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EMPATHY, «BURNOUT» SYNDROME AND HEART RATE VARIABILITY

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The work deals with the comparative analysis of searching correlations between psychological and physiological indices of emotional «burnout» syndrome stepwise development, as well as the role of empathy in the syndrome origin. The analytical method of heart rate variability for objectification of developmental processes of emotional «burnout» symdrome has been proposed.

Keywords: empathy, emotional stress, «burnout» syndrome, heart rate variability

В работе проводится сравнительный анализ поиска корреляций между психологическими и физиологическими показателями стадийного развития синдрома эмоционального выгорания, роль эмпатии в возникновении этого синдрома. Предложен метод анализа вариабельности сердечного ритма для объективизации процессов развития синдрома эмоционального выгорания.

Ключевые слова: эмпатия, эмоциональный стресс, синдром эмоционального выгорания, вариабельность сердечного ритма

Systematic investigation of cardiac rhythm variability phenomenon (CRV) was started in the middle of the last century in the USSR. At the same time the methods of identification, analysis and interpretation of the basic components of the phenomenon based on the original scientific and theoretical approaches to the regulation cardiac rhythm problem have been proposed [1,2]. Later the indicated problem attracted attention of the wider group of specialists [3-5]. In their works, for the first time the working principles, definitions and notions used during analysis of CRV have been tested, theoretically based and legalized; the basic principles of objectification of CRV have been formulated; the main fields of possible CRV analytic methods use and indications for their use have been designated; objectification criteria and principles of scientific discussion of the CRV analysis findings have been drawn up [6]. The trend work made is of the highest actuality and is being claimed up-to-date.

In the contemporary medical practice the unified standards, patterns and ways of evaluation of CRV findings have been used. The above mentioned methods have been modified based on the generalization and integration of working experience of both Russian and foreign scientists in the field of experimental and practical medicine [7].

The analysis of CRV is carried out to evaluate the control mechanisms of heart activity according to the indices of inclusion into this process of various levels of hemodynamic regulation(automatic, neurohumoral, sympathetic and parasympathetic, subcortical, and cortical). Condition of the peripheral and central regulation levels of cardiac rhythm is considered to reflect not only the activity of multi-contour and multilevel systems of cardiovascular functions self-regulation during time continuum but other life activity indices as well [2,5-6]. Being evaluated in combination and separately according to their systemic organization criteria, these functions and processes can evidence not only their partial participation but the cooperative interrelation of organs and tissues cells in realization of this or that optimal integral activities for human body. The CRV indices in their integral type registered even during various time periods reflect the so-called «physiological price» of an achievement or failure of the body the adaptive results of integral activities within various homeostatic functional systems. These systems, in their turn, hierarchically co-submit to the functional systems of higher level. The latter e.g. actively integrate psychoemotional components of a subject's purposeful types of behavior into their structure [8]. In this context "… cardiac rhythm is temptingly to consider as one of the most comfortable function for monitoring" as it reflects the total effects associated with the anticipated ("ideal") and real human activity" [9].

The CRV indices characterize the degree of adaptive mobilization and tension of various regulatory processes in the human body under the exposure of internal and external irritants which possess physiologically permissible strength action and duration [7].

However, the dynamics of CRV indices provided the action of the irritants exceeding the so-called physiologic norm (i.e. stressors) and realization of responsive adaptive conflict-induced or coping strategies and activity types in a human as well as the mechanisms of particular psychological defense remains practically uninvestigated.

In the above-mentioned context, the conclusion made by Selier G. is supposed to be of exclusively significance. He stated that «… being the element of life activity, *unspecific* adaptive processes alongside with *specific* (italic type is mine, Revina N.E.) contribute to not only overcoming marked danger, but also creating efforts for every step of life evolution» [10]. It is his conclusion that once again proves the thesis that various (active, passive, mixed) adaptive and defensive tactics and strategies of activity are the inseparable and indispensable attribute of all life activity processes.

Excessive mobilization and interrelation of specific and unspecific adaptive functional processes in extreme environmental conditions, permanently experienced negative emotions and occupational stresses in unmet dominant requirements (social especially) are known to result in dissipation of human's mental resources, physiological reserves and possibilities, and then

to emotional stress development [8,11]. It occurs that mental adaptive functions resources (motivational, emotional, cognitive) in combination with the human physiological reserves as well as the character of re-distribution of possibility capacity and peculiarities of dissipation of these possibilities are referred to the category of vital potencies of every human possessing a particular individual and personal character. Permanent utilization of these resources and their exhaustion lead to a crisis transformation of «eustress» into «distress» due to qualitative-quantitative passage initially adaptive processes into pathogenic ones. The similar change of activity vectors has been also observed at the level of mental processes when the so-called «syndrome of emotional burnout» (SEB) develops. Usually this syndrome is interpreted as a wide range of the highest functions indices changes in the type of a stable «mental personal deformity» [12]. And still the manifestations connected with the possible «physiological accompaniment2 of SEB are completely uninvestigated.

There is an opinion that emotion as a mental phenomenon and emotional stress as a «psychophysiological construction» are provided by different and in various extent marked functional manifestations at the level of inter-central and center-peripheral relations in the body [12]. Here it is appropriate to remind that in 1970 already M.Frankenheizer established that «…objective physiological manifestations of this or that mental condition depend only upon their subjective self-appraisal and have nonlinear rather than direct cause-effect relations» [13]. Also, it has been noted "…that psychological (subjective) indices in many cases are the more sensitive indicators of a human physical and mental conditions than physiological (objective) ones, which is to be considered in studying of developmental mechanisms and stabilization of SEB [12].

