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Low-level light emitting diode (LED) therapy suppresses inflammasome-mediated brain damage in experimental ischemic stroke

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The relationship between changes in cerebral blood flow and arterial carbon dioxide tension can be applied to assess cerebrovascular function with steady-state and transient hypercapnia, however, both responses were found to be similar. The purpose of this study is to evaluate the cerebrovascular response to carbon dioxide (CO_2) in patients with Parkinson's disease (PD) and explored the interaction between cerebral auto-regulation and ventilatory control by using nonlinear regression models. 18 PD patients underwent hyperventilation to stimulate cerebral auto-regulation based on CO_2 reactivity during the experiment. The cerebral vasomotor reactivity (CVMR) measurements were compared by performing nonlinear regression of the cerebral blood flow velocity (CBFV) versus the end-tidal partial pressure of carbon dioxide ($PETCO_2$). The cerebrovascular conductance index (CVCi) was also derived to minimize the effects of arterial blood pressure on CVMR estimation and to quantify the relationship between CVCi and $PETCO_2$. Statistical analysis of significance values between PD patients and healthy groups was evaluated. The results showed that the PD patients demonstrated a significantly lower level of CBFVmax (%) (39.24±30.17%) than did the healthy elders (78.59±28.68%) with Claassens et al.'s model. With Battisti-Charbonney et al.'s model, significance was found in CBFVmax (%) (56.39±20.42%) of PD patients in comparison with healthy elders (97.95±29.41%), and in both CBFVmax(%) and PETCO2 (1.19±1.24 mmHg) range in comparison with healthy youths (86.39±29.80%; 2.89±2.14 mmHg).

Biography

Yong-Il Shin has completed his PhD from JeonBuk National University. He is the Professor of Yangsan Pusanl National University Hospital. He has published more than 99 papers in reputed journals and his research interests are the areas of neurorehabilitation based on neuroscience after CNS diseases.

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