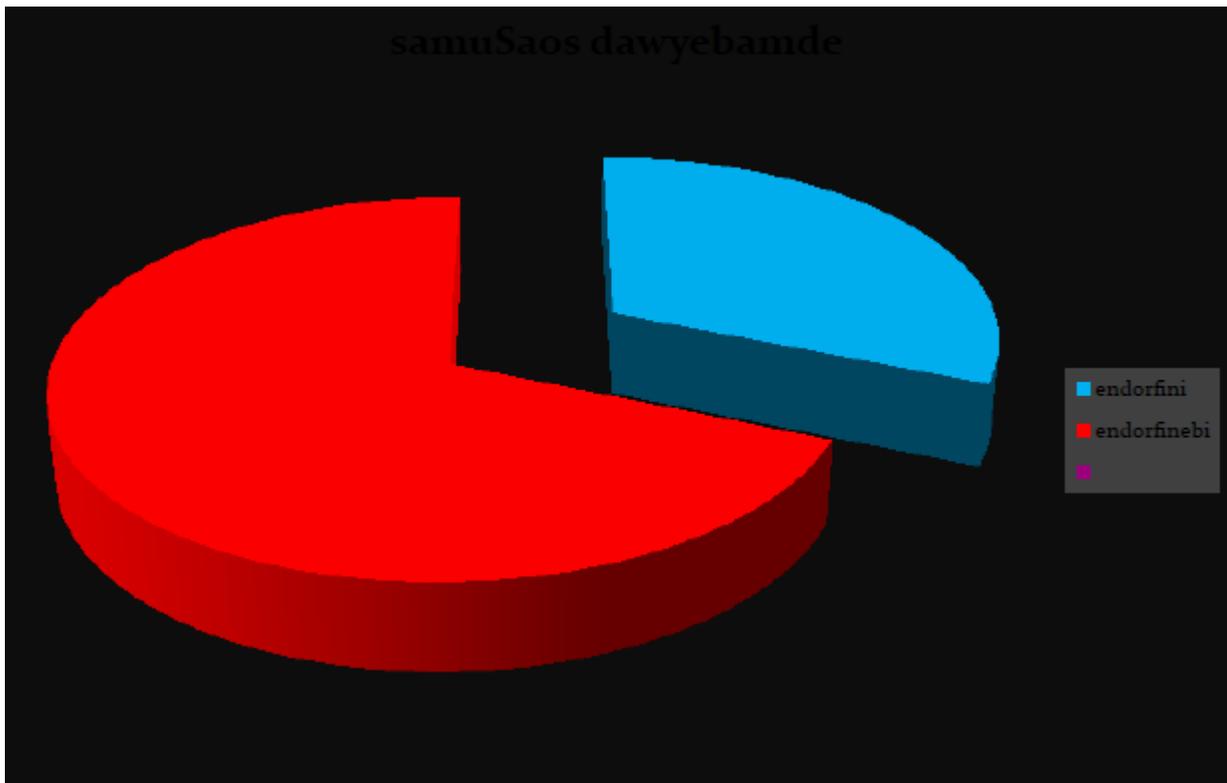


The table #1 shows that critical care medical employees as well as the patients were characterized with immune-competent CD3, CD4, CD8, CD72 cells statistically reliable decrease ( $p < 0,001$ ) in comparison with the practically healthy individuals. With this regard it should be emphasized that in comparison of these data no statistically reliable ( $p < 0,005$ ) difference among the critical care medical employees and the patients was found, this indicate homogenous character; as about the cytokines, their concentration among the critical care medical employees as well as the patients was increased in a statistical reliable manner ( $p < 0,001$ ) – IL6, IL8 and TNF amount; besides, concentration of the latter in comparison with the critical care medical employees was significantly increased ( $P < 0,05 - 0,001$ ) in critical patients; in this regard it should be focused on immunoglobulin exchanges, which was similar to the concentration of the practically healthy individuals while the critical patients had increased number of A, M and G immunoglobulin in a statistically reliable manner ( $p < 0,005 - 0,001$ ). It should be mentioned that in one group (18 individuals) of a critical care medical employees the immune status was investigated before and after work; with this regard there was no statistically reliable ( $p > 0,05$ ) changes of immunocompetent cells as well as interleukin concentration.



There were reviewed interesting data regarding the changes to the endorphine number; with this regard it should be mentioned that on the background of the peculiar stability of the & endorphine

the number of the  $\beta$ -endorphine was more or less increased ( $p < 0,001$ ) in the both target groups in comparison with the healthy donors, though these indexes in the clinic employees and the patients were not significantly differed from each other ( $P > 0,05$ ); it should be also emphasized that by the completion of the working day the number of the  $\beta$  endorphine in the blood of the employees was significantly decreased ( $p > 0,001$ ) in comparison with their initial index. Consequently it should be concluded that the critical care medical employees are actually characterized with significant changes of immune status and endorphine compound which obviously impact their health condition. It should be supposed that the immune answer (respond) of the individuals with such profession is characterized with a continuous irritation due to permanent influence by the natural agents (emotions, infectious agents, toxics, physical loading etc.); frequently such changes are expressed too clearly and they are not significantly differ from the immune answer of the patients which take treatment; relevantly we appear to be faced the significant problem stressing once again the urgency of creation and regularization of the safe environment for the employees of critical care medicine.



კრიტიკული მედიცინის ექიმთა იმუნური პასუხი მნიშვნელოვნად არ განსხვავდება იმ ავადმყოფთა იმუნური პასუხისგან, რომელთაც ისინი მკურნალობენ.

ნ.ქაჯაია, ზ.ხელაძე, ზვ.ხელაძე, ნ.ბარნაბიშვილი, ე.ივანიძე, თ.ქაჯაია, ს.მახარაშვილი, ლ.ურუშაძე, ე.დავითაშვილი (თბილისი, საქართველო).

შესწავლილია კრიტიკული მედიცინის ექიმთა და კრიტიკულ მდგომარეობაში მყოფ ავადმყოფთა იმუნური პასუხი. მითითებულია, რომ ისინი მნიშვნელოვნად არ განსხვავდებიან ერთმანეთისაგან, რაც გამოწვეულია კრიტიკული მედიცინის ექიმთა იმუნური პასუხის მეტნაკლებად მნიშვნელოვანი დათრგუნვით და ამ პროფესიის ექიმებში მეორადი იმუნოდეფიციტის სურათის ჩამოყალიბებით.

გასაღები სიტყვები: იმუნური პასუხი, პაციენტი, მკურნალობა