

UNDERSTANDING THE COMORBIDITY OF STRESS, DEPRESSIVE AND SOMATIC DISORDERS

ONE NOVEL MULTI-DIMENSIONAL MODEL

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The relationship between stress (threat), mental, and physical disorders has been well documented. The physiological responses to the stress, the activation of the autonomic nervous system (ANS) with its “fight-or-flight” response (F/F response) and the activation of hypothalamic-pituitary-adrenal (HPA) and thyroid axis (HPT) (Fig.1) are the traditional concept of the stress-individual interaction. The F/F response one has been especially seen as existential for survival of the individual faced with one threatening event.

THE PROBLEM OF THE TRADITIONAL CONCEPT

The F/F response, activated HPA and HPT Axis change their function toward the body during a time - from protector to destroyer - starting to ruin the body in form of physical disorders, shortening the lifespan of the individual exposed to the stress.

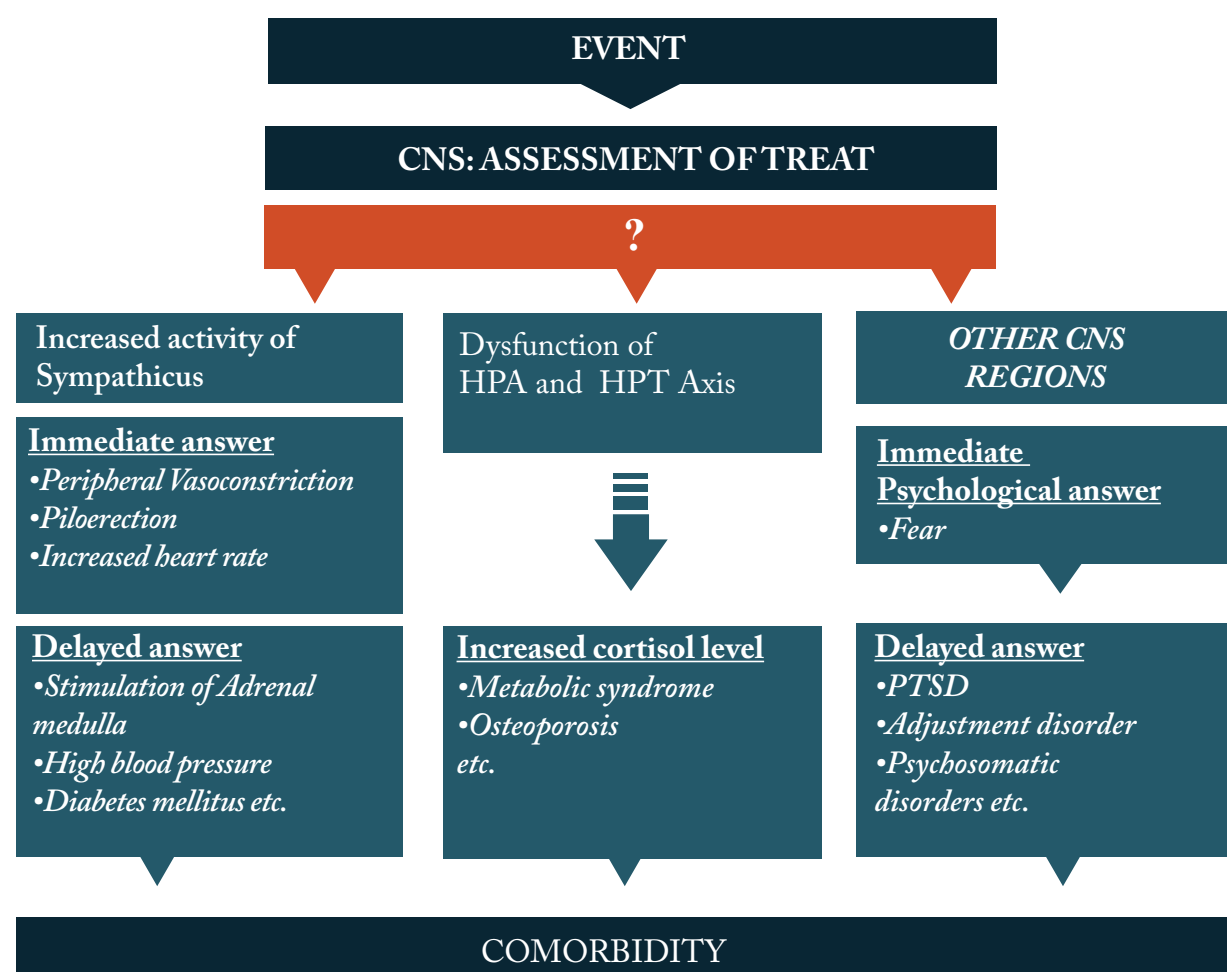


Fig. 1: Traditional concept of the stress – individual interaction

Looking at the traditional model (Fig.1), the following questions arise:

1. What happens in the timespan between the moment of assessment of a threat and the manifestation of the mentioned symptoms?
2. Is there another explanatory model which reasonably clarifies the double nature of the ANS, HPA and HPT Axis.

The way to the answers starts from the symptoms observed in stress: tensed muscles and the F/F response, and goes backwards.

MODEL ASSUMPTION

