The General Concept of Stress and Its Effects on the Body

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The article considers the problem of stress, its content and components affecting on the human body. It is analyzed the scientific approaches to the problem of stress, stressors at the macro and micro level, their causes and ways of expression.

Keywords: stress, stressor, physiological component of stress, stress factors, environment adaptation, rate of reaction, psychosomatic disorder.

Actuality. In modern conditions of society development and human life stressful situations occupies one of the dominant position, as they are accompanied on a person from birth to death.

The problems arising in society, according to their influence on the person are completely different. In its turn, medical researches show that the body reacts stereotypically, the same biochemical changes that result in a overcoming or leveling of the increased requirements for the human body. Stressors – stressors are different, but they are launch in the same course, in effect, biological stress response. Due to the increase the so-called stress diseases problem of human adaptation to the critical factors of the environment has long attracted researchers of many scientific fields.

The problems of stress were studied B. Agarkov, A. Ado, M. Ado, T. Barlas, F. Berezin, L. Reel, Bykhovets Y. Vladimirova, R. Granovskaya. J. Greenberg, E. Kalmykov, L. Kitaev-Smyk, R. Lazarus, A. Makarchuk, I. Miteva, V. Murza, P. Sidorov, M. Padun, A. Parnyakov, B. Pytsky, G. Poryadina, H. Selye, V. Skumin, E. Sokolova, N. Tarabrina, R. Tigranian, E. Udachina, A. Filatov, Z. Mikhail M. Filippov, Z. Himchyan, E. Cherepanova, V. Shapar, A. Shatalova, A. Shchepina and others. However, despite the large number of studies is still a problem, because the dynamic changes in the environment affect the quality of human life. Therefore, the aim of the article is to analyze the concept of «stress» and its influence on the individual.
The presentation of the base material Based on the fact that the stress – a state of psycho-physiological tension – a set of protective physiological reactions coming in the human body in response to the impact of different unfavourable factors, it is useful to analyze the point of view of scientists and psychologists on this problem. So, even H. Selye proved that the principles of protection at the cellular level are mainly characterized as a person and groups of people. Biochemical adaptive reactions of cells and organs are identical regardless of the nature of the impact, since «physiological stress» is the answer to any claim brought against the body [8].

Thus the stress – a non-specific response of the human body on any kind against him or specific requirement, which includes certain reactions. So, people in the cold shivering, to dedicate more heat, the blood vessels of the skin are narrowed, reducing heat loss from the body surface; and in the summer – is experiencing hyperhidrosis (the allocation of a large amount of moisture), which cools. If a person has used a large number of sweet, his blood sugar level rises above normal, the body burns a certain part, and blood sugar levels normalized. Muscular effort, such as running up the stairs as fast as places increased demands on muscles and the cardiovascular system, where muscles need additional source of energy, therefore the heartbeat becomes more frequent and severe, high blood pressure, dilates blood vessels and improves blood flow to the muscles. In this case, we consider the examples without abnormalities. It should be noted that all agents acting on the human and also cause non-specific reactions adaptive need to restore the normal condition and functioning of the body. These functions are independent of the specific effect. Non-specific requirements for effects on the body, and is the essence of stress [8].

According to the researchers, with whatever difficulty not encountered the human body, it is possible to cope with the two main types of reactions: active or passive resistance that is fight or withdrawal from it. But leaving is not a solution, if put into the body poison, escape is not possible, but the reaction can still be of two types: either the destruction of chemical poison or peaceful coexistence with them. The balance is established by removing the poison from the body or the body learns to ignore the poison. Nature has provided countless ways in which the team attack poison or tolerate it are transmitted cells to on a chemical level.

In terms of stress response does not matter positive or negative situation facing the human body, as it has a value of only the intensity of the need for restructuring or adaptation. It is not easy to imagine that the natural ingredients, medicines, own hormones, emotions cause the same biochemical changes in the body. The quantitative biochemical studies show that some reactions are not specific and the same for all kinds of influences.

