

Title: Multiplex analysis of cytokines after photobiomodulation in rats submitted to neonatal anoxia

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Neonatal anoxia is one of the major causes of death or lifelong neurobehavioral and cognitive impairment. The brain damage is a process with multiple contributing mechanisms and pathways resulting in both early and delayed injury, but we can highlight the excitotoxicity, oxidative stress and, mostly, the neuroinflammation, as underlying products of neonatal anoxia. Photobiomodulation is a poorly explored therapeutic strategy in central nervous system injuries, and the present model of rodent neonatal anoxia seems ideal for investigating the effects of photomodulation therapy on neuroinflammation triggered by oxygen deprivation at birth. The aim of this study was to investigate the effects of photobiomodulation on the cytokines levels 24 hours after neonatal anoxia. Alterations resulting from photomodulation therapy were observed in the levels of cytokines IL-1ß, IL-4 and IL-17 in the hippocampus of rats submitted to neonatal anoxia. The Multiplex analysis showed changes in levels of certain cytokines that were not expected for the model in question, such as the reduction of IL-1ß in rats undergoing neonatal anoxia and the unchanging of TNF-α. Curiously, a decrease in IL-17 was observed in anoxia and photobiomodulation groups. It is not clear in the literature the peak of cytokines production after an oxygen deprivation event, and we suggest that the microglial response might be occurred previously. Aditional experiments using different timepoints will be conducted to better explore the potential neuroprotective effects of photobiomodulation after neonatal anoxia.

Biography

Silvia Honda Takada has completed his PhD in 2013 from University of Sao Paulo and postdoctoral studies from Universidade Federal do ABC. She is a recently hired Professor at Universidade Federal do ABC. She developed and validated a rodent model of neonatal anoxia in 2011, and, since them, presents the major interest in investigating the effects of oxygen deprivation in rodents and different neuroprotective strategies to minimize oxygen deprivation sequelae. She published 18 papers in reputed journals.

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