The same symptoms observed in stress are also observed in the cold shock. (Fig 2) From the point of view of thermoregulation, the function of these symptoms is an achievement of a positive heat balance and regain of the body temperature set-point.



Fig 2. Equality between cold shock and stress (threat).

FACTUM

There is no change of physiological functioning level, without priory disturbed homeostasis, and priory change of the body temperature.

The equality of the observed symptoms in stress and in cold shock must have the same function: increasing the dropped body temperature. It means that the stress caused a real loss of body heat and brought the body in **stress induced hypothermia**. The reason for that lies in the act of assessment of the event as threat.

All the above mentioned symptoms have common genesis: one primary central GABAergic hypofunction (**stress induced GABAergic hypofunction**). Under GABAergic hypofunction, the serotonin (5-HT), norepinephrine (NE) and dopamine (DA), all controlled by GABA, manifest one **secondary hyperfunction**. (Fig 3)

CONCLUSION

The changed physiological function level observed by a stress (threat) is in duty of keeping the set point of the body temperature, exploiting the energy reserves of the individual until the set point is reached.

THE NEW IN THIS MODEL

1. Assessment of one event as a threat caused one real, **stress induced hypothermia**.
2. The stress induced hypothermia leads to primary **central GABAergic hypofunction and secondary hyperfunction** of 5-HT, NA and DA. Physiological and behavioral responses observed in stress (threat) are just adaptive reactions to one real loss of body temperature.