The official medicine a long period of time did not recognize the existence of such a stereotyped response. It seems absurd that different tasks are based on the same answer. If we analyze the many similar situations where specific phenomena have common non-specific features at the same time in everyday life. At first sight it is difficult to find a «common denominator» for the person table and wood, but they all have the weight, because there are weightless objects in virtue of the general physical laws. The pressure in the balance does not depend on the specific properties such as temperature, colour or shape. Likewise the effect of stressor presented body requirements does not depend on the type of specific adaptive responses to these demands. In this case we are talking about stressors, as negative factors causing the body's state of tension and stress. The stressors acting on the human body can be different phenomena and components of micro-and macro.

In modern conditions of globalization of stress not only to be avoided, but it is not impossible. Even Claude Bernard in the second half of XIX century., Long before the study
stress the concept, clearly pointed out that the internal environment (milieu interior) of a living organism is to preserve the constancy with any fluctuations in the external environment, that «it is the constancy of the internal environment is a free and independent life condition» [14, c. 404-440].

Walter B. Cannon for coordinated physiological processes that support the most stable states of the organism, coined the term «homeostasis», denoting the ability to maintain the constancy and balance, since the internal human environment — this is I-it-yourself or the environment in which the body is supported normal life and nothing to deviate from the norm concepts. If this happens, it is a pathological deviation at different levels of the human body, which can cause premature death [15, p. 480-487].

Many scientists say about the nature of the three-phase stress. The three phases of the general adaptation syndrome of the body: a) alarm reaction or first stage of stress — the mobilization of the alarm adaptive capabilities of the organism. According to H. Selye, author of stress the concept of adaptive capacity of the body have a certain resource limitations, as none living organism can not be in a constant state of anxiety. If the agent is so strong that the considerable impact it becomes incompatible with life; if the organism survives, after the initial reaction, it is sure to stage of resistance. Under the influence of a very strong stress — serious burns, extremely high and extremely low temperatures — the body can die already at the stage of anxiety. It is necessary to pay attention that for the reaction of anxiety typical will changes at the somatic level: reduction of thymus size of the spleen and lymph nodes of adipose tissue, the formation of ulcers of the stomach and intestines, the disappearance of eosinophils in the blood and lipid granules in the adrenal glands, blood coagulates content chlorine ions in it falls, there is an increased excretion of nitrogen, phosphate, potassium, is marked increase in the liver and pancreas. The body is changing its functional characteristics through the effects of stress. But his resistance is not sufficient, and if the stressor is strong (serious burns, extremely high and extremely low temperatures), death can occur; b) the resistance of the phase — the action of the stressor is compatible with the adaptation possibilities and the body resists this influence. At this stage, the signs of alarm reaction levelled resistance levels are rising much higher than usual. This phase is characterized by the almost complete disappearance of signs of alarm reaction; the level of resistance of the organism than usual. If the stressor is weak or has ceased to act, the stage of resistance continues for a long time and the body adapts by acquiring new properties, so it is called a stage adaptation of balanced spending reserves. If the stress factors more powerful, or acts for a long time, developing stage of exhaustion; c) exhaustion phase or asthenia, when the human body sends signals — cries for help from the outside, or in the form of support, either in the form of removal of the stressor, exhausting body. Once again there are signs of alarm reaction, which form the irreversible, leading to the death of the organism, if it's not in time to provide the necessary assistance [8].

So after a long-acting stressor, to which the body has adapted, are gradually exhausted reserves of adaptation energy. Once again there are signs of alarm reaction, but now they are irreversible, and the individual dies.

So, H. Selye in everyday life provides for two types of stress: eustress and distress. Eustress is combined with the desired effect, and is defined as the normal stress, serving for the preservation and maintenance of life; distress — pathological stress, manifesting in painful symptoms, as is directly linked to harmful stress [8].