The term «burnout» was suggested by Freudenberger H. [14] for a description of psychological syndrome seen in the professional specialists who were working in dyad «person-to-person» (doctors, psychologists, teachers, etc.). The formed SEB comprises some symptoms and is considered to be a three-dimensional construction that is described as «exhaustion, depersonalization, and decrease of personal professional self-appraisal» [15]. «Burnout» as a process is interpreted by the author like an independent dynamically progressing event, like a human active crescendo protective mental response to long-term sufferings of interpersonal communication difficulties. However, the other investigators think that "… negative personal alteration is not "protection" but impairment of protective systems of human psyche, weakening of adaptive body possibilities underlying this impairment' [10]. SEB manifestation of full value as the formed phenomenon of mental personal deformity is the natural response to current uncontrolled professional stress of interpersonal relations. So, this response has all signs of self-development. All by itself SEB primarily becomes marked at the mental level individual or personal organization, and its mechanism formation has no direct cause-effect relations with the mechanisms of gradual stress progression as psychosomatic episode.

«Burnout» people are considered to decrease their occupational motivation; they become indifferent to their occupational duties; cynical attitude to the patients and co-workers arises; labor motivation, quality and productivity reduce. Nowadays, SEB as the independent nosologic unit is included into the International Disease Classification (IDC-10, Z-27).

Psychology suggests one-factor SEB model; two-factor SEB model; three-factor SEB model and four-factor SEB model [16,17,15,18]. All these models differ in extent of prominence and manifestation of sings of gradual progression of the specialists' physical, emotional and cognitive exhaustion in realization of their occupational intrapersonal relations. While studying the progressive character of SEB, causes of temporary or irreversible distortions of personal features of the tested as well as the possible physiologic functions impairment, the fact to be especially taken into consideration is as follows: the occupational duties of the specialist-helpers demand their ability to penetrate into their clients' or patients' «perceptible world». It is manifested in the brightest and demonstrative form at all stages of medical activity, especially in those who is engaged in urgent medicine (emergency medical workers), when a doctor communicating with a patient takes upon himself or herself the active part of emotional relief. As a rule, during the process of «one-sided professional partnership» within dyad «person-to-person», attention is paid to the patient's general state while the *doctor's* state is kept in the background as well as the possible consequences for doctor's health after his own long-term professional activity. In this connexion, the special analysis exactly of a doctor's feelings and the doctor's mental health deserves a particular attention in this link.

Due to specific circumstances (working overload, being 24-hours in charge, the highest level of responsibility for a patient's condition, etc.), and also the possible "emotional echo" from a patient and surrounding him people, the emergency doctors become exposed to the most powerful and involuntary psycho-destructive influence from a patient's and his surroundings' part, over-exercise is among them[11,12]. So a doctor should remain «opaque» for the patients, and «like a mirror should reflect only what a patient experiences» [12]. The doctor himself should reveal not only professional skills and abilities but also he should create the «assisting» relations while communicating with a patient. The doctor should outwardly express his sympathy and sincere compassion toward a patient e.g., at the expense of congenital ability for empathy.

«Empathy» as genetically inherited ability of one person to penetrate into the inner condition of another person usually contributes to keep balance of interpersonal relations, create «emotional echo» [19] or create «informative emotional echo» [11] underlined by ability of a dominant to «exracorporal» functioning which was described by Ukhtomskiy A.A. [20]. This ability and at the same time property (ability to leak another person's pain, sympathy) may play a role of some natural protective buffer interfering with development of SEB in a specialist — helper [21]. Frustration or loss of empathy means the high degree of likelihood for a doctor at first to get into a situation of psycho-emotional dependence on a patient, and later they stimulate the protective psycho-

logical reactions formation and formation of symptoms to the totality constituting SEB.

There is a line of process models in step-by-step making SEB in the medical workers. In some of them the formed SEB model is evaluated as a result of separate mental symptom cumulation. To differentiate these models a number of authors resort to isolation of separable dynamic types and ways of broadening of the «assortment» of adaptive, personal, mental, individual typological features, and physiological protective functions in a doctor. There have been proposed formation of the 5-stage SEB model [22] and 4-stage SEB model [23] which construct and reconstruct different variants of transformation of a doctor's sincere empathy into compensatory variants of his demonstrating of personal professional interest in a patient's general state and compassion.

Boiko V.V. isolates three phases of gradual SEB progression on the background of decreasing ability to empathy: 1. «alarming tension» 2. «resistance» 3. «exhaustion» [24]. The phases are characterized by their own symptoms and only outwardly they coincide with the signs of developmental stages of Selier's unspecific adaptive syndrome [25]. The developmental stages of Selier «classic stress» [25] and developmental SEB stages are thought to be different in their essence and not identical within the time-frame [10]. SEB is supposed to be existential protective manifestation not only against professional stress pathogenic consequences but on the whole, against a human objective reality in labored conditions. The well-grounded point of view was spoken out about the protective psychological mechanism. The protective psychological mechanism in a form of «burnout» against stress is always turned on having the only goal *to suppress* selectively the *emotional component* — empathy, which is included into the structure of responses to the human mental load [24]. Some investigators proposed other SEB process models [22,23]. These models also showed that SEB versus other emotional impairments is formed in its own time-frame and possesses the protective character. In conclusion, it is necessary to agree with the opinion that «…up-to-date there is no single view of the structure and dynamical development of SEB as a mere mental event», and that «…consequences of SEB may manifest not only at the mental level but also in psychosomatic impairments» [21].

Therefore, it becomes evident that identifying of possible physiological correlates of SEB developmental stages in the specialist-helpers serves as the actual medico-biological mission.

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