

## The Transcutaneous Auricular Vagus Nerve Stimulation in Treatment of Depression and Anxiety Disorders in Recovery Patient with Feeding and Eating Disorders

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**Abstract :** Introduction: Feeding and Eating Disorders (FED) represent the psychiatric pathology with the highest mortality rate and one of the major disorders with the highest psychiatric and clinical comorbidity. The vagus nerve represents one of the main components of the sympathetic and parasympathetic nervous system and is involved in important neurophysiological functions. In FED, there is a spectrum of symptoms which with TaVNS (Transcutaneous Auricular Vagus Nerve Stimulation) therapy, is possible to have a therapeutic efficacy. Materials and Methods: Sample subjects are composed of 15 female subjects aged  $> 18 \pm 51$ . Admitted to a psychiatry community having been diagnosed according to DSM-5: anorexia nervosa (AN) (N= 9), bulimia nervosa (BN) (N= 5), binge eating disorder (BED) (N= 1). The protocol included 9 weeks of Ta-VNS stimulation at a frequency of 1.5-3.5 mA for 4 hours per day. The variables detected are the following: Heart Rate Variability (HRV), Hamilton Depression Rating Scale (HAMD-HDRS-17), Body Mass Index (BMI), Beck Anxiety Index (BAI). Results: Data analysis showed statistically significant differences between recording times ( $p > 0.05$ ) in HAM-D ( $t_0 = 18.28 \pm 5.31$ ;  $t_4 = 9.14 \pm 7.15$ ), in BAI ( $t_0 = 24.7 \pm 10.99$ ;  $t_4 = 13.8 \pm 7.0$ ). The reported values show how during (T0-T4) the treatment there is a decay of the degree in the depressive state, in the state of anxiety, and an improvement in the value of BMI. In particular, the BMI in the AN-BN sub-sample had a minimum gain of 5% and a maximum of 11%. The analysis of HRV did not show a clear change among subjects, thus confirming the discordance of the activity of the sympathetic and parasympathetic nervous system in FED. Conclusions: Although the sample does not possess a relevant value to determine long-term efficacy of Ta-VNS or on a larger population, this study reports how the application of neuro-stimulation in FED may become a further approach therapeutic. Indeed, substantial improvements are highlighted in the results and confirmed hypotheses proposed by the study.

**Keywords :** feeding and eating disorders, neurostimulation, anxiety disorders, depression

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