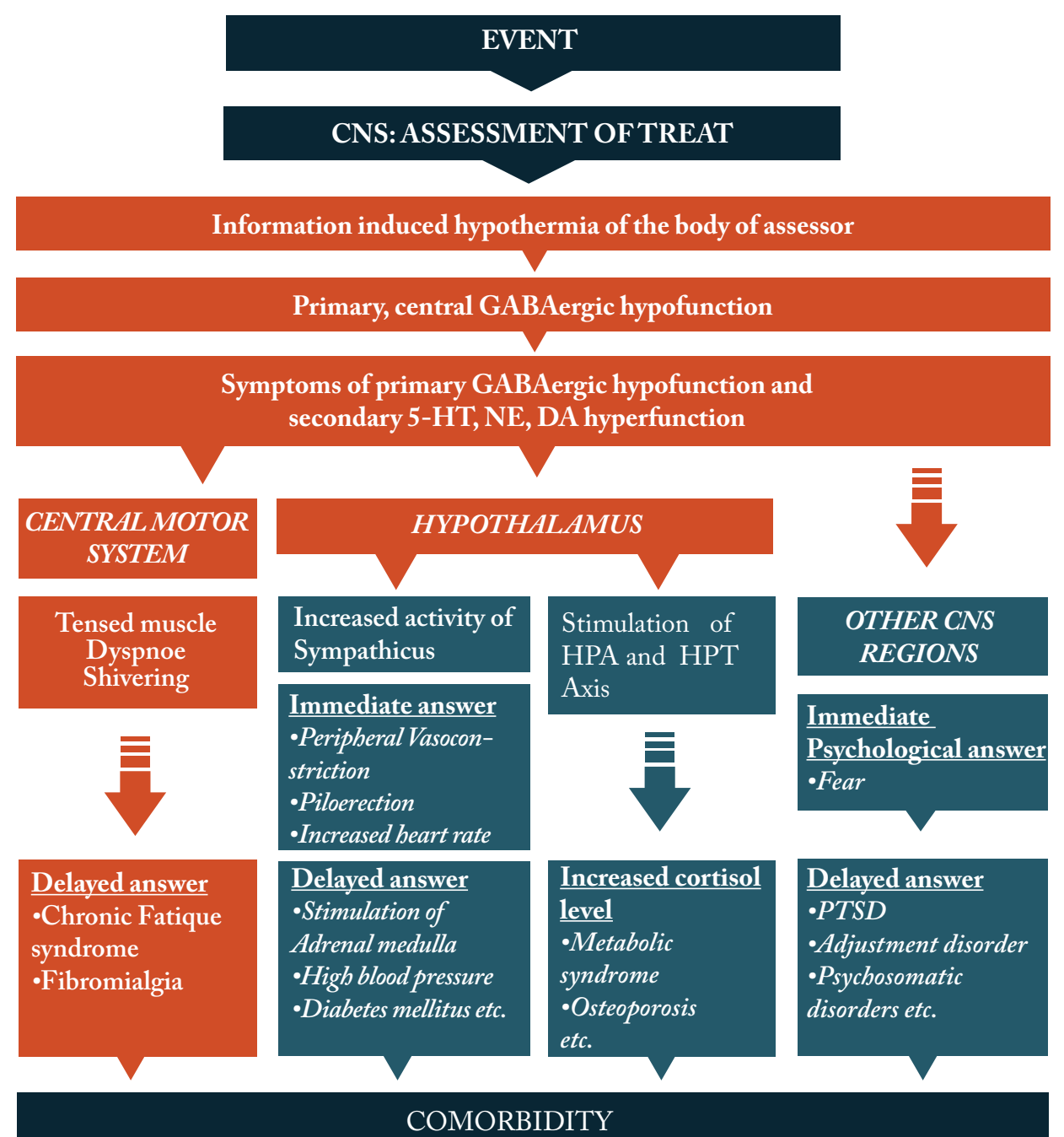


Fig. 3. Multi-disciplinary model of event-individual interaction (A. Dimova)

Missing Link Traditional Concept

3. Comorbidity: the **psychological/psychiatric responses are just “a part of the game”**, a collateral damage in the trial of the body to regain the set point of the body temperature, which was decreased with assessment of one event as a threat.

IMPACT OF THE NEW MODEL

1. *In the prevention:* the threatening events (stress factors) have to be very early recognized as such. Keeping in mind that stress induced hypothermia will influence the psycho-physical condition on a long run, supportive actions should be provided as early as possible.
2. *In the general treatment of comorbid disorders:*
 - a) The psychotherapeutic treatment has to be the first choice of treatment, focused on a positive reframing of the threatening events for a person, resource winning oriented.
 - b) The pharmacological treatment has to be focused on regaining the disturbed balance GABA/5-HT, NA, which play the main role in the etiology of the stress induced mental and physical disorders.
3. *In the research:* the observed psycho-physiological reactions on assessed threat are one more proof about the influence of the consciousness over quantum mechanical phenomena.

