

controls. IHC treatment decreased NE level and increased MAO-A activity in PTSD rats. Moreover in PTSD after IHC treatment anxiety index significantly reduced.

**Conclusion:** The present results demonstrate that IHC treatment of PTSD is effective in respect to anxiety symptom and NE level alteration in prefrontal cortex. MAO-A can be recognize as a target for IHC treatment with aim the disappearance of PTSD induced alters NE level in the cerebral cortex.

**Acknowledgements:** This work was supported by RSF grant 17-15-013418.

<https://doi.org/10.1016/j.psyneuen.2018.12.114>

### The relationship between the level of monoamine neurotransmitters and the activity of monoamine oxidase A in the dynamics of PTSD

Vadim Tseylikman<sup>1,\*</sup>, Maxim Lapshin<sup>1</sup>, Maria Komelkova<sup>1</sup>, Olga Tseylikman<sup>1</sup>, Eugenia Manukhina<sup>1,2,3</sup>, H.Fred Downey<sup>3</sup>

<sup>1</sup> South Ural State University, Russian Federation

<sup>2</sup> Institute of General Pathology and Pathophysiology, Moscow, Russian Federation

<sup>3</sup> University of North Texas, Fort Worth, USA

**Background:** Earlier it has been shown that PTSD model based on the prolonged rodents' exposure to the predator cue induced adrenal hypotrophy (Tseylikman et al., 2017). Here we study the dynamic changes of behavioral activity, the content of norepinephrine and dopamine, monoamine oxidase A (MAO-A) in this PTSD model.

**Methods:** Adult male Wistar rats were exposed to cat urine, once a day for ten minutes, during ten consecutive days. 3th, 7th, 10 th days after the last exposure, animals' weight, blood pressure, and anxious behavior were measured. Behavioral changes were investigated in an X-maze labyrinth. The animals were then euthanized and catecholamine's and GABA levels, and MAO-A activity was determined in the brain.

**Results:** It has been shown that the development of post-stress anxiety is associated with a change in the level of neurotransmitters in the brain. The occurrence of anxiolytic disorders was preceded by the anxiolytic phase, associated with an elevated GABA level on 3th day, and on the 7th day the due to a decrease in the level of norepinephrine in the brain. And only on the 10th day there was an increase in the content of norepinephrine synchronized with an increase in anxiety.

**Conclusion:** Thus, a reliable relationship between the development of behavioral signs of PTSD and an increase in the content of norepinephrine in the brain is established.

The study was supported by the Russian Science Foundation (grant # 17-15-013418).

<https://doi.org/10.1016/j.psyneuen.2018.12.115>

### The impact of cortisol treatment on free radical oxidation in traumatized clean-up workers 30 years after chernobyl nuclear disaster

Vadim Tseylikman<sup>1,\*</sup>, Michail Davydovich<sup>2</sup>, Olga Tseylikman<sup>1</sup>, Enrico Ullmann<sup>3,4</sup>

<sup>1</sup> South Ural State University, Russian Federation

<sup>2</sup> Bashkirian State Medical University, Ufa, Russian Federation

<sup>3</sup> University Hospital Carl Gustav Carus, Technische Universität Dresden, Dresden, Germany

<sup>4</sup> Department for Child and Adolescence Psychiatry, Psychotherapy and Psychosomatics, University of Leipzig, Leipzig, Germany

**Background:** Although alterations of the limbic hypothalamic pituitary adrenal (LHPA) axis are well documented in Chernobyl clean-up workers, little is known concerning their implications to develop a post-traumatic stress disorder (PTSD). Dysfunctional free radical oxidation and their impact on PTSD remain unclear. Here we performed a pilot study focused on the impact of cortisol treatment on the lipid peroxidation levels in erythrocytes of PTSD related subjects.

**Methods:** The study was conducted among 86 Chernobyl clean-up workers. The washed Red Blood Cells in isotonic solution preparations were incubated with cortisol (37°C) to a final concentration of 10<sup>-5</sup>, 10<sup>-6</sup>, 10<sup>-7</sup> M. Red Blood Cells (RBCs) content of lipid peroxidation (UE) products were studied by an extraction spectrophotometric method.

**Results:** Post hoc analysis revealed decreased propanol 2-soluble diene conjugate levels in PTSD-related subjects with and without nuclear contact compared with the healthy control group. Exogenous cortisol treatment increases propanol 2-soluble Ketodienes and conjugated triene levels in our mental burdened groups.

**Conclusion:** Our data with cortisol-treated RBC showed the capacity of glucocorticoids for the upregulation of lipid peroxidation indicating a possible strategy to deal with trauma and stressor related disorders.

The study was supported by the Russian Science Foundation (grant # 17-15-013418).

<https://doi.org/10.1016/j.psyneuen.2018.12.116>

### BDNF Val66Met genotype moderates the impact of rumination on cortisol awakening response and subjective well-being

Elif Aysimi Duman

Bogazici University, Turkey

**Background:** Rumination is associated with adverse health outcomes, such as impairments in HPA-axis activity and lower subjective well-being (SWB). BDNF Val66Met genotype is previously associated with differences in both rumination and HPA-axis activity. The aim of this study is to investigate how BDNF genotype moderates the relationships between rumination, SWB, and cortisol awakening response (CAR).

**Methods:** Two-hundred thirty nine undergraduates (49% female;  $M_{age} = 20.49$ ,  $SD_{age} = 1.73$ ) from Bogazici University, Turkey, participated in the study. SWB and rumination were measured by Satisfaction With Life Scale and Ruminative Responses Scale, respectively. BDNF genotype was determined from salivary DNA and individuals were grouped as Val-homozygotes vs. Met-carriers. CAR was measured as the mean cortisol increase after awakening over two days.