A.R. Lazarus has introduced the concept physiological and psychological (emotional) stress, when physiological stressors are extremely unfavourable physical activities, conditions that cause the body's integrity and violation of its functionality. The psychological stressors are
those impacts that people themselves are evaluated as very harmful to their well-being. It depends on the conditions of life, upbringing, education, personal experience and their position in life, moral judgments and attitudes, ability to adequately and critically assess the situation [5, p. 178-208].

Psychological stress is divided into stress informational and emotional stress. Stress information arises in situations of information overload, when the subject is unable to cope with the task, no time to make the right decisions in the charge against the pace – with a high responsibility for the consequences of decisions made. Stress manifests itself in emotional situations of threat, danger, hurt, frustration, when its various forms – impulsive, brake, generalized – lead to changes in mental processes, emotional shifts, transforming the structure of motivational activities, violations motor and verbal behaviour. Psychological stress is accompanied by extremely high emotional stress. The character of the stress response depends not only on the assessment of the degree of harmfulness of the stressor given person, but also on the ability to react to it in a certain way. A man is able learn to adequate behaviour in a variety of stressful, extreme situations (in emergency situations, when a sudden attack, etc.). Extreme situations are divided into short-term, when the updated response programs, which in man is always «ready», and on the long-term, which requires adaptive adjustment of human functional systems, sometimes subjectively very unpleasant, and sometimes unfavourable to the state of the organism. In short-term extreme conditions of strong are clearly manifested stress symptoms – rapid mobilization of protective mechanisms of the body, consumption of surface adaptive reserves. With long-term exposure to extreme there is a gradual mobilization and expenditure of both surface and deep reserves of adaptation [11].

Stress is part of everyone's life and it can not be avoided as well as the satisfaction of primary needs. It creates a «taste for life». Life loses its taste, if a lot of fun can be obtained very easily, since in this case quickly falling motivation for action. It is important and its stimulating effect on the processes of education, training and socialization, but stressful impact must not exceed the adaptive capacity of a person, because in these cases there is a general deteriorating state of health, and even psychosomatic disorders, as people react differently, that speaks the same load individualization of each person. Some have – the reaction of the active and its activity goes on increasing, «stress lion», while others – the passive, their efficiency goes on falling, the «stress the rabbit» [10].

Thus, the human sensitivity to the psychological trauma is determined by his level of stress that is a set of individual personality traits that defines the human resistance to various stresses. Stress resistance includes three components: the feeling of the importance of its existence; sense of independence; ability to manage their own lives and depends on his psychic self-regulation.

According to scientists, the physiological stress is a preconditions for condition of the endocrine system and the good physical form. However, there is a predisposition to stress reactions, characterized by certain emotions: anger, hostility and aggression. In this case an important role has an individual human sensitivity to the injury due to the influence of such factors as gender, age, level of intellectual development, the individual personality structure, social status, maturity, immaturity, hypersensitivity, dependence, addiction to excessive control, the desire to suppress emotions, inclination to act as a sacrifice, commitment to the retention of a traumatic experience. All this promotes strengthening of the harmful effect and injury that is low tolerance to stress. The same factor is genetic susceptibility – the physiological state at the time of injury, especially for exhaustion, sleep disorders, nutrition,
lifestyle, because the nutrients are directly related to stress. There is a group of food nutrients that mimic stimulation of the sympathetic nervous system – coffee, cola, tea and chocolate, which contains caffeine, nicotine contained in tobacco. These substances increase metabolism, anxiety and provoke lead to the isolation of the stress hormones increase heart rate and blood pressure, as well as contribute to the enhanced response of the nervous system to stimuli, thereby increasing the risk of stress response [6; 7; 10; 11].

K.L. Cooper and J. Marshall focus attention on direct relationship between individual psychological and personal characteristics and resistance to stressful situations: extroverts more adaptable and better orient themselves in life than introverts; «Rigid» and «mobile» differ in the assessment of stressful situations: the first longer react to surprises in the coming of the management and are dependent on others, and the second being more open, the influence of other people, are easily overloaded; focused on achieving exhibit greater independence and inclusion in the job than focused on security [4, p. 179-204].

