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Some Discussion Problems of Modern Clinical Immunology

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Abstract

A number of immune phenomena are discussed, including the formation of immunocompromised individuals, immune disorders and their not fully understood mechanisms, the reasons for the low activity of immunotherapy, not always an adequate interpretation of the basics of clinical immunology, attempts to classify immunotropics, targeted correction of the functioning of the immune system and other questions.

Keywords: Immune disorders; Immunocorrection; Regulation of the immune system

Editorial

The objective reality today is the formation of a stratum of immunocompromised individuals with inadequately stimulated or suppressed defense reactions. The presence of these contingents increases the risk of developing infectious, malignant, auto-immune and other diseases in the population as a whole, reduces reproductive capabilities, contributes to the appearance of inferior offspring, etc.

An established fact is the induction of immune disorders during the development of any pathological processes that contribute to their chronicity and aggravation. Correction of these disorders increases the effectiveness of the treatment and, ultimately, improves the quality of life of patients. However, in reality, quite often there is a low activity of immunotherapy of diseases due to the fact that a targeted effect on the immune system is quite difficult, since the latter is inertial, in a certain sense conservative, with excessive stimulation or suppression, it can induce self-destruction mechanisms, loss of the censor's function, etc. The following mechanisms are at the heart of this phenomenon.

1. Hierarchical complexity of the structure - division into central and peripheral organs of immunogenesis, i.e. anatomical fragmentation of the system.
2. The presence of lymphoid (main) and auxiliary cells.
3. Multilevel regulation of immune reactivity (anti-infectious resistance) by cellular, humoral (antibody, cytokine, hormonal, complement system), nervous and other mechanisms, endogenous nucleic acids, metabolic factors, etc.
4. Immunotropic action of traditional medicines and influences.
5. Achievement of homeostasis in various ways: through activation/inhibition of suppressive, other immune and non-immune reactions, modification of the number and function of regulatory subpopulations and subpopulations of lymphocytes.
6. Influence on the immune reactivity of sex, age of subjects, circadian, circannual and other biological rhythms.
7. The likelihood of alternative changes in the components of the immune status in different patients with one pathological process.
8. The presence of a general organism effect in immunotropic drugs.
9. Quantitative and qualitative variations of immune parameters in patients, depending on the pathogenesis, combination, localization, stage, allergy and other features of the disease.

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10. A qualitative difference in the state of anti-infectious and other resistance in healthy, ill/vaccinated, stimulated with various drugs contingents.
11. The presence of evolutionarily developed and exclusive, including surgical, ways to achieve balance in the immune system.
12. Control of all the above mechanisms by genes of immune resistance, ABO system, HLA, Rh factor, haptoglobin, etc.

Due to these circumstances, it should be recognized that, in general, the severity of targeted immunocorrection is quite low and therefore has not become a widespread method of treatment. Apparently, this also happened because clinical immunology has not yet created a substantiated concept or ideology of directed modulation of the perverse function of the immune system. The consequence of this in a number of cases was the unjustified or arbitrary appointment of modulators to patients [1,2].

The complexity of the stated problem is also aggravated by a change in the interpretation of the basic postulates of clinical immunology [3].

The prevailing notions about typical changes in immune reactivity in specific diseases and the fixation of targets of modulators, regardless of any circumstances, no longer correspond to real reality. Clinical immunologists are faced with the facts of a high qualitative and quantitative modification of the nature of changes in defense reactions in similar pathological processes, but in different patients and equally pronounced variations in the effects of modulators in various diseases.

Classifications of immunotropic drugs also do not meet modern realities.

Indeed, attempts to differentiate the corresponding drugs according to the inducible effects can be represented as follows:

(1) immunoregulation, immunostimulation, immunosuppression, immunocorrection, immunoadjuvation, immunoadaptation, immunorehabilitation, immunopotentialization, immunostabilization, immunosubstitution; (2) allocation of active, passive, adaptive, stimulating, suppressive, substitutive specific and non-specific immunotherapy;

(3) the division of modulators into groups of origin - exogenous (microbial, plant), endogenous (immunoregulatory peptides, cytokines, their chemical prototypes, low molecular weight RNA), synthetic, reproducing some, for example, microbial structures (polyoxidonium) or having no analogues in nature (levamisole);

(4) the distribution of drugs on stimulants of individual links of immunity - phagocytic, cellular, humoral;

(5) isolation of non-drug factors, metabolics and antihypoxants;

(6) differentiation of modulation options for correctors of protective reactions by hormones, mediators, cytokines, myelopeptides;

(7) immune engineering (organ and tissue transplantation, administration of immunoglobulins, blood transfusion), natural and synthetic stimulants do not fully reflect the biological essence of the phenomenon of pharmacological or non-medicamentous correction of immune homeostasis disorders.

In recent years, many facts have accumulated, on the basis of which two new provisions of the concept of targeted regulation of the immune system function are formulated. This is a modification of the effects of correction by the peculiarities of pathological processes, the nature of the treatment being carried out and the predominant achievement of immune balance during the reproduction of natural evolutionarily developed mechanisms for regulating protective reactions within the phenotypic limitation.

Thus, in order to achieve the real goal of eliminating immunopathology, it is required to reproduce a whole range of effects on the patient, and to do this deliberately on the basis of correctly conducted research.

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