

# Neurology: Neurochemistry, Neuropharmacology and Neurosciences

March 25, 2022 | Webinar

## MnSOD Ala16Val polymorphism in cognitive dysfunction in patients with epilepsy: A relationship with oxidative and inflammatory markers

The objective of the study was to evaluate the neurocognitive profile and its relation with Ala16ValMnSOD polymorphism in epilepsy and if these clinical parameters are linked to oxidative stress and inflammatory markers. Patients with epilepsy (n = 31) and healthy subjects (n = 42) were recruited. A [neuropsychological](#) evaluation was performed in both groups through a battery of cognitive tests. Oxidative stress, inflammatory markers, apoptotic factors, and deoxyribonucleic acid (DNA) damage were measured in blood samples. Statistical analyses demonstrated the association of MnSOD Ala16Val polymorphism with cognitive impairment, including praxis, perception, attention, language, executive functions, long-term semantic memory, short-term visual memory, and total memory in patients with epilepsy and Valine-Valine (VV) genotype compared with the control group. Compared with the controls and patients with epilepsy, Alanine-Alanine (AA), and [Alanine-Valine](#) (AV) genotype, the patients with epilepsy and VV genotype exhibited higher levels of tumor necrosis factor alpha (TNF- $\alpha$ ), interleukin 1 $\beta$  (IL-1 $\beta$ ), interleukin 6 (IL-6), activation of caspases 1 and 3 (CASP-1 and -3), and DNA damage. Our findings also showed higher carbonyl protein and thiobarbituric acid reactive substances (TBARS) levels as well as an increased superoxide dismutase (SOD) and acetylcholinesterase (AChE) activities in patients with epilepsy and VV genotype.

This study supports the evidence of a distinct neuropsychological profile in patients with epilepsy, especially those with the VV genotype. Furthermore, our results suggest that oxidative and inflammatory pathways may be associated with genetic polymorphism and cognitive dysfunction in patients with epilepsy.

### Biography:

Completed doctoral studies at [Federal University](#) of Santa Maria - Brazil. Neurological disorders, biochemistry, neurology and pharmacology are the fields of research. Some articles published at respected journals such as *Gene*, *Biomed Research International*, *Progress in Neuro-psychopharmacology & Biological Psychiatry*. Oral presentation at the 1st Congress of The European Academy of Neurology, Berlin -DE. Speaker at Geriatrics Congress and Alzheimer (2021). Guest speaker at 27th International Conference on Neurology: Neurochemistry, [Neuropharmacology and Neurosciences](#) (Canada, march 2022).



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