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NEUROENDOCRINE INSIGHTS INTO BURNOUT SYNDROME

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Abstract

Debates flow in the medical and psychological field about burnout symptoms: from considering it as a distinct illness, a separate entity or correlated with physiological changes and/or job-related reaction. Seen as a form of depression, the researches are investigating the correlations between various changes in the normal human body functioning, environmental and job lever / implications. The following pages refer to the recent studies of neuroendocrine indicators involved in burnout. It is known that the endocrine system is highly interrelated with the immune and neural systems, the neuro-immuno-endocrine axis is subject to clear biphasic changes in the acute and chronic phases of a critical illness, most likely reflecting a beneficial adaptation.

Key words: burnout, neuroendocrine system, HPT axis.

Dear Editor,

Burnout syndrome is often described as a multidimensional disorder, its symptoms varying between psychiatric, psychosomatic, somatic and social disorders. Namely, chronic fatigue and continuous exhaustion, cardiovascular disturbances (tachycardia, arrhythmia, and hypertonia, and so on), occupational/ mental stressors, following many more.

A 2015 review pointed out that, originally, there was oxidative stress at cellular level and repeatedly being exposed to stressful situations could affect one's coping mechanisms, thus becoming pathogenic. Moreover, metabolism and immune system defenses, as well as blood pressure could suffer from exposure to stressful environments (1).

Concerning the relationship between burnout and neuroendocrine indicators (HSP-70; cortisol and ACTH), a cross-sectional study, measuring the responses of 100 soldiers, each from the avid desert and urban areas. As expected, soldiers from the avid areas scored higher scores in job burnout. Moreover, the HSP-70 serum cortisol and ACTH levels were higher in their case. Thus, there were weak correlations between both job burnout, reduced accomplishment and neuroendocrine indicators (2).

Other studies outlined the gender difference regarding dysregulation of the sympathetic and parasympathetic system and the hypothalamic pituitary adrenal (HPA) axis and the risk factor of burnout upon cardiovascular disease. Specifically, males were more susceptible to develop adverse psychological profiles regarding work-related stress than females, by experiencing cardiac sympathetic activation and hyperactivity of the HPA axis (3). Also, Dieci in 2018, using a sample of 201 young oncologists (30-40 years old), concluded that professional satisfaction and work-life balance is meaningful for both genders, thus 82% of them have not had children yet. Moreover, 39% of participants reported having knowledge of females being uncomfortable by various male attitudes, whilst only 12% recall women causing disruptive actions towards men (4).

A questionable study focused on the neuroendocrine system, concluded that burnout symptoms were not related to hypothalamic-pituitary-thyroid (HPT) axis; the study was made on a sample of 94 female Chinese nurses (5). For this reason, there were argues concerning that the study did not have a representative sample and it is improbable to have considered various burnout symptoms (6). Moreover, the same researchers point out that the result of the previous study might be affected by a severe form of "healthy worker effect" (7).

With reference to occupational and mental stressors, de Oliveira showed that salivary cortisol levels in 13 teachers are associated with variations in salivary nitrite levels. More precisely, cardiovascular health and occupational stress could be determined using NO method, although larger samples are needed to confirm this hypothesis (8).

Furthermore, somatic symptoms determined by acute psychosocial stress were studied. Therefore, high-stressed men were confronted with abdominal

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dysfunction and gut permeability within one hour after stress induction (9). Again, this study highlights the age dependent symptomatology.

Focusing the associations between both variables of the autonomic nervous system and hypothalamic-pituitary-adrenal axis and burnout syndrome a recent study sampled 105 participants, divided the sample in 2 groups, based on high Emotional-Exhaustion (EE) (further being divided into "coherent burnout" and "illusory burnout" subgroups) and low EE. Results showed that higher EE group had higher values in EE and cynicism (CY), compared to the low EE group. Moreover, the "illusory burnout" subgroup had higher score on depression, whereas the "coherent burnout" subgroup scored higher on cortisol level, thus having hypercortisolism and similarities to atypical depression (10). These results are supported by Bianchi comments, regarding burnout-depression relationship (7).

As a conclusion, HPA axis dysregulation in burnout relationship is not confirmed, thus HPA axis hormone measurements should not be considered as a burnout valid diagnosis in clinical practice. Studies on other hormones, including thyroid hormones, prolactin and growth hormone in burnout patients are inconclusive (11).

Conflict of interest

The author declares no conflict of interest.

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