

Serum neuron-specific enolase and S-100 β levels as prognostic follow-up markers for oxygen administered carbon monoxide intoxication cases

Sukru Oter, Ali Osman Yildirim, Kemal Simsek and Tuncer Cayci
Gulhane Military Medical Academy, Turkey

Serum neuron-specific enolase (NSE) and S-100 β levels are considered as biochemical markers for neuronal cell injury. In this study, the initial and post-treatment levels of NSE and

S-100 β were compared in carbon monoxide (CO) poisoning patients who received normobaric or hyperbaric oxygen (HBO) therapy. Forty consecutive patients with acute CO poisoning were enrolled in this prospective, observational study. According to their clinical symptoms and observations, twenty of the patients were treated with normobaric oxygen (NBO), and the other twenty with HBO. Serum S-100 β and NSE levels were measured both at time of admission and 6 h later (post-treatment). Serum NSE and S-100 β values decreased significantly with both of the therapeutic modalities ($P=0.002$ for NSE and $P=0.018$ for S-100 β treated with HBO; $P=0.004$ for NSE and $P=0.001$ for S-100 β treated with NBO). The initial and post-treatment values of NSE and S-100 β resulted in comparable ranges among the NBO or HBO received patients ($P>0.05$ for all). A clear negative correlation was recorded between the fall of the measured biomarkers and the initial blood carboxyhemoglobin (HbCO) levels ($r=-0.324$ and $P=0.008$ between NSE and HbCO; $r=-0.398$ and $P=0.032$ among S-100 β and HbCO). In conclusion, the present results support the use of serum S-100 β and NSE levels as indicators for brain injury. Due to the significant increase of their values with oxygen therapy, they also may be useful as prognostic follow-up markers. On the other hand, the current findings reflect no difference for the efficacy of NBO or HBO therapy.

Biography

Sukru Oter, born in 1970 in Berlin (Germany), has completed his M.D. in 1993 at the Medical Faculty of Istanbul University, Istanbul and Ph.D. in 1998 at the Department of Physiology, Gulhane Military Medical Academy, Ankara, Turkey. His position changed to Assistant Professor in 2000, to Associate Professor in 2008 and to full Professor in 2012 at the same Institution where he is already employed as senior academician and researcher. He has published more than 70 articles with the roles of first, co- as well as senior author in internationally peer-reviewed journals.

physioter@gmail.com