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The relationship between BDNF levels and epigenetic signal on peripheral blood of Gaucher disease type 1 patients

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Recent evidences have been pointed out the involvement of Brain-derived neurotrophic factor (BDNF) levels imbalance in Gaucher disease type 1 (GD1) physiopathology, one of the most prevalent lysosomal disorder. Although, the molecular mechanisms involved in this process remain unsolved. Our work hypothesis it that this phenomenon might be mediated by epigenetic machinery, specifically on histone acetylation status modulation. Therefore, the aim of the present study was to investigate the levels of histone H4 acetylation and BDNF in the peripheral blood of (GD1) patients (n=10) when compared with healthy controls individuals (n=11). This study was approved by the Research Ethics Committee of the Centro Universitário Metodista do IPA (n° 1.290.503/2015). All participants were fully informed in verbal and written form about the nature of experimental procedures and signed a voluntary form of informed consent. The analyzes were done using specific commercial kits, according to the manufacturer's instructions. BDNF levels were remarkably diminished in plasma from GD1 patients ($p = 0.004$) compared to the control group. Moreover, a trend on higher global histone H4 acetylation levels ($p = 0.054$) was observed in leukocytes of the control individuals compared to the GD1 group. Together, these results demonstrated the involvement of hypoacetylation status in GD1 physiopathology, which could be related to the reduced levels on BDNF observed in these individuals. Also, our data suggest histone H4 acetylation levels as novel possible GD1 biomarker. These preliminary findings may open new avenues for introducing therapies and strategies in the preventive management and treatment of these population.

Biography

Viviane Elsner has completed her PhD at the age of 28 years from Universidade Federal do Rio Grande do Sul, Brazil. Currently she has 30 years old and is professor/research in a Pos Graduate Program and guides 5 master students. She coordinates the "Interdisciplinary Group of Study on Epigenetics Applied to Health and Disease" and their academic production primarily involves the line of research related to the effects of physical exercise on the modulation of epigenetic mechanisms in healthy subjects or patients with chronic diseases". She has published 14 papers in reputed journals in the last years.

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