The scientists believe that preconditions for a low tolerance to stress are anxiety, hypersensitivity, rigidity, lack of social skills. Arising symptoms of the stress of uncertainty, unproductive cause a deeper discomfort: increase tension, occurrence of avoidance increase the sensitivity to criticism, the emergence of fruitless efforts, isolation. According to V. Schaeffer signs of stress tension are inability to concentrate on anything; too frequent mistakes in the work; impairment, memory loss; feeling tired; a fast rate of speech; frequent headaches, cramps and pain in the back or stomach; irritability; indifferent attitude towards their work; decrease a sense of humour; constant feeling of malnutrition, susceptibility to bulimia or loss of appetite, loss of interest in eating, anorexia; untimely fulfilment of [13, p. 1032-1036].

It is worth noting that the person is constantly overwhelming anger, are developing a variety of psychosomatic symptoms. During the anger and increases the production of acid in the stomach. Although the overwhelmed by anger and not the only cause of these diseases, the researchers argue that it is involved in the development of rheumatoid arthritis, urticaria, psoriasis, stomach ulcers, migraines and hypertension. Prolonged sadness and longing does not go unnoticed, as not appearing in tears, they make other organs weep. According to scientific data, in 80% of cases, myocardial infarction preceded by any acute trauma, or prolonged mental stress. In addition, during prolonged frustration – «futile expectation» that causes discomfort state seizes a man who can not get what they want in the future or the victim fiasco in the past may develop some of the stress of the disease. In the execution of oppressive desires are more common disorders of the gastrointestinal tract, and in the suppression of anger – sexual dysfunction, which may result in impotence. The suffering of the past often lead to heart disease, and fear of the future and taking care of it - to the liver disease [7].

As already mentioned physiological changes during strong emotions often associated with excess energy supply – a contingency. Not only physiological adjustment in mobilizing reserves may be excessive and debilitating, but also attitudes and personal human position significantly affect its condition. Physicians have long paid attention to the direct relationship with the prevalence of specific emotions predisposition to certain diseases and pathologies. Psychologists and psychiatrists have established a relationship between physical illness and personal characteristics and psychological climate in which people live and work. If a person tends to take place in a group that does not correspond to his abilities, has a high level of claims, it is increasingly likely to develop cardiovascular disease. A chronic pathology of hearts of or coronary syndrome is much more common in people with severe commitment, ambition
and intolerance to its immediate environment. The main feature of the person suffering from hypertension is the rancour – especially chronic. At the same time it was found that hypertension can lead to a situation, and that does not give a person the opportunity to successfully fight for the recognition of self around, except a sense of satisfaction in the process of self-affirmation. If a person is suppressed, ignored, then he develops a feeling of constant dissatisfaction with himself, not finding exit and make it a daily «to swallow insult» for persons suffering from cardiovascular diseases typical of high self-esteem, leading to such personality traits as individualism, dissatisfaction with his position in life (profession, position), of conflict, addiction to «clarify relations» [4; 9].

Conclusions. Stress – is a process of internal changes in the body's systems in response to any strong or prolonged exposure to the environment. The problem of stress affects all aspects of human life, is an inevitable component of the positive and negative effects on the human body, affecting the quality of life. Stress in a positive way is a motivator to achieve their goals, and in the negative – contributes to the formation of psychosomatic disorders, even death. Thus the, stress – it is not a disease or pathology, stress – it is the norm.

References:
Петьков В.А. Общее понятие стресса и его влияния на организм

В статье рассматривается проблема стресса, его содержания и составляющих, воздействующих на организм человека. Анализируются научные подходы к проблеме стресса, стрессоров на макро- и микроуровне, причины их возникновения и пути их проявления.

Ключевые слова: стресс, стрессор, физиологический компонент стресса, факторы стрессоустойчивости, среда, адаптация, норма, реакция, психосоматические расстройства.